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 Council Administration.

November 7, 2018

Graduate Degree Programs

ADD

Social and Behavioral Neuroscience – add a new intercollege dual-title program for the Ph.D. degree (College of Health and Human Development), page 10

Strategic Management and Executive Leadership – add a new graduate program offering the Master of Management online through the World Campus (Smeal College of Business), page 81

CHANGE

Astronomy and Astrophysics – change degree requirements (Eberly College of Science), page 124

Biobehavioral Health – adopt the dual-title in Social and Behavioral Neuroscience for the Ph.D. degree (College of Health and Human Development), page 134

Counselor Education – discontinue offering of the D.Ed. degree (College of Education), page 150

Human Development and Family Studies – adopt the dual-title in Social and Behavioral Neuroscience for the Ph.D. degree (College of Health and Human Development), page 163

Informatics – move the M.S. degree in Information Sciences and Technology to Informatics and adopt the dual-title in Social Data Analytics for the Ph.D. (College of Information Sciences and Technology), page 182

Psychology – adopt the dual-title in Social and Behavioral Neuroscience for the Ph.D. degree (College of the Liberal Arts), page 205
Graduate Courses

ASTRO 576
The Search for Extraterrestrial Intelligence
SEARCH FOR EXTRATERRESTRIAL INTEL (3)
This course offers a broad exploration of the Search for Extraterrestrial Intelligence (SETI) as a subfield of astrobiology. It includes a survey of background astronomy and radio engineering concepts necessary to read and analyze the professional literature on the topic, including foundational works and the state-of-the-art. It takes a broad view of SETI, including communication SETI (i.e. radio and optical searches), artifact SETI (search for non-communicative evidence of engineering), and a critical analysis of the assumptions and potential biases inherent in past and current SETI efforts. It also includes discussion of SETI's place in the popular, political, and scientific landscapes.
CROSS-LISTED COURSES: ABIOL 576
RECOMMENDED PREPARATION: Undergraduate degree in an astrobiology discipline, such as physics, astronomy, biology, or geology (and their subdisciplines), including familiarity with research methods. Because little field-specific knowledge is presumed of students, the course may also be appropriate for humanities or social science students with a strong science background (for instance students of the anthropology of space or the history of astronomy). The instructor may limit enrollment in the course to students using it to satisfy requirements of the Astronomy & Astrophysics Ph.D. program or the dual-title Astrobiology Ph.D. program.
PROPOSED START: SP2019

EDTHP 524
Comparative Education Research Using Large-Scale Data
COMP ED RESEARCH (3)
This course is designed to give students an overview of large-scale international assessment databases and to demonstrate how these databases can be utilized to investigate critical issues in education from a comparative perspective. A number of empirical studies using large-scale international assessment databases will be reviewed, and these analyses will be replicated via computer labs. Students will develop a good understanding of large-scale international assessment databases and will learn to apply an appropriate method to address a particular topic of interest. Students will also develop a wide range of research skills necessary to independently conduct comparative research, including but not limited to formulating a research question, conducting a literature review, analyzing empirical data, and interpreting results. Although the focus is mainly on datasets relevant to education and education policy research, the skills taught in the course are broadly transferable to other social sciences including sociology.
CROSS-LISTED COURSES: CIED 524
PREREQUISITES: EDPSY 505 or SOC 574
RECOMMENDED PREPARATION: EDTHP 516 or EDTHP 538 or EDTHP 553
PROPOSED START: SP2019

MFE 821
Numerical optimization for Finance
NUMERICAL OPTIMIZATION (3)
This course gives students an overview of the numerical optimization concepts and methods frequently used in financial engineering. Building upon students' knowledge of programming and calculus, this
course explores computational finance applications. Many classes of optimization problems will be explored, including linear, non-linear, integer, and dynamic programming. This course will combine theory (optimality conditions, for example) and how to apply the methods to asset allocation, risk management, option pricing, and cash flow matching. Students will also be exposed to using current software tools to solve optimization problems.

COREQUISITES: MFE 513, MFE 527, MFE 811
PROPOSED START: SP2019

**MFE 822**
Stochastic Calculus in Finance  
STOCHASTIC CALCULUS (3)  
This course is designed to give students an overview of the techniques of stochastic calculus. Building upon a student’s calculus and statistical background, the course explores how to model systems that behave randomly. Applying the concepts to financial models, students will explore both discrete and continuous time processes. Major objectives in this course include covering the concepts of arbitrage and risk-neutral pricing, discrete-time models, continuous time models, Markov processes, Brownian motion, and the Black-Scholes model. Throughout the course, students will apply the techniques learned to real world problems in areas such as stock prices, bond interest rates, and portfolio management.

PREREQUISITES: MFE 513, MFE 811  
PROPOSED START: SP2019

**NUTR 800**
Food Systems and Organization Management  
FOOD SYS ORG MGMT (3)  
This course provides an opportunity to acquire an in-depth knowledge of food systems management and develop the skills necessary to guide practice in the management and leadership of food and nutrition service operations. Students will develop the skills to apply principles of organization management to achieve operational goals and manage financial, human, material, and physical resources in the area of food service and clinical management care. Skills that are emphasized include: collaboration, critical thinking, effective communication, professional conduct, decision-making, planning, time management, and training. Management and leadership are key components of quality food and nutrition services and effective practice in the field of nutrition and dietetics.

RECOMMENDED PREPARATION: Admission to the online Integrated Studies track of the Master of Professional Studies in Nutritional Sciences or departmental approval.

PROPOSED START: SP2019

**PHS 534**
Public Health Law Research and Practice  
PUBLIC HEALTH LAW RESEARCH (3)  
Public health law research is the “scientific study of the relation of law and legal practices to population health” (Wagenaar & Burris, 2013, p.4). This course is concerned not with what is legal to include within the jurisdiction of public health law (the objective of health law), but with whether law can empirically be shown to affect the health of a population. This course is for M.P.H., Dr.P.H., Ph.D., and J.D. students who want to develop knowledge and skills in a distinct and trans-disciplinary field that combines both law and scientific methods. This course will be highly interactive and will give students an overview of the general concepts of the field of public health law research, the processes or mechanisms through which a law manages to have measurable effects on people’s health, and the various study designs for evaluating public health laws.

PROPOSED START: FA2019
PNG 577
Production and Completions Engineering
PRODUCTION & COMPLETIONS ENGR (3)
In petroleum and natural gas engineering, production and completion operations are critical components of field development operations. This course presents a high-level treatment of modern petroleum production engineering, including well deliverability from vertical and horizontal wells and diagnosis of well performance including production logging. In this course, the function of the production engineer is envisioned in the context of well design, stimulation, and artificial lift.
PROPOSED START: SP2019

RISE 597
Special Topics
SPECIAL TOPICS (1)
Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or semester.
PROPOSED START: SP2019

RSOC 590
Colloquium
COLLOQUIUM (1-3/Repeatable Max: 3)
Continuing seminars that consist of a series of individual lectures by faculty, students, or outside speakers.
PROPOSED START: SP2019

SBN 508
Methods in Social and Behavioral Neuroscience
METHODS in SBN (3/Repeatable Max: 12)
Different sections of SBN 508 will explore important topical areas in the broader domain of research design, experimental and measurement techniques, and data analytic methods that are common to Social and Behavioral Neuroscience or are newly developed, cutting edge methods in the field. Courses will include an examination of (a) the biological process being measured (e.g. what type of neural activity is and is not captured in fMRI), (b) the foundational principles of the experimental and/or measurement technique, (c) the analytical approaches pertinent to the type of data being generated, and (d) methodological issues of particular relevance to the experimental technique and/or design being used.
The intent of SBN 508 is to provide students with a strong foundation in research design, procedures, measurement, and data analytic approaches that students can carry forward and use in research projects in Social and Behavioral Neuroscience. SBN 508 will emphasize class participation and provide multiple opportunities to examine related topics in written and spoken form. Courses will also provide students with the opportunity to work with the relevant data types to provide an immersive experience in design and analysis. We anticipate that SBN 508 course sections will be continually revised and updated to reflect new and innovative experimental, measurement, and data analytical techniques that continually appear in the scientific literature.
PREREQUISITES: NEURO 520 or NEURO 521
PROPOSED START: SP2019
WFED 888
Developing Appreciative Leaders
DEVELOPING APPRECIATIVE LEAD (3)
This course provides an in-depth look of appreciative leadership. Students will learn the story of
appreciative leadership through assigned readings, discussions, and videos, as well as assignments that
allow them to analyze and practice appreciative learning. They will also have the opportunity to practice
applying class concepts to actual workplace situations and to develop their own leadership styles.
PROPOSED START: SP2019

CHANGE

OLD
C-S 551
Curriculum Design: Theory and Practice
CURR DSG THEORY/PR (3)
The analysis and use of the foundations which underlie models of curriculum design. EDLDR 551
Curriculum Design: Theory and Practice (3) This course looks at the analysis and use of foundations that
underlie models of curriculum design. The investigation into such models is designed to be a critical
review of previous and current design models that reflects the specific, preferential vantage point of
teachers as leaders and significant participants in this form of curriculum work.
CROSS-LISTED COURSES: EDLDR 551
PREREQUISITES: CI 550

NEW
C-S 551
Curriculum Design: Theory and Practice
CURRICULUM DESIGN THORY PRACT (3/Repeatable Max: 6)
Course participants explore the fundamentals of curriculum; that is, curriculum cultures, traditions,
perspectives, theories, or models that have significantly affected the field of curriculum design.
Participants also learn about historical and contemporary issues in the development of national, state,
and local academic standards, and how these issues have shaped the design of particular curriculum
programs. Participants engage in curricular analysis of a content-specific program through examination
of “what is behind the curriculum” (purpose, goal, perspectives, assumptions), “what is in the
curriculum” (the nature of the content, basis for its selection, content and media structures), and “what
are the experiences with the curriculum” (how curriculum may be taught, what methods may be used,
how the program success may be judged, the “frame-factors”) in order to outline the strengths and
weaknesses of the program, and how it can be adapted to maximize its benefits and minimize its
limitations for a specific institutional or educational context.
CROSS-LISTED COURSES: EDLDR 551
PREREQUISITES: None

OLD
HIST 572
Race and Empire in the Americas, Caribbean & Pacific
RACE AND EMPIRE (3)
An overview of the US as an empire in Latin America, the Caribbean and Pacific in the modern era. HIST
572 Race and Empire in the Americas, Caribbean & Pacific (3) This course exposes students to history
and historiography of the US empire in the Caribbean and the Pacific in the nineteenth and twentieth
centuries. It examines imperial transitions including the US emergence as an empire in the mid-nineteenth-century in the face of Spanish contraction and British expansion. In addition, the seminar will examine the practices of empire in the colonies from the perspectives of colonial peoples. It privileges the lens of Caribbean and Pacific peoples through the historical literature that examines the intentions and limits of US colonial practices. It covers how colonial responses to US imperialism were varied, ranging from radical nationalism, colonial autonomism, and annexation. It frames the expansion of US empire within a broader conversation about racial ideologies and practices. The course provides a broad exploration of the history of colonialism, imperialism, and nationalism in the Caribbean and the Pacific. In particular, it investigates the emergence of the US as an empire in the regions. Modern US empire was efficient and malleable. It adjusted colonial policies (legislation) according to the particular value of each colony. The course specifically examines the emergence and practices of US empire from the perspective of the colonies. Therefore, it focuses on the historiography that examines the limitations of empire and the negotiations of colonial peoples from Caribbean and Pacific histories. In particular, the course investigates US empire and colonial engagement through these major topics: imperial transitions; police, prisons, and law enforcement; education; race and imperial identities; imperial medicine and public health; polity, law, and constitution; U.S. military; and environmental management. Students will recognize, identify, and apply the theories of imperialism and nation-building to Caribbean and Pacific examples. More broadly these theories will engage comparatively with other European imperial histories. This course fulfills the requirements of a topical seminar for the Latin American history and Nineteenth-Century US history programs of study.

NEW

HIST 572
Race and Nation in Modern Latin America
RACE AND NATION IN LATIN AMER (3)
From initial colonial contact, Latin America represents a site of violent conquest by European colonizers over indigenous populations and exploitation of both African and indigenous labor; white control over black and brown bodies was at the very core of colonial economic success or failure. In turn, racial hierarchy and exploitation define both colonial and modern Latin American history. Our focus is not the overall study of race and slavery throughout Latin American history. Instead we will examine the role of race in Latin American nation-building following independence through the age of twentieth century nationalism. As the ideas of scientific racism swept Europe and the United States in the nineteenth century, the United States established economic, and at times military, dominance over much of Latin America from the neo-colonial period of the late nineteenth and early twentieth century. Increasingly, as cultural and economic ties were broken with the Iberian empires—even in the case of Spain’s last American colonies, Cuba and Puerto Rico—Latin American elite sought modernity through trade with and cultural borrowing from the United States and Europe. In response to the scientific racist ideology that in the US led to segregation, Jim Crow, convict lease systems, lynching, and widespread disenfranchisement, Latin American elite consciously engaged these racist ideas as they granted or restricted non-white populations access to their rights as citizens. Nineteenth century luminaries such as Cuban revolutionary José Martí, Argentine journalist and politician Domingo Faustino Sarmiento, and even Venezuelan military and political leader Simón Bolívar had introduced radical ideas on race and citizenship. In the first half of the twentieth century Latin American intellectuals famously built on those ideas by embracing, renegotiating, and/or rejecting North American racist ideologies—often all within the same work—as they optimistically and proudly recognized and rehabilitated the place of the nonwhite, indigenous, mestizo, and mulatto populations into their national narratives.

We will focus on three of the best known of these authors (Mexican Jose Vasconcelos, Cuban Fernando Ortiz, and Brazilian Gilberto Freyre) as well as scholarship that will help us contextualize their works, and
allow us to better understand the broader theme of race in modern Latin America. The object here is to consider how the subject of race—in large part defined by the role of Afro-Latin Americans, the indigenous, mestizo, and mulatto—is situated in relation to broader considerations of nation, power, violence, and identity. The goal of the course is to lay the groundwork for an interdisciplinary understanding of modern Latin America and the modern black Atlantic: To consider the consequences of colonization, slavery, and the slave trade, both historically and contemporarily, on modern intellectual formations and institutions.

OLD
HIST 580
Pre-modern China
PRE-MOD CHINA (3)
This course provides students with an overview of the literature and themes in pre-modern Chinese history. HIST 580 Pre-modern China (3) This course is part of the curriculum for graduate students seeking a reading and research emphasis in Chinese history. The course offers a foundation in premodern China, which covers the period from the unification of China under the Qin dynasty through the rise of the Qing dynasty in 1644. Few societies in the world can match China’s two thousand yearlong history; however, few pause to consider the structural elements that led to such political, religious and cultural continuity. Students will consider writings on the imperial state and its various apparatuses, as a means to better understand the genesis and nature of empires and imperialist methods of rule in China. By pursuing the overarching roles of the scholar-elite and examination system, students will work to recognize and investigate the central forces embedded within Chinese society and culture. As part of this process, the course will explore the ideological movements and practices associated with Confucianism, Daoism, and Buddhism and learn to demonstrate the ways in which these movements helped create a syncretic cultural sphere of action. In this way, students will emerge with the tools to identify Chinese societal norms and be able to apply these tools in order to form a more gendered, ethnic, religious and intellectual interpretation of China’s past. The course is equally interested in China’s role in a global context. The overarching question is how the Silk Road and China’s maritime networks helped embed China in a global network of thought, commerce and exchange. Central to this analysis is how such contact with overland and maritime cultures deeply affected mainstream Chinese society. By tracing such interactions, students will be encouraged to recognize, identify, and apply the roles of frontier and borderlands in the creation and reification of Chinese identity and culture. Through this multifaceted approach to Chinese history, students will come to recognize the strategic role of China within the pan-Eurasian sphere of interactions while also achieve a better understanding of the diverse characteristics of Chinese peoples, societies, and institutions in history.

NEW
HIST 580
EARLY MOD ASIA (3)
APPL DEMOG IN PRACTICE (3)
This course offers a foundation in early modern Asia from roughly the fifteenth to mid-nineteenth centuries. Students will examine the constitution of centralized and bureaucratic empires, ideological movements, and practices associated with Confucianism, Daoism, Buddhism, Islam, and Hindu thought, and the formation of syncretic socio-cultural spheres in different parts of Asia. Through an exploration of key political, cultural, and intellectual developments in Asia, students will assess Asia’s place in the global network of thought, commerce, and exchange. Central to this analysis is how such contact with overland and maritime cultures deeply affected mainstream Asian societies. By tracing such interactions, students will be encouraged to recognize, identify, and apply the roles of frontier and borderlands in the
creation and reification of identity and culture in different parts of Asia. Through this multifaceted approach to Asian history, students will come to recognize the strategic role of Asia within the pan-Eurasian sphere of interactions while also achieve a better understanding of the diverse characteristics of Asian peoples, societies, and institutions in history.

OLD
IE 525
Convex Optimization
CONVEX OPTIMIZATION (3)
Recognizing and solving convex optimization problems that arise in real life applications. This course is designed to provide students with necessary skills to recognize or build convex optimization problems coming from diverse application areas and to solve them efficiently. It consists of five parts: 1) convex sets, 2) convex functions, 3) convex optimization, 4) algorithms and 5) real life applications. In the first part, important examples of convex sets will be given and the operations that preserve convexity of sets will be discussed. The second part will focus on convex functions, their basic properties, and the operations that preserve convexity of functions. In the third part, which is built on the first two parts, convex optimization problems will be formally introduced along with important examples ranging from linear and quadratic to semi-definite programming; second, Lagrange duality and optimality conditions will be covered. The fourth part will focus on the algorithms to solve convex problems and on their computational complexity. In the fifth part, various applications will be covered through paper discussions. Assignments will be used to reinforce learning and supplement extra information for each section. A final course project will allow students to integrate all the first four course sections to solve a practical problem.
PREREQUISITES: IE 505

NEW
IE 585
Statistical Analysis for Managerial Decision Making
CONVEX OPTIMIZATION (3)
This course is designed to provide students with necessary skills to recognize or build convex optimization problems coming from diverse application areas and to solve them efficiently. It consists of five parts: 1) convex sets, 2) convex functions, 3) convex optimization, 4) algorithms and 5) real life applications. In the first part, important examples of convex sets will be given and the operations that preserve convexity of sets will be discussed. The second part will focus on convex functions, their basic properties, and the operations that preserve convexity of functions. In the third part, which is built on the first two parts, convex optimization problems will be formally introduced along with important examples ranging from linear and quadratic to semi-definite programming; second, Lagrange duality and optimality conditions will be covered. The fourth part will focus on the algorithms to solve convex problems and on their computational complexity. In the fifth part, various applications will be covered.
CROSS-LISTED COURSES: EE 585
PREREQUISITES: IE 505

OLD
INSC 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. This course will employ several methods and measures from the area of social network analysis to study the inter-relatedness of cyber-social and cyber-technical aspects of an
organization or society as a whole to detect and capture the dynamic patterns of group membership and structure. This type of analysis can be useful in uncovering potential threats and attacks, and predicting criminal behavior and evolution of criminal networks.

PREREQUISITES: EME 500

NEW

INSC 846

Network and Predictive Analytics for Socio-Technical Systems

NETWORK & PREDICTIVE ANALYTICS (3)

The objective of this course is to provide a foundation in the principles of network and predictive analytics along with hands-on experience with statistical analysis software for studying the interrelatedness of cyber-social and cyber-technical aspects of our society as a whole that have transformed physical communities into virtual communities. Fundamental principles of network and predictive analytics, the importance of studying network structures, and how network structures can facilitate communication, coordination and cooperation will be discussed. Statistical analysis software will be used for analyzing the structure of an organization or a society as whole to detect and capture the dynamic patterns of group membership and structure, and predict threats, attacks, criminal behavior and evolution of criminal networks.

CROSS-LISTED COURSES: DAAN 846
# 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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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.

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<td>Department or Instructional Area:</td>
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| New Graduate Program, Option, or Minor: | Add  
|---------------------------------------|  
| Designation of new graduate program: | Dual-title PhD program in Social and Behavioral Neuroscience  
| 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: |  
| 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  

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<th>Printed name</th>
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<td>Lisa Gratzke-K Yap</td>
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Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:

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<th>Printed name</th>
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<tr>
<td>B. W. Moore</td>
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Approved by College/School Dean/Chancellor (or Designee):

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<tr>
<td>Kathryn Drager</td>
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Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb  
Printed name: [Signature]  
Date: 11/6/2018

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

On Behalf of C. Andrew Cole  
Printed name: [Signature]  
Date: 11/6/2018

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken  
Printed name: [Signature]  
Date: 11/6/2018
1. Justification for Establishing the Program

The aim of this proposal is to create a new pathway at Penn State for high quality graduate training in neuroscience in conjunction with in-depth training in a social and behavioral science discipline, specifically by establishing a dual-title Ph.D. program in Social and Behavioral Neuroscience. Initial departmental partners include Biobehavioral Health, Human Development and Family Studies, and Psychology. Other departments are expected to join over time. The proposed dual-title program will: provide a unique graduate training option in neuroscience that will enrich the Penn State neuroscience community while addressing graduate student training needs that are currently unmet; enhance graduate recruitment, training and student placement in the participating departments; strengthen interdisciplinary collaboration; and leverage the considerable investment that has been made in social and behavioral neuroscience at University Park in the last dozen or so years.

Neuroscience is a broad descriptive term encompassing all research associated with brain function as relevant across a wide range of scientific disciplines. Neuroscience research spans molecular, cellular, and systems levels of analysis as well as in vivo and in vitro domains. Beneath this broad umbrella, the sub-domain of social and behavioral neuroscience emphasizes the understanding of the connection between brain and behavior and social processes. Within the context of rapidly evolving tools for the study of brain function in humans and a growing appreciation for interdisciplinary science, neuroscience has expanded from being a primarily biological science to being fully integrated across a spectrum of social science disciplines including psychology, human development, communication, social and health policy, political science, and economics. This expansion in the reach of neuroscience across disciplines is evident on the University Park campus, as partially documented in Appendix A and in the subsequent listing of dual-title faculty. These faculty have been hired in multiple departments and colleges, sometimes with co-funding by the Social Science Research Institute (SSRI) or the Huck Institute of the Life Sciences. The initial set of units affiliating with the proposed dual-title are well represented in this expansion of faculty with expertise in social and behavioral neuroscience. For example, 16 faculty members with expertise in social and behavioral neuroscience have been hired in eight different departments with co-funding by SSRI. Of these 16, 11 are located in the three departments proposing to affiliate with the dual-title program. Please note that the list of faculty in Appendix A would be considerably longer if it showed faculty members who are involved in neuroscience and social and behavioral science but are in other departments, including departments that may affiliate with the dual-title program later.

The University’s objective of enhancing and expanding neuroscience research at University Park has been very successful from the perspective of new faculty hires as well as supporting the expansion of research done by existing faculty. However, this growth has intensified the challenge of identifying the most appropriate way to expand related graduate training. The current proposal responds to that challenge, in a way that both reflects and capitalizes on the expansion of neuroscience at Penn State, while also ensuring that Penn State remains competitive for the best graduate students nationwide and for federally funded training grant programs and federally funded centers and program projects.
To this end, we have examined models of educational programs across dozens of peer institutions to determine how best to approach neuroscience training at Penn State. Our findings, outlined below, support the general conclusion that, as an umbrella term, “neuroscience” encompasses such a wide range of affiliated disciplines that a single training program is not sufficient to train the array of new scientists to utilize neuroscience to better the human condition. Thus, we propose a dual-title Ph.D program in Social and Behavioral Neuroscience. We believe this will best serve to broaden and diversify Penn State’s training options in neuroscience and enable Penn State and participating units to be competitive on the national landscape of graduate education. Specifically, we argue below that “Neuroscience” and “Social and Behavioral Neuroscience” represent sufficiently distinctive disciplinary constructs, such that the development of a dual-title program is complementary rather than redundant with the existing Intercollege Graduate Degree Program (IGDP) in Neuroscience. We also contend that while the structure of the existing IGDP in Neuroscience serves some graduate students and faculty members well, it is not well suited for others. The proposed dual-title in Social and Behavioral Neuroscience is thus intended to offer a beneficial expansion of the graduate training in the broad and diverse field of neuroscience, not to create a program that will be competitive with the current IGDP.

1a. Graduate Training Options for Prospective Students

Searching online for “neuroscience Ph.D.” returns many paid links by specific universities. However, prospective students could also link to websites designed to compile disparate information, such as Gradschools.com. Listed in Appendix B are the vast array of specific program names that would be presented to a prospective student interested in graduate training in neuroscience. As is clearly illustrated, there are more than 40 different degree titles reflecting both the range of terminology and the range of disciplines that are identified with neuroscience. This list illustrates the range of primary disciplines to which some aspect of neuroscience research is directly applicable. This list also illustrates that the specific interests of a given student could not possibly be addressed equally well by a single neuroscience program. For instance, a student studying neuroscience under the disciplinary domain of biomedical engineering or with a specific interest in cancer research would differ substantially from a student interested in the neural processes underlying psychopathology or educational processes in children. At the core, while all such students would benefit from a basic vocabulary and understanding of neuroanatomical development and function, the theoretical and practical applications would differ considerably, as might level of analysis and primary research methods.

1b. Social and Behavioral Neuroscience

For decades universities have divided the disciplinary landscape into clusters by “Schools” or “Colleges.” While variants exist, disciplines with a focus on the study of behavior have often been sorted into Liberal Arts designations, while disciplines studying cells or biomedical systems have typically gone into Colleges of Science or Schools of Medicine. However, the inherent connection between the brain and the behavior it enables has become a focus in its own right. Among the relevant technologies that enable this focus are the ability to study the functional activation of the human brain while it is still in use, and the ability to sequence the entire human genome, to name but a few. Studying the brain has proven important in the context of social
domains including interpersonal relationships, educational success, financial competence, and personal health.

Nowhere has the integration of neuroscience been more apparent than in the social and behavioral sciences and in particular within departments of psychology. A more detailed consideration of psychology and neuroscience within Big Ten peers follows.

Nationwide, almost every doctoral granting psychology program incorporates specialty areas of study in neuroscience under names including biological psychology, brain and behavior, cognitive neuroscience, affective neuroscience, behavioral neuroscience, and clinical neuroscience. Several universities, including Duke and the University of North Carolina – Chapel Hill have formally changed their departmental designation from “Psychology” to “Psychology and Neuroscience” to better attract students whose primary interest is in the neuroscience of behavior. This change attracts and accommodates students engaged in the neuroscience of behavior in ways that ongoing programs in “Neuroscience” at both schools likely do not. In addition to their Psychology and Neuroscience departments, both universities have doctoral granting programs in neuroscience that are housed in either the School of Physical Sciences and Engineering (Duke) or the Medical School (UNC Chapel Hill). In fact, UNC revised its original doctoral program from “Neurobiology” to “Neuroscience” to encapsulate a slightly broader perspective. Thus, at each of these schools neuroscience training formally exists in two distinct units, representing overlapping but distinguishable domains that can interact synergistically and without a troublesome degree of redundancy.

1c. Psychology Departments and Neuroscience in the Big Ten

For more detailed benchmarking against a recognized set of peer institutions, we examined the presence of neuroscience training within Psychology Departments in the other 13 universities of the Big Ten. By way of background, graduate programs in psychology departments are typically organized in terms of major sub-areas of psychology, such as clinical psychology, developmental psychology, and social psychology. The label for these smaller units varies across programs, with “area” or “program” being common terms. Aspects of graduate training in a psychology department are typically autonomous or semi-autonomous within areas. For example, prospective graduate students apply to a specific area, and the faculty within that area choose which applicants to admit.

To benchmark, we looked at the websites of the Big Ten psychology departments to see what areas each department had. (These websites typically provide accurate, up-to-date information because they play an important role in graduate student recruitment). For areas that involved neuroscience, we noted the area name, obtained a brief description, and where available captured that area’s curricular requirements (but not the general departmental requirements). Beyond the psychology departments, we also tried to find whether another unit at each university, such as a department or program, offered a degree in neuroscience. (Summaries for each of the 13 Big Ten universities are available on request.) We did not systematically search for neuroscience-related options in other departments in the Big Ten and other peer institutions, such as departments of Human Development, Kinesiology, Communications, and other social and behavioral science units. Such neuroscience-related options exist, however, as in (for example) the University of
Maryland’s Cognitive Motor Neuroscience graduate program, housed in their School of Public Health’s Department of Kinesiology, and Cornell University’s graduate program in their Department of Human Development, which offers an integrated degree in human development and developmental neuroscience. Thus, although the most extensive evidence of programmatic integration has been in Psychology over the last 10 years, it is also increasingly occurring across other social science disciplines, and therefore our focus is a more comprehensive dual-title to accommodate the scope of behavioral neuroscience.

Several observations emerge from the review of other Big Ten psychology departments. *All of the Big Ten psychology departments other than Penn State have one or more graduate training areas involving neuroscience.* We identified 20 programs involving neuroscience across the 13 other Big Ten psychology departments. Penn State’s Department of Psychology does not have such a separate graduate training program because of a decision years ago to integrate faculty with neuroscience expertise across departmental areas such as clinical, cognitive, developmental, and social. Psychology at Penn State also developed a departmentally-based Specialization in Cognitive and Affective Neuroscience (SCAN), which we have come to see as inadequate for students planning to address psychological questions in relation to neuroscience. Penn State Psychology is committed to the growth of neuroscience and believes, along with Human Development and Family Studies and Biobehavioral Health, that the dual-title degree program is the best graduate training option. Among the reasons are that the dual-title will (1) guarantee depth of training in both neuroscience and in a substantive area of the social and behavior sciences relevant to Psychology, Human Development and Family Studies, Biobehavioral Health and, over time, other participating departments across Penn State; (2) foster cross-unit collaborations; and (3) offer strong potential for training and program grants.

*Big Ten universities have room for more than one graduate training track involving neuroscience.* All of the 13 other Big Ten universities have some form of interdisciplinary or integrative neuroscience program outside of their psychology departments, with the seeming exception of Nebraska. Thus, the neuroscience graduate training programs in Big Ten psychology departments co-exist with a unit more akin to Penn State’s current Neuroscience program. The neuroscience training programs within psychology departments exist because they meet a need that is not adequately filled by the other program. At Penn State, we see a dual-title program as a superior way to meet that need. Examples from the Big Ten also indicate that cooperation across programs is possible, including with regard to graduate recruitment. At Maryland, for example, the Cognitive and Neural Systems (CNS) graduate area in Psychology indicates it is affiliated with the campus-wide Neuroscience and Cognitive Science (NACS) Graduate Program and, further, CNS “shares many training resources with the interdisciplinary NACS Program…. The CNS faculty train graduate students enrolled in both the Psychology Department and the NACS Graduate Program. The primary difference between the two programs is that CNS students take courses that emphasize breadth within psychology while NACS students take courses that emphasize breadth in the interdisciplinary field of neuroscience.” We believe that Penn State, like the other Big Ten universities, has both room and need for more than one formal graduate training option involving neuroscience. And we are happy to follow the example from Maryland and others and include information about the IGDP Neuroscience program on the website of the proposed dual-title program.
Big Ten universities have room for more than one graduate training track that includes the word “neuroscience” in its title – and a range of program titles exist. Of the 13 other Big Ten psychology departments, 10 had at least one graduate program area including the word neuroscience. And at the area or program level, of the 20 programs we found in Big Ten psychology departments, 13 included “neuroscience” in the area name. Across these 13 programs, Behavioral Neuroscience was the most common (n = 4), with Cognition and Cognitive Neuroscience second (n = 3), and Cognitive Neuroscience third in frequency (n = 2). Four other titles with the term neuroscience occurred once only (Behavioral and Cognitive Neuroscience, Behavioral and Systems Neuroscience, Molecular and Systems Neuroscience, and Neuroscience and Behavior). We believe the array of titles in use, and the common use of the term “neuroscience” in program titles, support the title chosen for the proposed dual-title degree program. Questions have been raised about possible confusion among prospective graduate students and others; however, the common existence of multiple programs with neuroscience in the title suggests this need not be a serious problem, especially when programs cooperate about such matters as website listings of other training options. The comparison to other Big Ten universities shows that, at the very least, Penn State will not be at a competitive disadvantage by having two programs with the term “neuroscience” (but rather, may currently be at a competitive disadvantage with only one).

Concerns regarding confusion, however, are unfounded. As suggested by the vast array of social science disciplines with strong connections to the discipline of neuroscience, not all prospective students interested in neuroscience research will start with the term “neuroscience” in their search. Many students earning undergraduate degrees in social science disciplines that incorporate strong neuroscience perspectives into the curriculum will search those types of departments, search for research studies relevant to their interests, and/or search for people, labs, or programs, recommended to them by their undergraduate research supervisors. These types of students arrive at Penn State’s website seeking specific departments and programs, but their examination of what the program has to offer will include an assessment of whether they will get graduate training in neuroscience. It has been our experience that graduate students seeking this type of training are reluctant to accept offers of admission into Penn State social science departments in favor of other universities with more clearly integrated neuroscience training. It is the loss of these exceptional students that this dual degree program is meant to retain. Because the prospective students assess that the neuroscience training available to them at Penn State currently would require (a) receiving a degree that is not from the department they were seeking to apply to, or (b) would involve taking a handful of courses housed in Biology programs that are not well tailored or integrated with their research objectives, the options at Penn State are currently less appealing to these students, relative to the other universities they are offered admission to. The ability to recruit these students into programs like HDFS, Psychology, and BBH, is an important part of fostering and supporting cutting edge research, faculty recruitment, and faculty retention in these departments.

Some Big Ten schools have training programs that appear to approximate (but certainly are not exactly the same as) a Penn State-style dual-title degree. For example, the integrative Neuroscience program at Indiana in essence serves as a hybrid, offering a Ph.D. itself and functioning as something akin to a dual-title program in conjunction with other units (to be clear, this is a double major rather than a dual-title program). The integrative Neuroscience program at
Indiana indicates that “Our program pairs well with other disciplines and the majority of our students pursue a double major for the Ph.D. degree.” A complementary statement is made by the Molecular and Systems Neuroscience (MSN) area within Indiana’s Department of Psychology and Brain Sciences: “Most students completing the MSN curriculum will finish with a double major, receiving Ph.D.'s in both Psychological and Brain Sciences [the name of Indiana’s psychology department] and Neuroscience.” This is another illustration indicating that neuroscience covers a wide enough territory to warrant more than one graduate training pathway, and that multiple programs with the term neuroscience in their titles can co-exist. As another example of something like a dual-title program, Wisconsin’s Neuroscience Training Program offers a Ph.D. in neuroscience, as well as participating in joint M.D./Ph.D., MPA/Ph.D, and J.D./Ph.D. double degrees. These examples illustrate the landscape prospective students encounter when searching for graduate training that encompasses neuroscience. Many students who seek this type of training are doing so through the social science departments (e.g. psychology, human development) that focus on the research topics of primary interest to them.

The shifting norms of integrated neuroscience perspectives in the study of behavior has led students to examine the ability of potential graduate programs to fulfill their training objectives. With so many programs tailored to this goal, Penn State is disadvantaged in appealing to these students. The proposed dual-title program can transform Penn State’s standing to one of competitive advantage in recruiting these students. It is also an efficient means of providing in-depth social and behavioral neuroscience training to students in multiple departments.

1d. A Dual-Title Solution at Penn State

The co-existence of multiple neuroscience programs in the Big Ten and at academic institutions across the nation reflects the breadth and complexity of neuroscience as a discipline. Although all students of neuroscience should share a common vocabulary and understanding of neural development and function, the application of this knowledge to different disciplines requires a deep theoretical integration of knowledge from multiple disciplines to advance the study of behavior. This integration of neuroscience and the student’s home discipline is not well served by an isolated course sequence without a substantial research requirement, as would happen if a student took a minor in neuroscience rather than the proposed dual-title program. In other words, students in units that provide training in the social and behavioral sciences may not benefit sufficiently from taking only a series of neuroscience courses in, say, biology. Coursework, for example of the kind that would merit a minor in neuroscience, would enhance student’s ability to read and understand neuroscience research in their area of study, and for some students may be a reasonable alternative. However, the in-depth study of neuroscience, within the context of relevant behavioral domains, is needed to provide the foundation that students need to be among the leading independent researchers in social and behavioral neuroscience. In addition, the integration of neuroscience and important substantive questions in the dissertation and other research is essential. Thus, the dual-title Ph.D. is an ideal solution for students who will leave Penn State as leaders in social and behavioral neuroscience, in that this training model includes a dissertation project that is squarely within the domain of social and behavioral neuroscience along with courses, in addition to foundational neuroscience courses, that convey how neuroscience informs and is integrated within the students’ own social and behavioral science discipline. In short, we argue that social and behavioral neuroscience represents a distinct
subdomain of neuroscience that deserves its own educational approach different from the study of neuroscience alone.

As noted in our review of Big Ten schools, at many institutions the integrated scientific perspective of behavioral neuroscience is accomplished through the development of a separate training area within the department of psychology. However, as more and more behavioral disciplines turn to neuroscience to advance knowledge in their fields, similar needs for integrated training extend well beyond students of psychology. As such, we propose that a dual-title program be developed to address these common needs across multiple departments with students whose research interests involve addressing key social and behavioral processes from a neuroscience perspective.

The Graduate School considers dual-title programs to be distinct from options or minors (or concentrations, emphases, or other terms employed commonly at many Universities) in that dual-title programs are a “fully integrated program of study that begins with defining a research problem that integrates both the graduate major and dual-title fields early in the program.” In this respect, a dual-title program will offer a different kind of training, and should attract different students, than the current IGDP in Neuroscience. The dual-title program will attract students who are drawn to the substantive research questions of one of the participating departments, but who seek expertise in neuroscience to address the research questions that motivate their interest. The dual-title program ensures doctoral-level breadth and depth of expertise in both the home discipline and social and behavioral neuroscience. No other graduate training option provides this assurance.

1e. Relevant Strengths at Penn State

Perhaps the most important strength for the proposed dual-title program is the breadth and depth of expertise in neuroscience, particularly in social and behavioral neuroscience, that will be brought to bear to address currently unmet training needs. This effort is responsive to the growth and integration of neuroscience into a variety of social and behavioral science disciplines. As mentioned above, this expansion is well underway at Penn State, with the hiring of faculty across the three participating units, as well as in other units, whose expertise lies squarely in the social and behavioral neurosciences. The affiliated departments are strong and will provide sound training in the home discipline. An impressive set of social and behavioral neuroscience researchers exists within these departments and elsewhere across the University Park campus, due to institutional and departmental commitment over time to recruit faculty with such expertise. Appendix A, with a list of the initial set of SBN faculty from the departments that will initially affiliate with the dual-title degree, indicates this strength.

In addition to the faculty in affiliated departments, faculty in the existing IGDP Neuroscience program are also a key strength for the proposed dual-title program. Many of the faculty members who have participated in the existing Neuroscience program will affiliate with the dual-title program. We see no reason affiliation with one program should exclude affiliation with the other.
Appendix C provides information on external funding, another strength in social and behavioral neuroscience at Penn State. Faculty in the three affiliated departments were asked to identify current grants with a significant social and behavioral neuroscience component. Appendix C lists those multi-year awards. Funding sources for these social and behavioral neuroscience grants include the National Institutes of Health and multiple of its institutes (NIA, NIAAA, NICHD, NIDA, NIDDK, NIMH), the National Science Foundation, the U.S. Department of Education, The Pennsylvania Department of Health, the Brain and Behavior Research Foundation, the John Templeton Foundation, and the Klingenstein Third Generation Foundation. We expect that the proposed dual-title degree program will increase Penn State’s competitiveness for external funding, including the possibility of training grants in the future. As Appendix C shows, the current record is already strong.

Such grants will provide extensive research experience for prospective dual-title graduate students. Appendix C does not summarize student roles, but collectively these grants provide some academic year research assistantships, considerable summer funding, and extensive opportunities for master’s theses, dissertations, presentations, and publications.

Another strength comes from Penn State’s history of successful dual-title Ph.D. programs. These include long standing and more recent dual-title Ph.D. programs in Demography, Language Science, Social Data Analytics (SODA), Clinical and Translational Sciences, Bioethics, and Women’s Studies. All three of the SBN-affiliated departments have prior experience with at least one dual-title Ph.D. program.

### 2. Objectives of the Program

The dual-title program has several interlinking educational objectives. The program is designed so that students will obtain: foundational graduate-level training in neuroscience; expertise in social and behavioral neuroscience theory, research, and methods, especially aspects of greatest relevance to their home discipline; expertise in the home discipline; and the ability to apply their expertise in neuroscience to questions of interest within the students’ home discipline.

Foundational graduate level training will derive primarily from a pair of core courses that focus on social/behavioral neuroscience spanning all levels of analysis including molecular, cellular, and systems neuroscience. Expertise in relevant social and behavioral neuroscience theory, research, and methods will be developed by a combination of elective coursework taught primarily by dual-title faculty from the various partner departments, as well as by supervised research experience, participation in a program seminar series, and topic-specific workshops and bootcamps. Expertise in the home department will be accomplished by students meeting all requirements and expectations for graduate training in that unit. To ensure students are able to apply their expertise in neuroscience to questions of interest within their home discipline, a dissertation that involves such integration is required. In addition, expectations will be communicated to students that they should routinely be involved in neuroscientific studies of social phenomena of interest. The program seminar will also be a locus for developing and demonstrating program-relevant skills, especially regarding the integration of neuroscience and substantive disciplinary questions.
2A. Student Interest and Opportunities

In terms of potential student interest, we anticipate that there will be an immediate interest from at least 1-2 students per year per affiliated department. The number will probably be larger for Psychology. The latter estimate is based on ongoing experience in Psychology with a departmentally-based Specialization in Cognitive and Affective Neuroscience (SCAN). Graduate applicants are asked whether they intend to participate in SCAN. Of the 796 applicants to Psychology in Fall 2016, 148 (or 18.6%) answered yes. However, it is expected that the dual-title pathway will lead to increases in applications and acceptances from prospective students whose strong interest in social and behavioral neuroscience is currently better met elsewhere. If the data from SCAN is predictive, there might be 4 or 5 applicants to the dual-title program annually. In any case, given the considerable range of reasons students are attracted to psychology, the level of interest in SCAN suggests that more than adequate student interest exists for the proposed program. Interest in the proposed dual-title program from faculty who advise multiple graduate students also suggests that student interest will support the proposed program. In addition, the continued existence of neuroscience-focused programs in psychology departments in the Big Ten and elsewhere likewise demonstrates student interest. (The continued co-existence of those programs with separate neuroscience programs also indicates that potential applicants are able to navigate the presence of multiple programs).

The dual-title program in social and behavioral neuroscience should enhance the employment opportunities of its graduates. Given their background in the research questions of their home departments, dual-title students should be competitive for jobs in similar departments, with their neuroscience expertise giving them an advantage relative to many applicants. Program graduates will also be well suited for jobs that explicitly seek social and behavioral neuroscience expertise.

To verify the existence of such positions, we reviewed the APA Monitor and Chronicle of Higher Education, from April through August, 2017, for job ads related to social and behavioral neuroscience. Not all copies of the Chronicle were readily available at the time of the search, so the results of this search may be an undercount.

The list of tenure track positions, along with a link to each ad, is given in Appendix D. In summary, 50 unique ads were observed for tenure track positions. In addition, there were ads for postdoctoral positions, research associates or research scientists, and a visiting assistant professor. The institutions advertising for tenure track positions that involve social and behavioral neuroscience included 9 of the other 13 Big Ten schools (Illinois, Indiana, Iowa, Michigan, Minnesota, Northwestern, Ohio State, Purdue and Rutgers). Relevant positions were also available at universities including Auburn, Baylor, Emory, Florida, Iowa State, Johns Hopkins, Kentucky, Notre Dame, Oregon, Penn, Southern Cal, Tennessee, UC Berkeley, UC Irvine, University of Washington, and Vanderbilt. Ads inviting applicants with social and behavioral neuroscience expertise came from a range of colleges and universities. For instance, positions were advertised at Arcadia University, Bard College, Bridgewater State University, Minot State, Rhodes College, Williams College, Union College, and the University of LaVerne.

Some ads targeted a subarea of or cousin to social and behavioral neuroscience (e.g., human social/affective/cultural neuroscience; cognitive & affective neuroscience; cognition, brain and
behavior; cognitive and/or behavioral neuroscience; behavioral neuroscience; human
developmental cognitive neuroscience). Others involved applications of neuroscience to a more
specialized area of research and application (e.g., visual cognitive neuroscience, aging cognitive
neuroscience, addiction studies, anxiety disorders). Yet others were for positions in an academic
unit, with the interest in neuroscience evident not in the job title but in the ad (e.g., cognitive
psychology, psychiatry). In a minority of the ads, some form of social and behavioral
neuroscience was not required, but either was preferred or was one of two or more possible
specializations being sought. The proposed dual-title program, with students trained and
credentialled in both their home department and in social and behavioral neuroscience, should
greatly enhance students’ competitiveness for such positions.

Students will be expected to leave the dual-title program with strong records in terms of
publications and presentations. A wide array of journals exist that are either open to or
concentrate on social and behavioral neuroscience. Many journals publish research spanning the
range of neuroscience, from molecular to behavioral (e.g., *Journal of Neuroscience, Nature
Neuroscience, Neuron, NeuroImage, Trends in Neurosciences*). Others include social and
behavioral neuroscience research among other articles on a particular research topic or general
substantive area (e.g., *Journal of Memory and Language, Cognitive Psychology, Biological
Psychology, Biological Psychiatry, Developmental Science*). Yet other journals focus on social
and behavioral neuroscience. See Table 1 for a partial list. The growing number of journals
focusing on social and behavioral neuroscience, along with the many other journals that routinely
publish such research, support the idea that the proposed dual-title program represents an area
worthy of a defined training track at Penn State. It also suggests the feasibility of student
publications as a reasonable program outcome.

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<th>Table 1. Select Journals Focusing on Social and Behavioral Neuroscience</th>
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<tr>
<td>Biological Psychiatry: Cognitive Neuroscience and Neuroimaging</td>
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<tr>
<td>Brain, Behavior, and Immunity</td>
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<tr>
<td>Brain and Cognition</td>
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<tr>
<td>Brain Imaging and Behavior</td>
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<tr>
<td>Cognitive Neuroscience</td>
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<tr>
<td>Cognitive, Affective, &amp; Behavioral Neuroscience</td>
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<tr>
<td>Culture and Brain</td>
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<tr>
<td>Developmental Cognitive Neuroscience</td>
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<tr>
<td>Frontiers in Human Neuroscience</td>
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<tr>
<td>Human Brain Mapping</td>
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<tr>
<td>Journal of Cognitive Neuroscience</td>
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<tr>
<td>NeuroImage: Clinical</td>
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<tr>
<td>Neuroscience &amp; Biobehavioral Reviews</td>
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<tr>
<td>Psychiatry Research: Neuroimaging</td>
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<td>Social Cognitive and Affective Neuroscience</td>
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<td>Social Neuroscience</td>
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Lastly, we conducted a partial review of current program announcements (PAs) and requests for applications (RFAs) at the National Institutes of Health (NIH). These PAs and RFAs can be found in Appendix E. They include funding opportunities for the study and treatment of Alzheimer’s Disease, understanding Alzheimer’s Disease in relation to age-related cognitive decline, the role of stress in the development of age-related health disparities and predictors of resilience, brain functioning as it relates to the development and treatment of psychiatric disorders and intellectual and developmental disabilities. This review focused primarily on funding opportunities provided by the National Institute on Aging, the National Institute of Mental Health, and the National Institute of Child Health and Human Development. Thus, it is by no means an exhaustive list, but it does emphasize the increasing integration of neuroscience into the social and behavioral sciences. This is further reflected in the NIH Blueprint for Neuroscience and the NIH Brain Initiative (https://neuroscienceblueprint.nih.gov https://www.braininitiative.nih.gov/). The opportunities for external funding for social and behavioral neuroscience research are also evident in the list of currently funded projects provided in Appendix C.

2B. Program Governance

A Social and Behavioral Neuroscience Steering Committee will be formed to guide the program, advise the program Director, and help ensure program objectives are attained. Dr. Lisa Kopp, Associate Professor of HDFS, has agreed to become the inaugural Director of the SBN program and the HDFS representative on the Steering Committee. As such, HDFS will serve as the program’s academic and administrative homes during the period of Dr. Kopp’s directorship. We propose that the SBN Director transition at least every 5 years, with the intention that the departmental home of the Director rotate between the Departments of HDFS and Psychology, and that the administrative and academic homes of the dual title program also rotate with the Director. Each of the departments affiliated with the dual-title program will be invited to name a representative to the steering committee.

3. Coursework

3a. List of Existing Core Courses

Although new courses will be established, we propose a set of core courses that already exist. Specifically, the dual-title degree will require that all students obtain this foundation through standardized coursework (1) Cellular and Molecular Neuroscience (NEURO 520), and (2) Systems Neuroscience (NEURO 521). As described in this proposal, neuroscience is a broad term encompassing the study of the nervous system, which can range from cellular to systems levels of analysis, and in vitro to in vivo contexts. The study of behavior from a neuroscience perspective is similarly broad with respect to the research techniques, contexts, and applications. However, we believe that all students engaged in neuroscience research, regardless of their sub-discipline, benefit from a core foundation in neuroanatomy.
This coursework will provide students with a comprehensive understanding of the nervous system that will enable them to understand how the research they conduct affects function at different levels of analysis and vice versa. This foundation is critical in ensuring that students have the capacity to read and critically evaluate literature across the neuroscience field to inform the research they are doing. By ensuring that students have this foundation, they will be able to integrate literature from basic experimental research in the development and interpretation of their own work. We believe this type of training, which immerses students in knowledge that spans disciplines, is what is needed to prepare students to be on the cutting edge of innovation and scientific advancement in their respective fields of study. We believe this approach has important and meaningful advantages over alternative approaches wherein neuroscience is integrated into discipline-specific coursework. Many Psychology programs integrate neuroscience coursework into existing course perspectives, but this can have the unfortunate consequence of truncating the biological foundations of neuroscience as a discipline. For instance, neuroscience training in social science disciplines is often tailored to focus only on content relative to the discipline in terms of standard research techniques (e.g. functional MRI), target population anatomy (e.g. human), and levels of analysis (e.g. systems). We argue that knowledge of neuroscience beyond these boundaries is critical to the quality of work one produces within them. In other words, a student whose career might be focused entirely on human populations will be a far more sophisticated researcher if they are capable of capitalizing on a broader foundation of research. For example, a student could incorporate what is known about cellular-level functioning in experimental animal models when they generate hypotheses, design studies, and interpret results. Students who complete an integrated program of study that includes a common foundation in neuroscience coursework, coursework that integrates neuroscience in the study of social and behavioral issues, and apprenticeship in conducting research that exemplifies this focus will have gone beyond the training typical of their home discipline, and therefore warrant acknowledgement of their training through the dual-title degree.

3b. New Courses to be Established

SBN 590 Proseminar in Social and Behavioral Neuroscience (1 credit; repeatable). Students will be required to participate and register under SBN 590 for two semesters during their first two years in the program.

SBN 505 Seminar in Social and Behavioral Neuroscience (3 credits; repeatable)

SBN 508 Methods in Social and Behavioral Neuroscience (3 credits; repeatable)

SBN 511 Translational Applications of Social and Behavioral Neuroscience (3 credits; repeatable)

SBN 505, 508, and 511 are topical courses. Initial offerings are expected to come primarily from courses that have previously been taught as a 597 course in a participating department or under a special topic or seminar number within a participating department (e.g., PSY 525 or 571). Topics and instructors for future SBN courses will be approved by the program Director or through some other process approved by the Steering Committee.
Additional SBN courses may be developed over time.

4. Complete Program Statement

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Degrees Conferred

Students electing this degree program through participating programs earn a degree with a dual-title at the Ph.D. level, i.e., in (graduate program name) and Social and Behavioral Neuroscience.

The following graduate programs offer a dual degree in Social and Behavioral Neuroscience: Ph.D. in Biobehavioral Health and Social and Behavioral Neuroscience; Ph.D in Human Development and Family Studies and Social and Behavioral Neuroscience; Ph.D. in Psychology and Social and Behavioral Neuroscience.

THE GRADUATE FACULTY (TO BE ADDED)

The Program

The Social and Behavioral Neuroscience dual-title degree program is administered by the Social and Behavioral Neuroscience Steering Committee, which is responsible for the management of the program. The committee oversees the general direction of the program, identifies faculty and courses appropriate to the program, recommends policy and procedures for the program’s operation to the Dean of the Graduate School, and is an advisory body to the program Director. The program enables students from participating graduate programs to obtain foundational graduate-level training in neuroscience as well as expertise in social and behavioral neuroscience theory, research, and methods. This dual-title training will enable rigorous research at the intersection of neuroscience and the students’ partner discipline. To pursue a dual-title degree under this program the student must apply to the Graduate School and register through one of the approved graduate programs.

Admission Requirements

Before they can apply for admission to the dual-title degree program, students must apply and be admitted to their primary graduate program and the Graduate School. Applicants who are interested in the dual-title degree program will have the opportunity to indicate this interest when applying to their primary graduate programs. In their statements of purpose for admission to their primary graduate program, applicants may also comment on how their interests in the primary graduate program are related to their interests in Social and Behavioral Neuroscience.
Students may apply for enrollment in the dual-title degree program in Social and Behavioral Neuroscience during their first year (second semester) or second year in their primary graduate program. To apply, a student must submit a letter of application, graduate and undergraduate transcripts, and a letter of recommendation from their graduate adviser. Applications will be reviewed by the Social and Behavioral Neuroscience Admissions Committee. The composition of the admissions committee will be determined by the program Steering Committee. At a minimum applicants must be in good standing in their primary graduate program and be recommended for admission by their graduate adviser. Students must be admitted into the dual-title degree program in Social and Behavioral Neuroscience prior to obtaining candidacy in their primary graduate program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the requirements of their primary graduate program in which they are primarily enrolled. In addition, they must satisfy the requirements described below, as established by the Social and Behavioral Neuroscience Steering Committee.

The minimum course work requirements for the dual-title Ph.D. degree in Social and Behavioral Neuroscience are as follows:

- Course work and other requirements of the primary program.
- NEURO 520 (3 credits)
- NEURO 521 (3 credits)
- SBN 590 (1 credit, taken twice)

- A minimum of 12 credits from the following list of courses

  - NEURO 511 (3 credits) or NEURO 512 (4 credits)
  - SBN 505 (3 credits, variable)
  - SBN 508 (3 credits, variable)
  - SBN 511 (3 credits, variable)
  - HDFS 502: Biological Systems in Developmental Context
  - HDFS 512: Cognitive Developmental Neuroscience of Adolescence
  - PSY 524: Biological Basis of Behavior

- The dissertation must involve the integration of neuroscience and a research question of interest within the primary graduate program.

Selection of specific courses is made by the student in consultation with an adviser from the primary graduate program and an adviser from the Social and Behavioral Neuroscience program. SBN 505, 508, and 511 can be taken more than once, if this involves sections with different topics. Primary graduate programs will determine whether a given section of the SBN courses
can fulfill their requirements. Primary graduate programs may add additional distributional requirements.

Students or faculty may request that the Social and Behavioral Neuroscience Steering Committee consider approval of other courses, including one-time approval for an experimental or variable-title course. The Steering Committee may delegate this approval process to the program Director, in consultation with academic advisers from a student’s primary graduate program and Social and Behavioral Neuroscience.

**Candidacy Committee Composition**

The candidacy committee must conform to all requirements of the primary graduate program and the Graduate Council. In accordance with Graduate Council, the candidacy committee must include at least one member of the Social and Behavioral Neuroscience Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role.

**Candidacy Exam**

The dual-title degree will be guided by the Candidacy Exam procedure of the primary graduate program and the Graduate Council. In accordance with Graduate Council, there will be a single candidacy examination, assessing candidacy for both primary graduate program and the dual-title program. Because students must first be admitted to a primary graduate 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.

**Doctoral Committee Composition**

The doctoral committee must conform to all requirements of the primary graduate program and the Graduate Council. In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a Social and Behavioral Neuroscience dual-title doctoral degree student must include at least one member of the Social and Behavioral Neuroscience 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 Social and Behavioral Neuroscience, a member of the committee representing Social and Behavioral Neuroscience must be appointed as co-chair.

**Comprehensive Exam**

The dual-title degree will be guided by the Comprehensive Exam procedure of the primary graduate program. After completion of required course work, doctoral candidates for the dual-title doctoral degree must pass a comprehensive examination. In programs where this includes evaluation of a written exam, the Social and Behavioral Neuroscience representative on the student's doctoral committee will participate in the writing and evaluation of the exam, in
accordance with procedures maintained by the primary graduate program. In programs where the comprehensive exam involves defense of a dissertation prospectus, the Social and Behavioral Neuroscience representative on the student's doctoral committee will participate in the evaluation of the prospectus, including ensuring the proposed dissertation has substantial Social and Behavioral Neuroscience content.

**Dissertation and 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 reflects their original research and education in their primary graduate discipline and in Social and Behavioral Neuroscience. The dissertation must be accepted by the doctoral committee, the heads of both graduate programs, 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.

**5. Admission Requirements**

As noted in the Program Statement, students must apply and be admitted to their primary graduate program and The Graduate School before they can apply for admission to the dual-title degree program. Applicants to the primary graduate program will have the opportunity to express their interest in the dual-title degree program. Students may apply for enrollment in the dual-title degree program in Social and Behavioral Neuroscience in the second semester of their first year or the second year in their primary graduate program. To apply, a student must submit a letter of application, graduate and undergraduate transcripts, and a letter of recommendation from their graduate adviser. Applications will be reviewed by the Social and Behavioral Neuroscience Admissions Committee. The composition of the admissions committee will be determined by the program Steering Committee. At a minimum, applicants must be in good standing in their primary graduate program, have a junior-senior grade point average of at least 3.3, and be recommended for admission by their graduate adviser. Students must apply for enrollment into the dual-title degree program in Social and Behavioral Neuroscience prior to obtaining candidacy in their primary graduate program.
6. Justification for the Degree Title Used

Advanced training in the dual-title program in Social and Behavioral Neuroscience warrants designation as a Ph.D. degree. The dual-title program will be research intensive and rigorous, to a level comparable with existing Ph.D. programs at Penn State. Thus, students will earn a degree with a dual-title at the Ph.D. level in (graduate program name) and Social and Behavioral Neuroscience.

7. Accreditation

No accrediting agency exists for programs of this nature. Nor is any licensing procedure relevant.

8. Consultation from departments affected

Chronology of major meetings between SBN proposers and Neuro faculty and administrators

Sept. 9, 2015, initial meeting with Neuro faculty to discuss the dual-title program

Sept. 14, 2015, e-mail and letter from Kevin Alloway listing concerns about the dual-title, with the main argument being that Neuroscience should be in control of it.

Sept. 21, Doug Teti meets with Neuroscience Program steering committee

Jan. 7, 2016, meeting with Kevin Alloway, Colin Barnstable, Mel Mark, Doug Teti, David Vandenbergh to discuss dual-title issues

Jan. 18, 2016, meeting with Kevin Alloway, David Vandenbergh, Chuck Geier, Koraly Perez-Edgar, Steve Piazza, Doug Teti, Mel Mark

Feb. 8, 2016, meeting with Kevin Alloway and Doug Teti

April 11, 2016, meeting with Nan Crouter, Susan Welch, Mel Mark, and Peter Hudson


June 21, 2017, meeting with Kevin Alloway, Colin Barnstable, David Vandenberg, Chuck Geier, Lisa Kopp, Steve Wilson, Tom Gould, Doug Teti, Mel Mark

Sept. 29, 2017, meeting with Kevin Alloway, David Vandenberg, Chuck Geier, Lisa Kopp, Steve Wilson, Diana Fishbein, Tom Gould, Doug Teti, Mel Mark

Oct. 12, 2017, E-mail exchange with Kevin Alloway, in which Kevin indicated that the Neuroscience Program does not support the dual title and cannot commit to having dual-title students taking Neuroscience courses.
Responses from Program Consultants

December 19, 2017

RE: Dual-title in Social and Behavioral Neuroscience

I have reviewed the proposal for the dual-title Ph.D. program in Social and Behavioral Neuroscience. Although Communication Sciences and Disorders is not one of the three proposed inaugural member programs, we strongly support this proposal. CSD is very interested in the possibility of adopting the dual-title option in social and behavioral neuroscience in the future. A focus on neurological knowledge in general and neural plasticity more specifically was identified as a priority in our departmental strategic plan. We have faculty members in the CSD department with expertise in the neurofunctional bases of developmental language disorders and acquired neurological impairments. These faculty members use functional imaging and EEG measurement in their research to study the neurofunction associated with typical and atypical cognitive and linguistic processing and to measure the neurofunctional changes produced through behavioral interventions with adults with acquired brain injuries. We currently offer our doctoral students coursework within the CSD department on the neuroscience of developmental language disorders and acquired neurological insults. The foundational courses in social and behavioral neuroscience that are being proposed could easily be integrated into our existing graduate curriculum. These courses would be attractive to our doctoral students who are specializing in both developmental disorders and acquired neurological disorders. The proposed courses, with their specific focus on social and behavioral neuroscience, would meet the educational needs of these students that are not being met by the course offerings through the current program in neuroscience.

Diane L. Williams, Ph.D. CCC-SLP
Professor and Department Head
Department of Communication Sciences and Disorders
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dlw81@psu.edu

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Dear Doug,

Thank you for asking.
I consulted your request with two key faculty members from the Dept of Biomedical Engineering (BME), one is the Chair of the Intercollege Graduate Degree Program in Bioengineering (IGDP-BioE), and the other is the one who does extensive neuroscience and MRI imaging.

They would like to explore, not making their inquiries as a show stop of your proposal, whether there would be any interest in including IGDP-BioE (which is the grad program of BME) as a part of your dual-title PhD?

Many of our BME faculty members are interested in having students with neuroscience background. So, if the dual-title students could be counted as BME students as well, it will increase enrollment to the Program. Of course, this may require students to satisfy both HHD and IGDP-BioE curriculum requirements. I do not yet know how this could work without increasing significant course load.

Just a thought ….

In conclusion, BME has no problem with your proposed dual-title program. We support it.

Kind regards,

Cheng

Cheng Dong, Ph.D.
Distinguished Professor & Department Head
Department of Biomedical Engineering
205 Hallowell Building
The Pennsylvania State University
University Park, PA 16802
Tel: (814) 863-8091
Fax: (814) 863-0490
Email: cxd23@psu.edu
URL: http://bme.psu.edu

Dear Doug,

Thank you for soliciting my thoughts on your proposal. I’m very supportive. In fact, my department’s advisory committee met just yesterday to discuss the value of faculty hiring that reaches into this space. It is, as you note, a growing area of interest in the social science, and communication science is no exception. As we don’t have this capacity at present, I’m not asking for involvement in the dual title partnerships, but I would hope you might be open to further conversation as we might develop connections to this program. I’d like to also ask that the classes in program be open to communication science students. While we won’t have capacity to benefit from involvement in the dual-title program in the short term, the courses would be of interest to the kinds of students we hope to recruit in the future. In short, I see great
opportunities for our students, even while I’m not sure when we have the mass to support adopting the dual title degree.

Good luck!
Denise

Denise Solomon
Head and Liberal Arts Professor
Communication Arts & Sciences
317 Sparks Building
University Park, PA 16802
Phone c/o Robin Haynes: 814-865-5232

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Hi Doug,

Thank you for allowing me the opportunity to review the proposed dual-title Ph.D. in Social and Behavioral Neuroscience (SBN). As someone with advanced training in multiple disciplines (Ph.D. in Nutritional Sciences and Postdoc with an emphasis in Psychology/Child Development/Neurophysiology) and someone whose research regularly requires the integration of these disciplines, I can attest to the need for the proposed program. Although we have a Neuroscience program at Penn State, the needs of those who are working in the Social and Behavioral arena are distinct enough that a separate program is warranted.

I am hopeful that the program will consider adding the Nutritional Sciences department as one of its affiliated departments in the future. Several of us apply techniques and knowledge from neuroscience to understand the behavioral consequences of dietary deficiencies/toxicities as well as to understand motivations behind choices of human dietary intake. Our students would benefit tremendously from the dual-title Ph.D. which is being proposed and I think that our faculty would add to the diversity of the faculty that have already been identified in this proposal.

I fully support this proposal and look forward to continued discussions about how our department can become a part of the program.

Laura

Laura E. Murray-Kolb, PhD, MS
Interim Head, Professor in Charge of the Graduate Program, Associate Professor | Department of Nutritional Sciences
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Our Science, Your Health
http://nutrition.hhd.psu.edu

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January 7, 2018  
Douglas M. Teti, Ph.D.  
Professor of Human Development, Psychology, and Pediatrics  
Head, Human Development and Family Studies  
Melvin Mark, Ph.D.  
Professor of Psychology  
Head, Psychology  
The Pennsylvania State University  
University Park, PA 16802  

Dear Doug and Mel:  

We reviewed your proposal for a new dual-title Ph.D. program in Social and Behavioral Neuroscience at Penn State with great interest. It is our expectation that, if our department were to adopt a dual-title Ph.D. in Kinesiology and Social and Behavioral Neuroscience, we would see regular participation in such a program, perhaps at the rate of 1-2 students per year.

We shared your proposal with our graduate faculty and received positive feedback from the majority of those who responded. Some of our faculty who study the psychology of physical activity and motor control indicated that they could foresee their advisees pursuing this dual-title Ph.D., and others expressed support without this expectation. Some of our faculty, however, did express concern for the potential impact of this program on the existing Neuroscience graduate program. Should your proposal be approved, we would anticipate that our graduate faculty would take up consideration of a dual-title Ph.D. in Kinesiology and Social and Behavioral Neuroscience in Fall 2018.

Please do not hesitate to contact us if we can be of further assistance with respect to this proposal.

Sincerely,

Nancy I. Williams, Sc.D., FACSM  
Professor and Head  
Department of Kinesiology  
The Pennsylvania State University  

Stephen J. Piazza, Ph.D.  
Professor-in-Charge of the Graduate Program  
Department of Kinesiology  
The Pennsylvania State University  

Dear Doug and Mel,
Thank you for seeking my consultation on this initiative. I fully support your efforts to develop a dual-title in Social and Behavioral Neuroscience at Penn State. It is startling that Penn State is the only Big Ten University without multiple graduate training areas in neuroscience. Given the expertise around the university, and the multifaceted nature of the discipline, there is certainly room for expanding our graduate training options, while still intersecting with the existing Ph.D. program in Neuroscience.

I’m pleased that the Colleges of Health and Human Development and the Liberal Arts are working so closely together on this program, one that I anticipate will be of interest to multiple units across Penn State. I’m happy to provide my support.

If you need anything further, please let me know.

Kathy

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Kathryn Drager, PhD, CCC-SLP
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Dear Doug:

I am pleased to endorse your proposal for a dual-title degree Ph.D. in SBN. Neuroscience (writ large) as applied in multiple areas of the academy is clearly a growing area, and we do not want to fall behind in this area. I always hope that Penn State can be a leader in new research areas, but here, we are actually playing catch-up. You clearly document that all of the other Big Ten schools have programs tying Neuroscience to, in particular, Psychology. The development of a program at University Park thereby looks overdue, and I suggest that formal program approvals proceed rapidly to allow us to overcome this deficit. The dual-title program is Penn State’s solution to the multi-field nature of this endeavor, and makes sense. You’ve documented significant faculty strength in this area, and there is no reason to think that the program will be anything but successful.

Again, I am happy to strongly endorse the development of this program; Liberal Arts is behind it. Please let me know how else I can be of assistance.

Sincerely,
December 23, 2017

Douglas Teti, Head, Human Development and Family Studies  
105 Health and Human Development  
The Pennsylvania State University  
University Park, PA 16802  

Dear Doug,

I am delighted to write in support of the creation of a new dual title program in Social and Behavioral Neuroscience, and indeed, see such a Penn State program as long overdue. When I began in my role as Director of the Social Science Research Institute (SSRI) in 2007, my major focus was on developing the Social, Life and Engineering Imaging Center (SLEIC), including building the research infrastructure at the SLEIC, hiring SSRI-cofunded faculty within the burgeoning field of social and behavioral neuroscience (SBN) and fostering interdisciplinary collaborations among our faculty. Toward this end, I worked closely with Dr. Peter Hudson, Director of the Huck Life Sciences Institute and Dr. Robert Harbaugh, Director of the (now), Penn State Institute of Neuroscience to provide forums for faculty exchanges and seed funding for new, cross-campus, interdisciplinary research teams focused on neuroscience. At that time we saw a broad range as well as overlapping faculty expertise in life, social/behavioral, and biomedical neuroscience topic areas such as ingestive/appetitive behaviors and addiction, affective disorders, movement, and brain trauma and neural degeneration.

Toward extending these interdisciplinary opportunities and supporting further development of a robust, cross-campus neuroscience agenda, I also organized several meetings to discuss the possibility of a cross-campus, dual-title program in neuroscience. My model was the highly successful dual title graduate program in Demography, which already had received several rounds of funding from NICHD and whose interdisciplinary scope was and still is an enormous asset to the intellectual development and career opportunities of graduate students in the social and behavioral sciences—as well as a resource for the faculty associated with the program. At that time, the conclusion was that the existing neuroscience graduate program was in the process of
developing its cross-campus reach, and that a dual-title program would simply replicate and compete with opportunities provided by that program.

My understanding is that 10 years later in 2017, the number of graduate students in Penn State’s neuroscience graduate program who are connected with faculty in the social/behavioral science departments at University Park has not yet reached double digits. At the same time, programs in SBN around the country have proliferated, including in other Big 10 institutions, where programs that address and attract the interests of students with a social/behavioral focus to their research thrive alongside distinctive and potentially synergistic, traditional neuroscience programs.

In my mind the data on Penn State’s experiment with a single, traditional, neuroscience graduate program are in— and the results show that the opportunities for integrating neuroscience graduate education into the training of students with social/behavioral science interests have been extremely limited. Correspondingly, the opportunities for advancing SBN at Penn State have also been limited given the significance of graduate education and graduate students in our faculty’s research programs. Fields change as science advances, and in the social and behavioral sciences one of the most significant of these advances during the decade of the brain and beyond has been the incorporation of neuroscience knowledge and tools into our faculty’s thinking and research—and the evolution of the interdisciplinary field of SBN. Penn State now has the opportunity to embrace and contribute to these science advances by launching a novel and vibrant dual title doctoral program in SBN.

The SBN program would be unique in the nation, including because Penn State’s dual title model is one-of-a-kind. As a matter of course—at Penn State—the vision for the dual title is broadly interdisciplinary. It includes training in core competencies in basic neurobiology but moves beyond a traditional physiological focus to provide students with deep understanding of issues pertaining to lifespan human development and the significant role of social context and social experience in neurobiology and neurodevelopment, and it incorporates an interdisciplinary and translational problem-focused approach that allows for in-depth study of significant issues such as neuroscience of addiction, mental health, and aging that is tailored to students’ emerging research programs. More generally, I see the proposed program as a huge opportunity for the social and behavioral sciences at Penn State as students can draw on, serve as an integrative force, and by virtue of their research, further build social and behavioral neuroscience at Penn State.

In the most expenditure recent report from the NSF, Penn State social science overall was ranked in the top 10, and psychology was ranked in the top 5. Such rankings mean that our social/behavioral science faculty can attract the very best graduate students to their labs. Offering doctoral degrees in *Penn State’s nationally ranked social/behavioral science programs along with a dual title in SBN* can further promote Penn State’s standing in the social and behavioral sciences and advance the field of SBN by the high quality and distinctive training we can provide to next generation of its scholars.

In short, I am very excited about the possibilities that a SBN dual title doctoral program would bring to Penn State and our top-ranked programs in the social/behavioral sciences. I hope to see the dual title program launched very soon.
Sincerely,

Susan M. McHale

Susan McHale, PhD
Director, Social Science Research Institute
Co-Director, Penn State Clinical and Translational Science Institute
Distinguished Professor, Human Development and Family Studies and
Professor of Demography

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From Tracy Langkilde, Dept. of Biology, sent Dec. 19:
Dear Doug and Mel,

My apologies for the delay in responding. I have reviewed the proposal for the dual-title Ph.D. in Social and Behavioral Neuroscience (SBN). While I am generally supportive of dual-title programs, I have serious reservations about the proposed program.

1) The proposed program will be redundant with the existing IGDP in Neuroscience, as this existing program allows for incorporation in the curriculum of Social and Behavioral Neuroscience courses as electives, and so will not bring added benefit to PSU.

2) The dual-title program will have a potentially large and negative impact on the existing IGDP in Neuroscience by competing for Huck support in the neurosciences. This will reduce resources available for both programs and thus reduce our ability to support neuroscience graduate students.

3) My major concern is that the proposed program will dilute the current academic standards of a graduate education in neuroscience at Penn State. The proposed program has significantly lower academic requirements, which I can see may be attractive to students seeking a Ph.D. in neuroscience. However, I believe we need to be vigilant about adequately training our graduate students in this area. In a time where new molecular genetic and functional imaging techniques are promising to reveal the links between molecules, cells, neural activity and social behavior, we need to ensure that social scientists have a strong grounding in the biological basis of behavior, not pulling back from this. Doing so will not make us aligned or competitive with training provided at other institutions. The current steering committee lacks adequate representation by neuroscience faculty, which I feel needs to be rectified.

Sincerely,

Tracy

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Dear Dr. Teti,

I am concerned that the advocates of the DT program in Social and Behavioral Neuroscience (SBN) do not recognize the role of the Neuroscience Program in providing interdisciplinary training that includes social and behavioral neuroscience (SBN). As an Intercollege Graduate Degree Program (IGDP), the Neuroscience Program has already trained many students in social and behavioral neuroscience across multiple colleges and departments. If specific training gaps are identified, the Neuroscience Program will always work with faculty to improve the curriculum so that it meets the needs of the students. I am disappointed that the departments participating in the SBN proposal did not take this approach to address any perceived shortcomings in the training of Penn State students interested in social and behavioral neuroscience.

As Co-Director of the Neuroscience IGDP and Course Director of 3 of its 5 core courses, I have serious reservations about the DT proposal:

1. **The SBN proposal duplicates an area of study offered by the Neuroscience IGDP.** The Neuroscience IGDP has been designed so that its students, in consultation with their advisers, can tailor their curriculum to acquire training in a range of neuroscience subfields, including social and behavioral neuroscience. If new courses or other curricular activities are needed for SBN training, we will incorporate such features into the IGDP curriculum. But a new DT program is not needed to achieve that goal.

2. **The SBN program is not cost effective for interdisciplinary neuroscience training.** The DT program will add another year of instruction to earn the dual title degree. The financial burden for supporting students in both their major field (e.g., Psych) and the DT field (SBN) falls on the participating departments and their faculty. By contrast, the Huck Institute pays for the first year of training a Neuroscience student. Consequently, the net cost to a department for supporting a Neuroscience student is significantly less than the cost associated with supporting a DT student.

3. **The cost of the SBN program weakens the financial foundation of the Neuroscience IGDP**
   Like other IGDPs, the Neuroscience program depends on multiple departments to support its students via extramural funding, teaching assistantships, or other resources. To support the added expense of the SBN program, it is inevitable that departments will divert resources to the SBN program instead of supporting students in the Neuroscience IGDP. At no point in our meetings have you or the other chairs voiced support for continuing to take Neuroscience students into your labs, and the viability of the Neuroscience IGDP becomes questionable if its support is diverted to the SBN program.

4. **The Governance of the SBN proposal insures competition with the Neuroscience IGDP**
   Separate academic homes for the SBN and Neuroscience IGDP programs will lead to confusion among students applying to Penn State for doctoral programs in neuroscience, and this will eventually escalate into an unproductive competition between the two programs on multiple fronts. By contrast, placing the SBN program in the same academic home as the Neuroscience
IGDP will remove all possibility that these academic entities will compete with each other. If both programs are governed by the same academic entity, this will insure that both units act synergistically, and it will also insure that similar academic standards are applied to all neuroscience training at Penn State.

(5) Alternative mechanisms for SBN training have not been explored
Graduate School policy allows students in Psych, HDFS, and BBH to earn a Minor in Neuroscience, which would be certified on their transcript. Contingent upon Graduate Council approval, the graduate school also allows these departments to offer an Option in a neuroscience-related field that would be certified on their student’s transcript and diploma. The Neuroscience IGDP supports these mechanisms and would gladly help in developing Minors or Options in areas that help students training in any subfield of neuroscience.

(6) The proposal misconstrued my view about Neuroscience courses in other programs
The Neuroscience IGDP courses are typically populated by 8 to 15 or more students that come from a variety of academic programs including Biology, Kinesiology, MCIBS, Physics, and multiple departments in the Colleges of Agriculture and Engineering.

In the past seven years, however, not a single graduate student in BBH or HDFS has taken any of the courses in the Neuroscience IGDP. In the same time span, only nine Psychology students have taken the neuroanatomy course, but none of them have taken any other neuroscience courses. Although this raises concern about the commitment to acquiring instruction in neuroscience, all doctoral students have always been welcome to our courses.

In summary, while I appreciate your efforts to improve the training of students interested in Social and Behavioral Neuroscience, there is little reason to propose a Dual-Title program that duplicates what is already offered by the Neuroscience IGDP, especially when more viable and less disruptive alternatives have not been explored.

Sincerely,

Kevin D. Alloway, PhD
Professor of Neural and Behavioral Sciences and Biology
Distinguished Educator, College of Medicine
Co-Director, Graduate Program in Neuroscience
Center for Neural Engineering
Pennsylvania State University

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Dear Doug,
Thank for giving me the opportunity to comment on your proposed program in social and behavioral neuroscience. While I understand some of the issues you and your colleagues have raised, I think your proposed solution is the wrong one and thus I am not in favor of the proposal. My concerns are several.

First, this proposal barely squeezes into the definition of a dual title degree program. It is much closer to a stand-alone program run by a group of departments in parallel to the existing neuroscience program. This will be even more apparent if the suggested inclusion of multiple other departments takes place.

Second, it is unfortunate that the proposal makes no attempt to integrate with the existing robust neuroscience program and form a real dual title program. Instead of using the core curriculum of existing neuroscience courses (that include rigorous neuroanatomy and systems neuroscience courses) the social and behavioral neuroscience program is proposing 2 new courses even though it is stated that "all students engaged in neuroscience research, regardless of their sub-discipline, benefit from a core foundation in neuroanatomy and neurophysiology". The descriptions of the proposed SBN 501 and SBN 502 look as though they duplicate existing NEURO courses.

Third, looking through the research interests of faculty in appendix A and the external funding listed in appendix C it is clear that a good number of the faculty/research interests clearly fall in the areas of genetics and molecular neuroscience. Wouldn't the interests of these faculty members be better served as part of a larger Neuroscience program rather than segregated into the silo of Social and Behavioral Neuroscience?

Fourth, the study of both normal and abnormal behavior is of clear importance to the College of Medicine. The neuroscience graduate program has ensured that students receive a strong background in systems and behavioral neuroscience and a number have gone on to carry out successful behavioral thesis work in the Department of Psychiatry. With our new Chair of Neurology, Dr. Krish Sathian, we fully expect an expansion of cognitive neuroscience at the College of Medicine that will include graduate training. The cross-campus collaborations in the areas of cognition, addiction and other areas of "behavioral" neuroscience are growing and need to be supported. At the graduate training level, this can be best accomplished through our current broadly-based neuroscience graduate program. Carving out Social and Behavioral Neuroscience as a separate niche is likely to have a negative impact on the development of interactions across our two campuses.

Fifth, the similarity in names between the existing neuroscience IGDP and the proposed dual-title program will be confusing to applicants, and the dual-title program is likely to divert prospective studies away from the Neuroscience IGDP, or more likely from Penn State in general. The simultaneous use of "Neuroscience" in the title of more than one graduate program is problematic and should be avoided at all costs.

In spite of this negative view, I understand some of the concerns that led to the development of this proposal and would suggest that there are other, and better, ways of dealing with these concerns that would both be of greater benefit to our graduate students and help the overall development of neuroscience across the Penn State campuses. I would suggest two possibilities.
First, institute a formal minor or option in Neuroscience. This would allow any student in the Biobehavioral Health, Human Development and Family Studies, or Psychology Departments to take the time to participate in the current neuroscience core courses administered by the Neuroscience program before returning to their home department for their thesis research. This could be structured to give an appropriate notation on their transcript or degree certificate, would make them well qualified for future positions, but would leave control of their thesis work in their home departments. This option could be made available to any department that would like their students to get a broad neuroscience education.

Second, create true dual title programs between Neuroscience (through its home department of Neural and Behavioral Sciences) and any other departmental program that wishes to participate. This dual title programs would be jointly administered by oversight committees consisting of faculty members appointed by the neuroscience program directors and faculty members from the participating departmental program. This group would ensure that both coursework and thesis research meet the requirements of a true dual title program. Dual title programs in Neuroscience and Biobehavioral Health, or in Neuroscience and Human Development and Family Studies, or in Neuroscience and Psychology would remove overlap, be very clear to applicants and would not impinge on the identity of any of the individual programs. If structured properly these dual title programs would not only allow students in the social and behavioral sciences to get a good neuroscience qualification, but also neuroscience students to get a good qualification in one of the social and behavioral sciences.

In summary, as co-Director of the Neuroscience IDGP I oppose the proposed program in social and behavioral neuroscience. I think it will impede the development of neuroscience education and research across Penn State. There are better options and I would urge the graduate school to explore these.

Sincerely,

Colin J. Barnstable, D.Phil.
Professor and Chair, Department of Neural and Behavioral Sciences
Professor of Psychiatry
Co-Director, Interdepartmental Graduate Program in Neuroscience

From Krishnakutty Sathian, Head, Dept. of Neurology

Strengths

- The goal of offering a graduate program at Penn State with a behavioral track to complement the existing Neuroscience Program is definitely worthwhile. Behavior, as the ultimate way in which organisms interact with their environment, is a critical level of analysis in neuroscience, as argued forcefully in a recent call to the neuroscience community to re-inject behavioral analyses into investigations and funding (Krakauer et al., Neuron, 2017).
• The emphasis on social cognition is consonant with a rising tide of interest in the neural basis of social cognitive interactions.

• There is a clear interdisciplinary emphasis apparent in the dual-title program and in representation of faculty from across multiple departments.

• The proposal is very well thought out with considerable attention to detail.

Weaknesses

• The Penn State Neuroscience Program has two components, one at the Hershey campus and the other at the UP campus. The proposed SBN program appears to be exclusively at the UP campus. This misses the opportunity to build on behavioral research interests at the Hershey campus and to potentially synergize across the campuses, not only in relation to the immediate educational goals of the program but also with regard to building long-lasting research collaborations, attracting extramural funding, and faculty recruitment.

• The choice of the terms “social” and “behavioral” to label the program is worth debating. These terms certainly have merit, as pointed out above, but the term “cognitive” is worth further consideration as an alternative or a complement to the currently proposed terms. Use of this term could strengthen ties to work at the Hershey campus.

• Probably the biggest weakness of the proposed program is its relative lack of depth in the neurosciences. It is difficult to endorse a program with the key word “neuroscience” in its name in the absence of clearly specified core training in or faculty from the neurosciences, which should incorporate grounding in molecular, cellular, systems, cognitive and computational neuroscience and therefore should include faculty from the Neuroscience Program. In fact, it might be asked whether the proposed program would be better as a track within the Neuroscience Program, while being open to students (and faculty) from multiple disciplines. It is increasingly the case that important contributions to neuroscience are emerging from combinations of approaches at multiple levels of analysis. However, there are some practical considerations that may militate against this intellectually appealing option. Some of these are:

1. The article cited above by Krakauer et al. (2017) is a reaction to an increasing trend among some sections of the neuroscience community to devalue (or fail to recognize the value of) behavioral research. For instance, there has been discussion regarding the policy of the Journal of Neuroscience (the flagship journal of the community and the official publication of the Society for Neuroscience) to reject, without review, manuscripts that rely solely on behavioral methods. I believe this approach is shortsighted and agree with the views of Krakauer et al. (2017). However, I suspect there are some in the neuroscience communities on both campuses who are in tune with the idea that purely behavioral work is not an important part of neuroscience.

2. Differing methods of funding students across programs are also likely to lead to problems. The Neuroscience Program only funds students for their first year on each campus, even though students are engaged in substantial coursework in their second year. Other programs at UP, however, tend to fund students for their entire period of graduate
This can create incentives for students to gravitate towards programs based largely on funding sources rather than primarily on intellectual grounds.

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Dear Dr. Teti:

Thank you for the opportunity to review and comment on the newly proposed dual-title PhD program in Social and Behavioral Neurosciences. In general, the College of Medicine has several major concerns with proposed the dual-title program and, in addition, the proposal is not supported by Dr. Colin Barnstable, co-Director of the IGDP in Neuroscience at the College of Medicine (CoM) or Dr. Kevin Alloway, co-Director at UP. Both Drs. Barnstable and Alloway have expressed multiple concerns regarding the approval of this program and I find many of these concerns to be legitimate.

I think the proposal makes several good points such the advantages of offering a behavioral track to complement the existing Neuroscience IGDP Program. The emphasis on social cognition and the neural basis of cognitive interactions are indeed areas of increasing interest. The emphasis on interdisciplinary collaboration is excellent, however it is not clear how this cannot occur in the current IGDP program in Neurosciences.

As currently written, this proposed dual-title program appears to be largely a stand-alone (separate) program. We do not deem such a program necessary as UP and the CoM already have a stand-alone program - the IGDP in Neuroscience - that already includes the areas of social and behavioral neuroscience. Hence, this dual-title program has considerable overlap with the existing graduate program and does not seem to address any real gap in an area of study. This redundancy is highlighted by the fact that significant numbers of the listed faculty for the dual-title program are already members of the Neuroscience IGDP.
Furthermore, studies in psychology and biobehavioral health represent current areas of student research for the Neuroscience IGDP, again, demonstrating existing programmatic overlap. Finally, we believe that the current curriculum requirements in the Neuroscience IGDP are sufficiently flexible for students interested in social and behavioral aspects of neuroscience to obtain a minor in one of these areas. Any subject area gaps can easily be rectified by the introduction of new elective courses.

The Penn State Neuroscience Program has two components, one at the Hershey campus and the other at the UP campus. The proposed dual-title program appears to be exclusively at the UP campus. This misses the opportunity to build on the extensive behavioral research interests at the Hershey campus and to potentially synergize across the campuses, not only in relation to the immediate educational goals of the program but also with regard to building long-lasting research collaborations, attracting extramural funding, and faculty recruitment. Therefore, while we fully appreciate that the emphasis on social cognition is consonant with a rising tide of interest in the neural basis of social cognitive interactions, the early omission of the CoM seems striking.

The similarity in names between the existing IGDP and the dual-title program might be confusing to applicants, and it might be expected that the dual-title program will divert prospective studies away from the Neuroscience IGDP. Overall, we believe that the simultaneous use of "Neuroscience" in the title of more than one graduate program is problematic and should be avoided at all costs.

The foundation of any graduate program is the core curriculum. Arguably, the biggest weakness of the proposed program is its relative lack of strength in core neurosciences despite the fact that its importance is acknowledged. It is difficult to endorse a program with the key word "neuroscience" in its name in the absence of clearly specified core training or faculty from the neurosciences, which should incorporate grounding in anatomical, molecular, cellular, systems, cognitive and computational neuroscience. In a related issue, the Neuroscience IGDP appears to only have a token role in the administration of the proposed program and will have no official role in approving the neuroscience component in the doctoral thesis of the student in the dual-title program. In this regard, we hope that the directors for the dual-title program will once again reach out to the IGDP to investigate the already offered foundational courses could be taken by their students. Finally, we also expect that students enrolled in this dual-title program will engage in research that directly measures or directly manipulates some aspect of the nervous system. Overall, the perception is that this dual-title degree is a work-around that will provide students only a nominal background in state-of-the-mi neuroscience. As such, it seems possible that as students graduate from this dual-title program they would dilute the current reputation for Penn State Neuroscience at the national level.

While we strongly encourage the diversification of membership within the neuroscience community at Penn State to stimulate cross-disciplinary research between social, behavioral and neurosciences, we believe that it should be possible to do so within the context of the current Neuroscience IGDP. Efforts should be made to leverage the critical mass of researchers already active in the Neuroscience IGDP with those interested investigators.
Development and Family Studies, and Biobehavioral Health to increase extramural funding in these new areas of neuroscience.

Overall, we do not find that the program proposal presents a compelling justification for this dual-title program. The potential disadvantages of such a program are many and more than overshadow what are viewed as the relatively minor advantages. The College of Medicine therefore does not support the approval of the dual-title degree program in Social and Behavioral Neuroscience and feels modification and addition to the cmTent IGDP program in Neurosciences can meet this need.

Thank you for the opportunity to read through this document. I hope that Chuck Lang, Associate Dean of Graduate Studies in the Penn State College of Medicine, will be able to work with you on this proposal.

Sincerely,

A. Craig Hillemier, M.D.
Dean, Penn State College of Medicine
Chief Executive Officer, Penn State Health
Senior VP for Health Affairs, Penn State

Our Response To Consultant Comments:

We welcome the opportunity to respond to the comments made by those asked to consult on this proposal. We note with pleasure the support, in some cases enthusiastic support, from representatives of a range of units. In particular, consultants from social and behavioral science units were unanimous in their support for the proposed dual-title degree, and a variety of departments expressed interest in the possibility of affiliating with the proposed program.

In contrast, five consultants affiliated with the College of Medicine and/or the current IGDP program and the Department of Biology raised concerns about the proposed dual-title program (Dr. Sathian’s response is more balanced, in the sense of providing positive and negative comments without overall objection). Their criticisms largely overlap, and in the pages that follow we address each one. After commenting on the specific criticisms, this response ends with a more general perspective on the criticisms these commentators have provided.

Before turning to the five consultants’ criticisms, we wish to express agreement with what we believe is part of the underlying motivations for their concerns. By way of background, there has been a massive increase in demand for neuroscience research, along with a rapid rise in “out of the box” hardware and software for physiological data collection, private for-profit laboratories specializing in biological assays, and infrastructure investments in imaging facilities. These developments have led to an influx of researchers who use these techniques to augment their social science research, without formal education and background in the biological process
and theory that would enable them to do so in the most scientifically rigorous way. The proposed dual-title program is a direct effort to ensure that students entering social science programs with the intention of pursuing their research from a neuroscience perspective can gain the additional training to ensure a rigorous foundation for their work. In essence, we believe we share a key underlying concern with those who oppose the SBN dual-title program, but we disagree on how to respond to this concern. Indeed, the faculty aligned with this proposal were hired explicitly to expand neuroscience research at Penn State across a broad range of departments and disciplines.

We now turn to what we take as the major criticisms raised by the four opponents to the dual-title proposal. Note that we have not attempted here to repeat verbatim all criticisms across the four commentators.

**Criticism 1: The current IGDP program is sufficient**

Several of the commentators argue, in one way or another, that the current NEURO program suffices for training in social and behavioral neuroscience, and that the proposed dual-title program is duplicative. However, these comments do not align with the comparative data presented earlier in the proposal. The realities that led other Big 10 (and many other) universities to develop multiple programs involving neuroscience apply at Penn State as well. The three departments that are initially affiliating with the dual-title program already include graduate applicants who seek to conduct neuroscience research. These applicants are drawn to our programs to work with faculty with strong reputations in domains such as behavioral development, prevention science, and advanced statistics. Most of these applicants are not applying to programs in neuroscience per se, but rather to other departments of psychology, HDFS, or BBH – which are also the kind of departments in which the applicants hope to be employed after their training is complete. We are currently at a competitive disadvantage in recruiting these students. Among such applicants who do join us, students complete their degrees and conduct research in neuroscience labs, amassing expertise and a publication record that prepare them for the job market. The dual-title program seeks to remedy the very complaint that these students’ training in the area of neuroscience is not sufficient.

Our initial proposal includes three affiliating departments. The proposed program is aligned with the expanding role of neuroscience in additional departments including Nutritional Sciences and Communication Sciences and Disorders. The current and future affiliated departments stand to benefit from an increased ability to recruit top students who are seeking to conduct research in these disciplines from a neuroscience perspective. Students interested in studying, for instance, the effects of poverty on brain development do not search for graduate programs in neuroscience, because the work they want to be doing is being done in programs such as psychology, human development, and BBH. Furthermore, these students are seeking careers in similar departments across the country and a doctoral degree in “Neuroscience” alone may not adequately convey their suitability for those programs because they will also be expected to teach courses in psychology or lifespan human development. Penn State is competing for these prospective students, who are a reflection of the changing landscape in the social and behavioral sciences and the expanding scope of neuroscience, and we risk losing them to graduate programs that offer the integrated training we are proposing. The dual-title will
increase Penn State’s ability to attract and recruit these students, which in turn supports recruitment and retention of faculty in this area, creating the synergy and critical mass for cross-college training grant opportunities and novel interdisciplinary collaborations among our faculty.

Our critics suggest that other mechanisms, aligned with the IGDP NEURO program, would suffice. In particular, they point to the possibility of a graduate minor in NEURO. While a minor might be valuable for other reasons, and would be a degree designation that conveyed training in both fields, a minor entails less coursework than the proposed PhD. Moreover, a minor would not include the dual-title program’s requirement that the dissertation successfully integrate both SBN and the home discipline. In short, the minor would not entail the depth of training and knowledge integration that the proposed dual-title program will provide. Similarly, the suggestion of a graduate school approved option in a student’s home department would offer lesser depth of training than the dual-title program, and would presumably require some trade-off such that students take less coursework in the home department, or spend less time in research. Most likely, the option would take the place of the other specializations in the home department (in psychology, e.g., developmental or social), also resulting in a less integrative training than in the proposed dual-title program. We view Penn State’s unique, dual-title model as clearly preferable to other models because of the depth of integrated training it provides, allowing us to leap from competitive disadvantage to competitive advantage in recruiting and training graduate students who will engage in social and behavioral research from a neuroscience perspective. Indeed, we see Penn State’s dual title program as expressly suited for the graduate education we envision.

Criticism 2: the SBN program is not cost effective relative to the current IGDP program.

Although not cited by as many of the five negative commenters, Professor Alloway makes this point early in his letter. As he notes, the cost of an expected additional year for dual-title students falls on the participating programs. The depth and scope of students’ expertise developed in the course of their training, however, mean that students in their final year will bring new capacities to the faculty labs in which they are working and to the classrooms in which they serve as TAs, and thus will be in demand as graduate assistants. We also expect that the dual title program will provide the numbers of students and the unique training program that will support successful training grants in SBN, which Penn State does not currently have and is not currently competitive to win, and thus bring in extramural funding to support any additional year for dual-title students. Moreover, while some graduate applicants may be agnostic about whether to apply to a neuroscience program or to a home department that is affiliated with a dual-title degree, we firmly believe that is not true of all applicants. The participating programs are aware of and willing to take on any additional costs, believing the program to be a promising investment, and as such, we do not believe this is an academic objection.

Criticism 3: The dual-title program would undercut the financial model of the IDGP.

Dr. Alloway also argued that the dual-title program will inevitably divert resources from the current IDGP, and Dr. Langkilde raised a similar objection. We are confident that, for at least some of the participating programs, the existence of the dual-title program will not change the (admittedly low) likelihood of guaranteeing departmental support for a NEURO student, who by definition, is not a graduate student in the department that guarantees the funding. Even in the
face of a burgeoning field and increases in the numbers of faculty and students at Penn State with SBN interests and expertise, the IGDP program is simply not attracting the students that the SBN dual-title is expected to attract. In any case, the alternative mechanisms that Dr. Alloway and other critics support, such as the minor in NEURO, may be as likely as the dual-title program to erode departmental support for NEURO students. This criticism is also not consistent with the comparative data provided in the proposal: Other Big 10 universities support more than one neuroscience program. Given Penn State’s rankings in the social and behavioral sciences (currently 3rd in the nation), we can clearly support a second program that is tailored to our students’ needs and interests.

Criticism 4: Applicants will be confused, and possibly deterred from attending Penn State, if two programs have “neuroscience” in the title

Many other universities have multiple programs whose titles include the term, neuroscience (as evidenced by the comparative data presented in the proposal). With respect to graduate recruitment, we are confident that the students applying to our graduate programs are intelligent enough to navigate websites and discern differences across programs. Indeed, an argument can be made that, with websites in multiple departments that explain both the dual-title and the IGDP program, the result will be more traffic going to the NEURO website. In addition, if students with interests in neuroscience find only one relevant program at Penn State, while there are multiple neuroscience programs at other schools they are considering, they may infer that Penn State is a lesser player in the world of neuroscience. With respect to potential applicants and websites, we note that the current IDGP website seems to be capable of successfully guiding students through multiple graduate options in Neuroscience, including the fact that students seeking to work with a UP faculty member apply through a different mechanism than those seeking to work at Hershey. We are confident that clear communication with prospective applicants can surmount any problems of communication, and will work with other relevant programs to give clear guidance to the program that best fits each applicant’s interests.

Criticism 5: Social and Behavioral Neuroscience is narrow and faculty would be better served by the “broader” program

Dr. Barnstable’s argument that faculty with interests in genetics and molecular neuroscience are better served as a part of a larger program creates a false dichotomy. All faculty would be free to affiliate with both programs and admit students through either program. The diverse range of options does not hinder faculty, but instead allows individual students to decide what is best for them. Since faculty are free to elect to affiliate, they are able to choose for themselves which program is better serving the education goals of students that they want to work with. On a related point, we do not see the number of faculty members who at some point affiliated with the current program as evidence that the proposed program is not needed. We are, however, confident about the expressed interest in the proposed dual-title program among many faculty members within the affiliated programs.

Criticism 6: The dual title proposal “strikingly omits” the CoM, obviating opportunities for cross-campus integration
As a dual-title program, SBN does not inherently omit any departments or colleges. Our early, informal consultation with the Graduate School suggested it was preferable to submit the program proposal with a small number of affiliated departments, allowing other interested departments to propose affiliation at a later time. Any department is free, welcome, and in fact encouraged, to propose to affiliate with the dual-title program. We note the practical difficulties of having multi-campus programs, however, and thus believe it is critical to have a core program based at University Park which can then be expanded as partnership opportunities arise.

**Criticism 7: Concern about the SBN core curriculum**

Across the negative consultants, concerns were raised about the core curriculum for the SBN program. However, these concerns seem contradictory. Dr. Hillemeier states, “Arguably, the biggest weakness of the proposed program is its relative lack of strength in core neurosciences.” Similarly, Dr. Sathian states that “probably the biggest weakness of the proposed program is its relative lack of depth in the neurosciences.” In contrast, Dr. Barnstable, in stating SBN’s failure to use the core curriculum of existing neuroscience courses, argues that “The descriptions of the proposed SBN 501 and 502 look as though they duplicate existing NEURO courses.” Dr. Hillemeier also reports that the proposed “program has considerable overlap with the existing graduate program.” It is difficult to reconcile how SBN’s proposed core courses and overall program can be duplicative of the existing program and at the same time, the proposed program’s biggest weakness.

It is important to note that previous drafts of the SBN proposal included a three course core sequence from the current NEURO program. At the final meeting (of many) with SBN faculty, Dr. Alloway indicated he would oppose the dual-title proposal. We asked him whether, if despite his objections the proposal were approved, he would endorse the inclusion of the NEURO course in the SBN requirement. He declined to do so. We repeated this request in a subsequent email sent on 10/9/17. Our e-mail to Dr. Alloway, and his response sent on 10/12/17, are reproduced verbatim below:

10/12/2017

Dear Mel, As you correctly state, the Neuroscience Program does not support the proposed dual title program that was discussed a couple of weeks ago. The Neuroscience Program is concerned about many aspects of the proposal, and it is impossible to provide a view on only one aspect without knowing how other parts of the proposal might be affected. If and when the proposal is reviewed by the Graduate School’s Joint Curriculum Committee, the Neuroscience Program will prepare an opinion on the entire proposal.

Best wishes,

- Kevin

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Kevin D. Alloway, Ph.D.
Co-Director, Graduate Program in Neuroscience
Kevin, hello.

Thanks for meeting with us at the end of last month regarding the forthcoming proposal for a dual-title PhD program in Social and Behavioral Neuroscience (SBN). We were sorry to hear that you do not plan to support the program, but appreciate your time and consideration.

As was raised late in our meeting, a question remains. Will you, on behalf of the NEURO program, support the inclusion of NEURO courses (as described in the copy of the proposal you received) should the SBN program be approved despite your opposition to it?

We look forward to your reply.

Thanks, Doug and Mel

Absent approval from the NEURO program for the inclusion of its courses, we proposed a two-course core requirement, SBN 501 and 502. Although this was not our original plan, we have come to prefer it, including because it allows more tailoring of coursework to our students’ needs and interests. We also note that, while Dr. Alloway states in his undated commentary that all doctoral students have always been welcome in NEURO courses, he also states that the “courses are typically populated by 8 to 15 or more students.” Especially if, as seems likely, enrollments are greatest in the initial core courses, it appears there could be enrollment constraints if a successful SBN program attempted to add students to these courses.

Admittedly, program critics may be concerned because the SBN proposed core consists of two courses rather than three. But a two course core is not atypical in neuroscience programs. For example, Indiana University, which was a pioneer in establishing a dual neuroscience Ph.D. program, has a two course core neuroscience sequence. Perhaps the negative comments about the core courses arose because consultants for the program had not seen the course proposals. We trust that our critical colleagues are not suggesting that faculty members in the SBN
affiliated programs are not capable of teaching rigorous core courses in neuroscience – despite comments such as that from Dr. Hillemeier about “the perception … that this dual-title degree is a work-around that will provide students only a nominal background in state-of-the-art neuroscience. As such, it seems possible that as student graduate [sic] from this dual-title program they would dilute the current reputation for Penn State Neuroscience at the national level.” If indeed the implication is that, unless faculty are appointed in a unit such as Neural and Behavioral Science or Biology, they cannot teach a foundational course in neuroscience, we hope the Graduate Council and Graduate School will simply disagree. (If needed, we are available to have further discussion about the relative qualifications of faculty or the relative quality of curriculum -- but we would hope this is not needed). Many other highly-rated programs in this area find it quite possible to have faculty teaching core neuroscience programs who are not in these two departments.

As to the overall curriculum, as well as the “work-around” comment, we are in full agreement that any student pursuing the dual-title will be required to complete a dissertation that incorporates a physiological measurement that directly or indirectly indexes brain function. Purely behavioral studies, including cognitive testing such as neuropsychological testing, would not be considered as sufficient for dual-title students.

Criticism 8: The current Neuroscience program does not control the dual-title program

Dr. Alloway contends that “placing the SBN program in the same academic home as the Neuroscience IGDP will remove all possibility that these academic entities will compete with each other.” We could find no evidence that within-department competitions among faculty are less evident than between-department competitions. Dr. Hillemeier notes with disapproval that “the Neuroscience IGDP appears only to have a token role in the administration of the proposed program and will have no official role in approving the neuroscience component in the doctoral thesis of the student in the dual-title program.” Dr. Barnstable offers as a possibility that Penn State could “create true dual title programs between Neuroscience through its home department of Neural and Behavioral Sciences and any other departmental program that wishes to participate” though this proposal seems at odds with our understanding of Penn State’s dual-title program as interdisciplinary and cross-departmental. In short, although the details vary, these comments suggest that placing control of the proposed dual-title program exclusively or primarily in the hands of the existing NEURO program would be superior to shared governance across participating departments. This seems an odd position given that this dual-title degree program is designed to resolve the problem that graduate education in SBN at Penn State is not addressing the widespread interests of students in the social and behavioral sciences. A home in the social and behavioral sciences seems more appropriate given this goal.

Importantly, we have sought the involvement of the IDGP faculty from the start of this process, including a number of meetings to discuss the evolving program idea and attempt to coordinate and reconcile concerns, and by providing draft materials. Especially at the final meeting with Dr. Alloway, it was made explicitly clear that the only resolution that would be agreeable to the IDGP is that an SBN program come under the auspices of the current IDGP. Instead, our proposal seeks to create a governing board that consists of a representative from each participating department. In an effort to build alliance and cooperation between the
complementary programs, we extended the offer to include a member of the IDGP faculty as well. This seemed appropriate when the dual-title proposal included foundational courses from Neural and Behavioral Sciences (as Dr. Hillemeier now requests that we do). Our plan for the inclusion of a NEURO representative would have enabled the IGDP to review and evaluate dissertation topics and coursework, but would not grant unilateral control. But when the Co-Director of the NEURO program elected not to endorse the use of their courses, we dropped this membership. We are distressed that curricular consultants have both pointed to overlap in the membership of the faculty in the current and proposed programs, and decried the “minimal” involvement of the “neuroscience” faculty. We have tried to propose this both ways – including NEURO courses and faculty in a governing board, and developing our own comparable courses and omitting NEURO faculty. Neither solution appears adequate to the reviewers. The implication seems to be that only a select set of individuals at Penn State are qualified to govern graduate education in this domain. Candidly, we are no longer optimistic about the possibility of including someone who doubts the very legitimacy of the new dual-title program in the governance of that program.

We note that one of the consultants, Dr. Sathian, noted that there are “practical considerations that may mitigate against” the idea of having the proposed neuroscience as a track within the current IGDP program. He cited the devaluation of behavioral research among some in the neuroscience community and the different student funding models in the two programs. We agree, and could extend the list of considerations that argue against folding the SBN program into the IGDP program.

**Criticism 9: Penn State’s reputation in neuroscience will be devalued should an additional program be developed:**

It has been argued by the leadership of the Huck-administered program that Penn State’s reputation would be devalued in the area of neuroscience should an additional program be permitted to exist. While this is conjecture without substantive support, it is worth considering what Penn State’s current reputation is. In a US News and World report ranking of Universities worldwide in the area of “Neuroscience and Behavior”, (https://www.usnews.com/education/best-global-universities/search?country=united-states&subject=neuroscience-behavior&page=4) Penn State is ranked #176 worldwide. In contrast, Penn State social science/public health was ranked 38 and Psychiatry/Psychology was ranked 53 (the number of research faculty in psychiatry is low which may explain why NSF ranks psychology in the top 5 but the combined psychiatry/psychology rating is much lower). In the face of a rapidly expanding landscape of neuroscience research and federal funding priorities, Penn State has not advanced, revised, or expanded its perspective on graduate training. The status quo has failed to serve the diverse needs of the faculty and students pursuing research in the broad domain of Neuroscience. We argue that the time has come to advance Penn State’s agenda in the neurosciences by building on some of our top-ranked programs to attract top graduate students.

**Conclusion**
In sum, most of the formal consultants speak, sometimes enthusiastically, about the need for the proposed dual-title program in Social and Behavioral Neuroscience. Five faculty, one in Biology and the others members/administrators at the College of Medicine, which currently houses the IGDP in Neuroscience, raise various objections. In particular, there appear to be two perspectives and a core disagreement about what constitutes “neuroscience,” on the academic qualifications necessary to determine that definition through the oversight of an academic program, and on the opportunities and implications of expanding neuroscience education by creating more options and opportunities. The program critics appear to be biased toward Medicine or Biology as the legitimate units to house the entire range of the neurosciences, with a correspondingly low regard for the social and behavioral sciences that is off-putting to our students and faculty and is one basis for the low level of involvement our faculty and students have had with the NEURO IGDP. In contrast, we believe that the proposed dual-title program expands the professional landscape in which students can receive training in neuroscience in a manner that is consistent with the directions already taken by other Big 10 universities (as well as peers outside the Big 10). We also believe that the proposed program complements, rather than competes with, the current Neuroscience program, and creates opportunities for synergy and collaborative ventures, including large-scale interdisciplinary training grants and program projects that heretofore would not have been possible. We encourage you to review the comparative data presented in this proposal, and conceptual background presented herein, as you evaluate the proposal.

3/8/2018

From: "dmt16" <dmt16@psu.edu>
To: "Kevin Alloway" <kda1@psu.edu>
Cc: "dmt16" <dmt16@psu.edu>, "Mel Mark" <m5m@psu.edu>, "LISA MICHELLE KOPP" <lmk18@psu.edu>, "THOMAS GOULD" <tug70@psu.edu>
Sent: Thursday, March 8, 2018 7:21:17 AM
Subject: Proposed revision to the curriculum of the dual-title in Social and Behavioral Neuroscience

Dear Kevin,

Pursuant to Michael Verderame's suggestion at the recent meeting with the Graduate School on Feb. 26 to propose a means by which the current Neuroscience program and the dual-title program in Social and Behavioral Neuroscience (SBN) can intersect and work collaboratively, Mel, Tom, Lisa, and I would like to propose the following change to the SBN curriculum and to the SBN governing board. This change is provided below. Note that our proposed SBN 501 and 502 foundational courses would be replaced by Neuro 520 and Neuro 521. In addition, we are proposing that SBN students can take either Neuro 511 or Neuro 512 as one of a number of courses toward fulfillment of the remaining 12 credits toward the dual-title degree. The administrative and academic home of the SBN program would remain in HDFS and Psychology (alternating, as originally proposed).
Please let us know if these changes are acceptable to you. If they are, we would request from you a statement to that effect in writing in the next week. The SBN proposal is being reviewed in April, as Michael indicated, and if the proposal is going to be revised it will need to be submitted in time for this review, so we have little time to wait. If you approve of these changes, we will submit an updated, revised draft of the proposal to the Graduate School that will reflect this change, with your statement included. In addition, contingent upon your stated (in writing) support of the program, we would offer you a seat on the SBN's governing board.

We hope that, with these changes, you can see your way clear to supporting the dual-title, and we look forward to hearing from you soon. Thanks Kevin.

Doug Teti, Mel Mark, Tom Gould, Lisa Kopp

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The minimum course work requirements for the dual-title Ph.D. degree in Social and Behavioral Neuroscience are as follows:

- Course work and other requirements of the primary program.
  - NEURO 520 (3 credits)
  - NEURO 521 (3 credits)
  - SBN 590 (1 credit, taken twice)
  - A minimum of 12 credits from the following list of courses

- NEURO 511 (3 credits) or NEURO 512 (4 credits)
- SBN 505 (3 credits, variable)
- SBN 508 (3 credits, variable)
- SBN 511 (3 credits, variable)
- HDFS 502: Biological Systems in Developmental Context
- HDFS 512: Cognitive Developmental Neuroscience of Adolescence
- PSY 524: Biological Basis of Behavior

- The dissertation must involve the integration of neuroscience and a research question of interest within the home department.

- SARI requirements as specified by the home department
Dear Doug,

Thank-you for writing me. I saw Heather's e-mail late yesterday, and I was about to write you this morning to ask why there seemed to be a change from what Lisa had proposed earlier this week.

I approve what you propose, and I will always work to improve and grow Neuroscience at Penn State, including the DT program in Social and Behavioral Neuroscience.

Neuro 511/512 will require me to get some cooperation from the University. As it stands now, Neuro 512 is really Neuro 511 (75% of Neuro 512) plus an additional 3-4 weeks of content devoted to understanding the principles of the phylogenetic evolution of the vertebrate brain. In fact, the last part of the 512 course is devoted to covering the 10 chapters of content in Georg Streidter's book, "Principles of Brain Evolution."

My plan is to get permission from the University to have students sign up for Neuro 511 for 3 credits, and they take that course with the Neuro 512 students. The 511 part of the course would end after about 11 weeks, which allows about 10 sessions to be devoted to Streidter's book for those who signed up for 512.

I hope the University will be flexible enough to enable this. As I recall, the course directors in Hershey had the neuroscience doctoral students take Neuro 511, the content of which was embedded in the medical student's 711 course that also included neuropathology and related topics.

Please keep the lines of communication open. Again, thank-you for writing me.
9. Consultation with the Office for Research Protections regarding SARI requirements

Consultation with the Office for Research Protections regarding SARI requirements indicates that SARI training should be completed as specified by the student’s home program.
Appendix A

Faculty with expertise in social and behavioral neuroscience in the three affiliated departments

Faculty in the College of Health and Human Development and the College of Liberal Arts with expertise in Social and Behavioral Neuroscience

Department of Human Development and Family Studies:

Lisa Gatzke-Kopp, Associate Professor of Human Development and Family Studies
Developmental neuroscience of psychopathology, with a particular focus on how children develop behavior problems such as aggression, hyperactivity, and substance abuse.

Charles F. Geier, Associate Professor of Human Development and Family Studies
Associate Professor of Human Development and Family Studies. Developmental cognitive neuroscience, with particular focus on reward processing, basic cognitive control abilities, and their interaction; understanding the relationship between adolescent neurodevelopment and risk taking behavior.

Diana Fishbein, Professor of Human Development and Family Studies
Transdisciplinary methods and developmental approaches to understand interactions between neurobiological processes and environmental factors, and ways in which they influence intervention outcomes.

Peter Molenaar, Distinguished Professor of Human Development and Family Studies
Single-subject time series analysis, optimal guidance of developmental processes, optimal control of disease processes, structural equation modeling, dynamic factor analysis and P-technique, as they pertain to fMRI and EEG data streams.

Cynthia Stifter, Professor of Human Development and Family Studies and Psychology
Socio-emotional development in infants, toddlers, and preschool children, developmental psychophysiology.

H. Harrington Cleveland, Associate Professor of Human Development and Family Studies.
Adolescent risk behaviors in community samples and adolescents who experience enhanced environmental risk, with specific focus on genes and how genes can change the impact of social experiences.

Department of Biobehavioral Health:
Christopher G. Engeland. Associate Professor of Biobehavioral Health (with joint appointment in Nursing). How stress, age, gender, and hormones affect immunity (with an emphasis on wound healing), inflammation, cognitive aging, and risk for health conditions. Uses both human and animal models to investigate these issues.

Thomas Gould. Jean Phillips Shibley Professor and Head of Biobehavioral Health
Identifying the cellular and molecular events that underlie the effects of nicotine on learning and memory with a specific emphasis on how those effects change as drug administration transitions from acute to chronic drug use and how adolescence may changes sensitivity to these effects of nicotine.

Christine Heim. Professor of Biobehavioral Health
The neurobiological effects that childhood maltreatment has on the development of psychiatric disorders and physical health outcomes.

Joshua Smyth. Distinguished Professor of Biobehavioral Health and Medicine
Effects of experiencing stress on psychological and physical well-being; Assessment of stress, affect, and health in an ecologically relevant manner that facilitates understanding of biopsychosocial processes as they unfold in time and in context; Psychosocial interventions improve health and well-being.

David Vandenbergh. Professor of Biobehavioral Health; Neuroscience Faculty, The Neuroscience Institute, The Huck Institutes for the Life Sciences
Molecular biology of the nervous system, and how it is modified by drugs of abuse; genetic components of drug abuse behaviors.

Idan Shalev. Assistant Professor of Biobehavioral Health
Identifying mechanisms underpinning the biological embedding of stress and its effect on biological aging. Specifically, the effects of stress from early childhood on change in telomere length and other biomarkers of aging across the life course, and the consequences of change in these biomarkers for physical and mental health problems.

Laura Klein. Professor of Biobehavioral Health
Biobehavioral effects of stress on drug abuse in humans and animals; sex differences in neuroendocrine and behavioral stress responses; nicotine regulation of stress reactivity.

Sonia Cavigelli. Associate Professor of Biobehavioral Health
Influence of temperament and social status on stress and health; individual differences in stress and health in the natural environment; development of temperament/personality.

Orfeu Buxton. Associate Professor of Biobehavioral Health
Causes of sleep deficiency (insufficient duration or inadequate sleep quality) in the workplace, home, and society. Health consequences of sleep deficiency, especially cardiometabolic outcomes, and the physiologic and social mechanisms by which these outcomes arise.
Helen Kamens, Assistant Professor of Biobehavioral Health
Identification of genetic mechanisms that contribute to complex behaviors with a special emphasis on alcohol and tobacco use.

Anne-Marie Chang, Assistant Professor of Biobehavioral Health
Genetic analysis of sleep and circadian rhythms, and interactions that influence cardio-metabolic function in humans; examination of environmental effects on sleep physiology, circadian rhythms, and neurobehavioral and cognitive performance.

Hannah Schreier, Assistant Professor of Biobehavioral Health
Examining contributing factors to existing socioeconomic health disparities; the physiological consequences of experiences of child maltreatment; and ways in which social interventions can be used to actively improve physiological outcomes among individuals.

Department of Psychology:

Reginald Adams, Associate Professor of Psychology
How multiple social messages (e.g., emotion, gender, race, age, etc.) combine and interact to form unified representations that guide our impressions of and responses to others. Of particular interest is the functional correspondence between static and expressive cues; at a fundamental level both signal basic intentions to approach-avoid, dominate, and/or affiliate. With this in mind, his current work examines the influences of eye gaze, social group memberships (e.g., gender and race), and facial appearance on the way we process and perceive others' mental and emotional states, with an emphasis on underlying processes.

Peter Arnett, Professor of Psychology
Research issues relating to clinical neuropsychology, especially neuropsychological aspects of multiple sclerosis (MS), with special emphasis on contributors to depression, cognitive functioning, fatigue, and general quality of life in this common neurological disorder. A second line of research explores the consequences of sports-related concussion interested in predictors of outcome following concussion, including motivation at baseline, cognitive variability, premorbid personality characteristics, and cognitive reserve.

Sheri Berenbaum, Professor of Psychology
Social and cognitive development, primarily from a neuroscience perspective. Current work focuses on prenatal sex hormone effects on gender development, genetic influences on pubertal development and on the association between pubertal timing and behavior, and the neural substrates of individual differences in cognitive abilities. A goal is to understand the ways in which biological predispositions and the childhood social environment work together to produce individual differences in social behavior and cognition.

Kristin Buss, Professor of Psychology
Emotional development and temperamental variation from birth through early childhood. Her work spans multiple areas of research within social development, psychobiology, and
neuroscience. Her current work is focused on the development of risk for adjustment problems, such as anxiety symptoms in toddlers with fearful temperaments. This work has demonstrated significant effects for types of situations where children show fear as well as their physiological stress reactivity.

**Pamela Cole**, Professor of Psychology
Emotional development in early childhood with a particular interest in emotion regulation (the ability to modulate one's emotional reactions). The ability to regulate emotions in effective and flexible ways plays a role in the development of social, emotional, and cognitive competencies in children.

**Nancy Dennis**, Associate Professor of Psychology
Elucidating the cognitive and neural mechanisms that support learning and memory in young and older adults. Employ both behavioral and neuroimaging methods, including diffusion tensor imaging (DTI) and functional MRI (fMRI) to explore the interaction of cognitive and neural processes involved in episodic memory.

**Michele Diaz**, Associate Professor of Psychology and Linguistics; Director of Human Imaging, SLEIC
The relations between the brain and behavior. Examining age-related differences in language. Specifically, this research project looks at neural factors that contribute to age-related retention (semantics) and decline (phonology) that have been observed in language production.

**Rick Gilmore**, Associate Professor of Psychology
Brain and cognitive development, perception and action, data science.

**Michael Hallquist**, Assistant Professor of Psychology
The developmental psychopathology of personality dysfunction in adolescence and young adulthood. Research also focuses on the normative maturation of brain systems implicated in self-control, reward processing, and emotion regulation, which informs a better understanding of abnormal trajectories in BPD.

**Frank Hillary**, Associate Professor of Psychology
The effects of brain injury and disease on functional brain organization. One primary goal is to understand how distributed neural networks are altered following significant neurological disruption (e.g., traumatic brain injury).

**Cynthia Huang-Pollock**, Associate Professor of Psychology
The cognitive and neuropsychological risk factors that contribute to the development of attention, learning, and disruptive behavior problems in school-aged children.

**Ping Li**, Professor of Psychology
Understanding the relationships among language, brain, and culture. In particular, we examine the dynamic changes that occur in the language learner and the dynamic interactions that occur in the competing language systems over the course of learning.
**Erika Lunkenheimer**, Associate Professor of Psychology
Regulatory processes in the family, with the dual goals of (1) understanding how mother-child and father-child interaction patterns act as risk and protective processes for developmental psychopathology and (2) uncovering malleable relationship processes that could aid in the tailoring and improvement of preventive intervention programs for families at risk.

**Jenae Neideriser**, Professor of Psychology
Understanding the interplay between genes and environment throughout the lifespan. The environmental influences under investigation mostly involve interpersonal relationships – including parent-child, spouse, sibling and peer relationships. Examining how individuals influence their environments, in part because of their genetically-influenced characteristics (genotype-environment correlation).

**Koraly Pérez-Edgar**, Associate Professor of Psychology
The relations between temperament and psychopathology. In particular, children with the extreme temperamental trait of behavioral inhibition and shyness show increased risk for social anxiety.

**Suzy Scherf**, Assistant Professor of Psychology
Understanding how children form representations of the visual world and how emerging functional specificity of the developing brain supports this process.

**Janet Van Hell**, Professor of Psychology
The cognitive and neurocognitive processes related to language development, second language learning, and bilinguals’ use of two languages.

**Daniel Weiss**, Professor of Psychology
The cognitive abilities of human infants and adults, as well as non-human primates.

**Stephen Wilson**, Associate Professor of Psychology
Addiction and other types of behavior that negatively affect health.

**Bradley Wyble**, Associate Professor of Psychology
Visual cognition with an emphasis on exploring how a visual stimulus becomes a consciously accessible representation.
## Appendix B

Specific graduate program titles affiliated with the search term “Neuroscience” in a graduate program database available online.

<table>
<thead>
<tr>
<th>Program Title</th>
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<tbody>
<tr>
<td>Anatomy</td>
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<tr>
<td>Behavioral and Cognitive Neuroscience</td>
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<tr>
<td>Behavioral Medicine</td>
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<tr>
<td>Behavioral Neuroscience</td>
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<tr>
<td>Behavioral Neurosciences</td>
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<tr>
<td>Biomedical &amp; Pharmaceutical Sciences</td>
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<tr>
<td>Biomedical Sciences: Neuroscience</td>
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<tr>
<td>Biopsychology</td>
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<tr>
<td>Brain and Cognitive Sciences</td>
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<tr>
<td>Cancer Biology</td>
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<tr>
<td>Cellular and Molecular Neurobiology</td>
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<tr>
<td>Cellular and Molecular Neuroscience</td>
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<tr>
<td>Cellular and Neural Biophysics Program</td>
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<tr>
<td>Clinical Neuroscience</td>
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<tr>
<td>Cognitive Science</td>
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<tr>
<td>Cognitive Systems/ Behavioral Neuroscience</td>
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<tr>
<td>Cognitive Systems and Processes</td>
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<tr>
<td>Developmental Neurobiology</td>
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<tr>
<td>Division of Biology and Biological Engineering</td>
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<tr>
<td>Experimental and Molecular Medicine (Neuroscience)</td>
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<tr>
<td>Health and Medicine</td>
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<tr>
<td>Interdepartmental Neuroscience Program</td>
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<tr>
<td>Integrative and Evolutionary Biology</td>
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<tr>
<td>Integrative Neuroscience</td>
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<tr>
<td>Kinesiology</td>
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<tr>
<td>Medical Neurobiology</td>
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<tr>
<td>Neural and Behavioral Sciences</td>
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<tr>
<td>Neural and Cognitive Sciences</td>
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<tr>
<td>Neural Science</td>
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<tr>
<td>Neurobiology</td>
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<tr>
<td>Neurobiology and Behavior</td>
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<tr>
<td>Neurobiology and Developmental Sciences</td>
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<td>Neuroscience</td>
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<td>Neurosciences</td>
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<td>Neuroscience and Behavior</td>
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<td>Neuroscience and Cognitive science</td>
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<td>Field</td>
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<tr>
<td>Neurosciences; Human Genetics; Immunology; Community Health; Cancer Research; Clinical Epidemiology</td>
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<tr>
<td>Pathology</td>
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<td>Physiology</td>
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<td>Psychobiology</td>
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<td>Psychology</td>
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<tr>
<td>Psychology with a concentration in Neuropsychology</td>
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<tr>
<td>Translational Neuroscience</td>
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</tbody>
</table>
APPENDIX C

Summary of current external funding related to social and behavioral neuroscience in the affiliated departments

Department of Biobehavioral Health

Thomas Gould

2016 – 2021 Gene Variants for Nicotine Withdrawal Deficits in Learning (Gould, PI)
National Institute on Drug Abuse/National Institutes of Health, U01
Role: Principal Investigator

Jennifer Graham-Engeland

09/30/2012- 08/31/2017
NCE-2018
Inflammatory mediators of stress and cognitive aging
National Institute on Aging (NIA) NIH R01 AG042595-01
Role: PI (Multiple PIs: Jennifer Graham-Engeland & Christopher Engeland)

Joshua Smyth

2016 – 2021 Using serious game technology to improve sensitivity to eye gaze in autism
(PI: S. Scherf, PhD)
National Institutes of Health-National Institute of Mental Health, R61-R33.
Role: Co-Investigator. [R33 contingent upon meeting R61 milestones]

2016 – 2020 Effects of cigarette availability on neural and subjective sensitivity to rewards
(PI: S. Wilson, PhD)
National Institutes of Health-National Institute on Drug Abuse, R01
Role: Co-Investigator

2016 – 2020 Ecological Momentary Assessment of cannabis use effects in young adults
(PI: E. Ansell, PhD)
National Institutes of Health-National Institute on Drug Abuse, R01
Role: Co-Investigator

2015 – 2017 Mechanisms of mindfulness training and stress reduction (PI: J.D. Creswell, PhD)
National Institutes of Health-National Center for Complementary and Integrative Health, R21
Role: Site Principal Investigator
2017 – 2018  **Cognitive Changes Associated with Hormonal Treatment for Breast Cancer**  
(PI: S. Berenbaum)  
PSU Health & Environment seed grant  
**Role:** Co-Investigator

**David Vandenbergh**

2011 – 2015  **Implications of Genetic Variance for Substance Use Interventions in Adolescence**  
(PI: Cleveland)  
National Institutes of Health-National Institute on Drug Abuse, R01DA030389-01  
**Role:** M-Principal Investigator (15% for 12 months, 1.8 person months Effort)

**Sonia Cavigelli**

2014 – 2019  **Genetics of chronic mild stress and alcohol consumption**  
(PI: Jones)  
National Institutes of Health, R01AA021951  
**Role:** Consortium Principal Investigator

2016 – 2018  **Piezoelectric ring mounted oscillated syringe system for lower distress, lower force, laboratory animal vascular access and injection to improve data quality and laboratory animal welfare**  
(Business PI: Ocon-Grove)  
National Institutes of Health, R44OD023024-01  
**Role:** Subaward Principal Investigator

2015 – 2016  **Hippocampal transcriptional response to chronic adolescent social stress**  
(PI: Cavigelli)  
College Health and Human Development and Huck Institutes of the Life Sciences  
**Role:** Principal Investigator

2012 – 2015  **Mechanisms behind asthma-internalizing disorder co-morbidity: a novel mouse model**  
(PI: Cavigelli)  
National Institutes of Health, R21MH092667  
**Role:** Principal Investigator

2012 – 2015  **Phase II SBIR: RAIL System reduces variability and concentration of corticosterone in blood sampling**  
(Business PI: Clement)  
National Institutes of Health, R44AG037214  
**Role:** Academic Principal Investigator

**Orfeu Buxton**

2013 – 2018  **Biopsychosocial determinants of sleep and wellbeing for teens in Fragile Families**
National Institutes of Health/National Institute of Child Health and Human Development, R01 HD073352
**Role:** Subcontract Principal Investigator

2015 – 2020  **Lifestyle & medication management to lower diabetes risk in severe mental illness**
National Institutes of Health/National Institute of Mental Health, R01DK103663
**Role:** Subcontract Principal Investigator

2016 – 2017  **The use of wrist-worn devices and auditory stimulation for evaluating sleep**
NSF/STTR Award No.1622766
**Role:** Subcontract Principal Investigator

2017 – 2019  **Non-pharmacological improvement of sleep structure in midlife and older adults**
National Institutes of Health/National Institute on Aging SBIR, R43AG056250
**Role:** Subcontract Principal Investigator

**Helen Kamens**

2011 – 2017  **Genetics of alcohol and nicotine behaviors** (Kamens, PI)
National Institute on Alcohol Abuse and Alcoholism, NIH, KO1 AA019447
**Role:** Principal Investigator

**Department of Human Development and Family Studies**

**Lisa Gatzke-Kopp**

2017 – 2019  **Family Life Project- Project I: Stress, Self-regulation and Psychopathology in Middle Childhood** (Greenberg, PI)
National Institute of Child Health and Human Development, R01HD081252
**Role:** Co-Investigator

2016 – 2018  **Early Life Stress and the Environmental Origins of Disease: a Population-based Prospective Longitudinal Study of Children in Rural Poverty (Family Life Project)** (Blair, PI)
National Institute of Child Health and Human Development
**Role:** Co-Principal Investigator Penn State subcontract

2015 – 2019  **Targeting Neurobiological and Behavioral Mechanisms of Self-Regulation in High-Risk Families** (Skowron/Fisher, MPIs)
National Institutes of Mental Health and Drug Abuse, R01DA036533
**Role:** Consultant

2014 – 2019  **Toward a Unifying Model of Self-Regulation and Its Development** (Cole & Ram, Co-PIs)
National Institute of Child Health and Human Development, R01HD076994-01A
Role: Co-Investigator

2012 - 2017 CAREER: Genes, Environments, and Experiences in the Phenotypic Development of Cost Discounting and High Risk Decision Making (Gatzke-Kopp, PI)
National Science Foundation, Decision, Risk, and Management Science division.
SES-1150844
Role: Principal Investigator

Charles Geier

2017 – 2017 Brain Mechanisms of Overeating in Children (Kathleen Keller, PI, Nutrition)
National Institute of Diabetes and Digestive and Kidney Diseases, R01 DK110060-01A1
Role: Co-Investigator

2016 – 2020 Effects of Cigarette Availability on Neural and Subjective Sensitivity to Rewards (Stephen Wilson, PI, Psychology)
National Institute for Drug Abuse, R01 DA041438-01
Role: Co-Investigator

2014 – 2017 Neurodevelopmental Changes Make Adolescents Inconsistent, Not Insane
Social Science Research Institute, Penn State University, Level II Seed
Role: Principal Investigator, HDFS

Diana Fishbein

2015 – 2016 Physiological Co-Regulation of Stress between Maternal Caregivers and their Children: A Translational Science Pilot Study (Co-PI with Dr. Laurel Kiser at University of Maryland School of Medicine)
National Institute of Child Health and Human Development
Role: Co-Principal Investigator

2014 – 2016 Administrative CRAN Supplement to Developmental fMRI Study of Alcohol Use in Adolescence
National Institute on Alcohol Abuse and Alcoholism
Role: Principal Investigator: 15% with fMRI Center in Neurology Department, Georgetown University)

2013 – 2018 Mechanisms Underlying the Relationship between Sleep Problems and Drug Use in Adolescent (PI: 20% with Mary Carskadon at Brown University)
National Institute on Drug Abuse, R01
Role: 20% Principal Investigator

2011 – 2016 Developmental fMRI Study of Alcohol Use in Adolescence (PI: 18% with fMRI Center in Neurology Department, Georgetown University)
National Institute on Alcohol Abuse and Alcoholism, R01
Role: 18% Principal Investigator
Peter Molenaar

2012 – 2016 **A high precision method to estimate effective connectivity networks at the group and individual levels** (PI: Peter C.M. Molenaar (HDFS))

NSF 1157220

Co-investigators: Dr. Frank G. Hillary (Psychology), Dr. Ping Li (Psychology), Dr. Michael J. Rovine (HDFS)

**Role:** Principal Investigator

Cynthia Stifter


PHS (National Institute of Child Health and Human Development)

**Role:** Co-Investigator

2013 – 2018 **Risks for Childhood Obesity II: Parenting and Self-Regulation in Early Childhood**

PHS (National Institute of Diabetes and Digestive and Kidney Diseases)

Co-investigator: David Vandenbergh

**Role:** Principal Investigator

Department of Psychology

Arnett, Peter

2016 – 2020 **An Online Program to Reduce Depression in MS – Phase III International Multicenter Randomized Controlled Trial**

National MS Society (subaward through University of Berlin)

**Role:** Site Principal Investigator

2014-2018 **Standardization and Normative Data of the Symbol Digit Modalities Test-Oral Version**

Kessler Foundation

**Role:** Principal Investigator

Azar, Sandy

2015 – 2018 **The Role of Sleep and Social Information Processing in Child Neglect**

National Institutes of Health/National Institute of Child Health and Human Development (PI: S. Azar)

**Role:** Principal Investigator

Cole, Pamela
2016 – 2018  **Children’s Neural Processing of the Emotional Environment: Angry Voices**  
National Institutes of Health/National Institute of Mental Health (PI: P. Cole)  
Co-Investigators: Rick O. Gilmore, Psychology, Koraly Perez-Edgar, Psychology  
Kathryn S. Scherf, Psychology, Michelle Vigeant, Acoustics  
**Role:** Principal Investigator

**Dennis, Nancy**

2016 – 2019  **Elucidating cognitive and neural mechanisms to enhance associative memory in younger and older adults**  
(PI: Amy Overman, Elon University)  
National Institute on Aging, R15  
**Role:** Co-Principal Investigator

**Diaz, Michele**

2016 – 2021  **Psychosocial Determinants and Biological Pathways to Healthy Aging**  
(PATHWAYS, PI: Almeida)  
National Institutes of Health/National Institute on Aging, T32 T32G049676  
**Role:** Co-Principal Investigator

2016 – 2021  **PIRE: Translating cognitive and brain science in the laboratory and field to language learning environments**  
(PIs: Kroll, Dusias, Lipski, Van Hell)  
NSF PIRE  
**Role:** Participating Faculty

**Hallquist, Michael**

2013-2018  **Neurodevelopmental Origins of Emotion Dysregulation in Borderline Personality**  
NIMH K01 MH097091  
**Role:** Principal Investigator

2015- 2020  **Developmental Changes in Striatal Neurophysiology through Adolescence**  
NIMH R01 MH080243 (PI: Beatriz Luna)  
**Role:** Co-Investigator

2017-2022  **Psychobiology of Suicidal Behavior in Borderline Personality Disorder**  
NIMH R01 MH048463 (PI: Alex Dombrovski)  
**Role:** Co-Investigator

**Hillary, Frank**

2017 – 2020  **Examining elderly traumatic brain injury and risk for neurodegeneration**  
(PI: Hillary, F.)  
Commonwealth of Pennsylvania: Department of Health  
**Role:** Principal Investigator
Huang-Pollock, Cynthia

2017 – 2022 Identifying sources of neurocognitive heterogeneity in ADHD and Anxiety
(Huang-Pollock, PI)
National Institutes of Mental Health, 2 R01 MH084947-06 (Grant Proposal under review)
Role: Principal Investigator

Li, Ping

2016 – 2018 Supplement to “NCS-FO (part of the BRAIN Initiative program): Integrative Neural Approaches to Understanding Science Text Comprehension (Li: PI)
National Science Foundation, BCS-1633817
Role: Principal Investigator

2015 – 2018 NCS-FO (part of the BRAIN Initiative program): Integrative Neural Approaches to Understanding Science Text Comprehension (Li: PI)
National Science Foundation, BCS-1533625
(Co-PI: Roy Clariana; Bonnie Meyer, Penn State University)
Role: Principal Investigator

2014 – 2017 Lexical and sentence processing in novice L2 learners: Psycholinguistic and neurocognitive investigations (PI: Janet van Hell, Pennsylvania State University)
National Science Foundation, BCS-1349110
Role: Co-Principal Investigator

Lunkenheimer, Erika

National Institutes of Health/National Institute of Child Health and Human Development, K01HD068170
Role: Principal Investigator

Neiderhiser, Jenae

2016 – 2018 The Early Growth and Development Study Pediatric Cohort
National Institutes of Health/OD
(Multiple-PI with Leslie Leve and Jody Ganiban). (2-year planning period; 5-year data collection period UH3 9/1/18-8/31/23 pending)
UG3 OD023389
Role: Multiple Principal Investigator
(Co-Investigator with Multiple PI’s Marjorie Gatz and Nancy Pedersen)  
R56 AG037985 (bridge funding)  
**Role:** Co-Principal Investigator

2016 – 2019 **Understanding Virtue and Virtue Development in the Context of Heritability Information**  
(Multiple-PI with Matthew Vess, Rebecca Brooker, and Matt Stichter)  
John Templeton Foundation  
**Role:** Principal Investigator

2014 – 2016 **Family and Peer Processes and G-E Interplay in Middle School: An Adoption Study** (Co-Investigator with Leslie Leve, PI)  
The National Institute on Child Health and Human Development, R56 HD42608 (bridge funding) (1 year no-cost extension through 8/31/17)  
**Role:** Co-Investigator

2013 – 2017 **Siblings reared apart: A naturalistic cross-fostering study of young children**  
(Co-Investigator with Leslie Leve, PI)  
The National Institute on Drug Abuse, R01 DA035062 (1 year no-cost extension through 5/31/18)  
**Role:** Co-Investigator

2011 – 2016 **Interactions Among Environment, Genes, and Preventive Intervention in Drug Use** (Co-Investigator with Hobart Cleveland, PI)  
The National Institute on Drug Abuse, R01 DA030389 (1-year no-cost extension through 8/31/17)  
**Role:** Co-Investigator

NIH-National Institute on Drug Abuse, R01 DA045108, pending council review  
Co-Investigator: Lorah Dorn, Nursing  
**Role:** Principal Investigator

**Perez-Edgar, Koraly**

2017-2019 **Effects of stimulant medication on the motor system in adult attention-deficit/hyperactivity disorder**  
NARSAD, Young Investigator Award  
Principal Investigator: Kristina Neely, Penn State University  
Co-Investigator: Cynthia Huang-Pollock, Penn State University  
**Role:** Mentor
2017-2019  **Neural Predictors of Response to Cognitive Behavior Therapy for Adolescent Depression**
Klingenstein
Third Generation Foundation
Principal Investigator: Autumn Kujawa, Hershey Medical School
**Role:** Secondary Mentor

2016-2021  **Emerging relations between attention and negative affect in the first two years of life**
National Institute of Mental Health, R01 MH109692
Principal Investigators: Koraly Pérez-Edgar, Penn State University, Kristin Buss, Penn State University, Vanessa LoBue, Rutgers University-Newark
**Role:** Contact Principal Investigator

2015-2017  **Children’s neural processing of the emotional environment: Angry voices**
National Institute of Mental Health, R21 MH104547
Principal Investigator: Pamela Cole, Penn State University
**Role:** Co-Investigator

2015-2017  **The neurobiology of motor inhibition in ADHD**
CTSI KL2, The Pennsylvania State University
Principal Investigator: Kristina Neely, Penn State University
**Role:** Co-Primary Mentor

2011-2016  **Attention training’s impact on biobehavioral correlates of behavioral inhibition**
National Institute of Mental Health, BRAINS, R01 MH094633
**Role:** Principal Investigator

**Scherf, Suzy**

2017-2022  **Investigating dynamic neural systems underlying changing social representations of faces during development**
NIMH, R01 MH112573
**Role:** Principal Investigator

2016-2018  **Using Serious Game Technology to Improve Sensitivity to Eye Gaze in Autism**
National Institute of Mental Health, R61 MH110624
**Role:** Principal Investigator

**van Hell, Janet**

2014 – 2018  **Lexical and sentence processing in novice L2 learners: Psycholinguistic and neurocognitive investigations.** (PI: van Hell)
NSF BCS-1349110
Co-PI: Li

**Role:** Principal Investigator

2016 – 2018  
Divergent thinking in the engineering context: experimentation to connect performance to neurocognitive responses (PI: Siddique, U. Oklahoma)  
NSF DUE 1561660  
**Role:** Principal Investigator Subcontract

2015 – 2018  
Neurocognition of speech comprehension in social context: speaker identity and listener experience (PI: Grey)  
SMA-1514276 (SBE Postdoctoral Research Fellowship)  
**Role:** Co-Principal Investigator

2016 – 2021  
PIRE: Translating cognitive and brain science in the laboratory and field to language learning environments (PI: Dussias)  
NSF OISE 1545900  
Other Co-PIs: Kroll and Lipski  
**Role:** Co-Principal Investigator

2010 – 2017  
PIRE (Partnerships in International Research and Education): Bilingualism, Mind and Brain: An interdisciplinary program in cognitive psychology, linguistics, and cognitive neuroscience (PI: Kroll)  
NSF OISE-0968369  
Other Co-PI: Dussias  
**Role:** Co-Principal Investigator

2017 – 2020  
Neurocognitive experimentation to enhance STEM education: Studies on divergent thinking in female and male engineering students (PI: Van Hell)  
NSF IUSE:EHR 1726811  
Co-PI: Siddique  
**Role:** Principal Investigator

Wilson, Stephen

2017 – 2021  
**Brain mechanisms of overeating in children** (PI: Kathleen Keller, Ph.D.)  
NIH/National Institute of Diabetes and Digestive and Kidney Diseases, R01DK110060  
**Role:** Co-Investigator

2016 – 2020  
**Effects of cigarette availability on neural and subjective sensitivity to rewards** (PI: Stephen Wilson)  
NIH/National Institute on Drug Abuse, R01DA041438  
**Role:** Principal Investigator

2014 – 2017  
**Random nicotine delivery: A novel treatment for cigarette addiction** (Contact PI: Sue Grigson, Ph.D.)
NIH/ National Institute on Drug Abuse, R21DA037149
Role: Co-Principal Investigator

2014 – 2017  (PQA1) FMRI neurofeedback and decision-making in habitual cigarette smokers
(PI: Stephen Wilson)
NIH/National Cancer Institute, R21CA190093
Role: Principal Investigator

Wyble, Bradley

2013 – 2018  Integrating Spatial and Temporal Models of Visual Attention
Bradley Wyble
National Science Foundation (BCS-1331073)
Role: Principal Investigator

2017 – 2020  CompCog: Bridging the gap between behavioral and neural correlates of attention using a computational model of neural mechanisms
Bradley Wyble
National Science Foundation (BCS-1331073)
Role: Principal Investigator
Appendix D

Job ads in the area of Social and Behavioral Neuroscience posted
in the APA Monitor and Chronicle of Higher Education, April - August 2017

Tenure-track Professor in Visual Cognitive Neuroscience
Johns Hopkins University – Baltimore, Maryland, United States

Assistant or Associate Professor in Human Social/ Affective/Cultural Neuroscience
University of Michigan – Ann Arbor, Michigan, United States

Assistant Professor, University of Maryland at Baltimore
https://chroniclevitae.com/jobs/163259-17000166

Addiction Studies, Tenure-track, Minot State University, North Dakota
https://chroniclevitae.com/jobs/0000373808-01

Tenure Track Faculty Position in Psychiatry, Northwestern University
https://chroniclevitae.com/jobs/0000372090-01

Assistant Professor of Neuropsychology, University of Kentucky
https://chroniclevitae.com/jobs/157085-FE00942

Assistant Professor of Psychological Sciences
Purdue University – West Lafayette, Indiana, United States

Faculty Positions in Learning and Neuroplasticity
The University of Iowa – Iowa City, Iowa, United States

Cognition, Brain, and Behavior Assistant Professor
University of Notre Dame – Notre Dame, Indiana, United States

Assistant Professor of Brain and Cognitive Science
University of Illinois – Champaign, Illinois, United States

Assistant Professor -- Neuroscience -- Department of Psychology
Xavier University of Louisiana – New Orleans, Louisiana, United States

Tenure Track Assistant or Associate Professor of Psychology & Neuroscience
Baylor University – Waco, Texas, United States

Assistant/Associate Professor, Nonhuman Primate Behavioral Neuroscience
Emory University and Yerkes National Primate Research Center – Atlanta, Georgia, United States

Tenure-Track Professors in I/O and Cognitive Areas
**Rice University** – Houston, Texas, United States

Assistant Professor of Psychology/Neuroscience

**Rhodes College** – Memphis, Tennessee, United States

Assistant Professor Clinical Neuroscience

**IU Department of Psychological & Brain Sciences** – Bloomington, Indiana, United States

Assistant Professor, Neural Mechanisms of Cognition and Behavior

**Emory University** – Atlanta, Georgia, United States

Tenure-Track Behavioral Neuroscience Professor

**Williams College** – Williamstown, Massachusetts, United States

Assistant or Associate Professor of Psychology/Neuroscience.

**Union College** – Schenectady, New York, United States

Assistant Professor - Human Developmental Cognitive Neuroscience

**Ohio State University** – Columbus, Ohio, United States

Assistant Professor - Clinical Neuroscience

**Ohio State University** – Columbus, Ohio, United States

Assistant Professor

**Iowa State University**, Iowa (Posted 09/06/17)
https://chroniclevitae.com/jobs/0000384799-01

Assistant Professor in Social Neuroscience/Affective Neuroscience

**Temple University**, Pennsylvania (Posted 08/24/17)
https://chroniclevitae.com/jobs/0000382235-01

Tenure-Track Assistant Professor in Behavioral Neuroscience

**Auburn University**, Alabama (Posted 08/24/17)
https://chroniclevitae.com/jobs/0000382811-01

Tenure-Track Assistant Professor in Clinical Neuroscience

**Auburn University**, Alabama (Posted 08/24/17)
https://chroniclevitae.com/jobs/0000382816-01

Assistant Professor of Psychology

**University of Oregon**, Oregon (Posted 08/18/17)
https://chroniclevitae.com/jobs/209551-520647

Assistant Professor, Dept. of Psychology

**Bridgewater State University**, Massachusetts (Posted 08/09/17)
https://chroniclevitae.com/jobs/0000380436-01
ASSISTANT PROFESSOR - DEPARTMENT OF PSYCHOLOGY - BEHAVIORAL NEUROSCIENCE
University of Hawaii at Manoa, Hawaii (Posted 08/08/17)
https://chroniclevitae.com/jobs/0000380214-01

Assistant Professor, Psychology
University of Nevada, Reno, Nevada (Posted 08/08/17)
https://chroniclevitae.com/jobs/0000380120-01

Assistant Professor - Psychology
Arcadia University, Pennsylvania (Posted 08/01/17)
https://chroniclevitae.com/jobs/0000379065-01

Assistant Professor in Cognitive Sciences
University of California, Irvine, California (Posted 07/19/17)
https://chroniclevitae.com/jobs/0000376945-01

Associate or Full Professor
The University of Florida, Florida (Posted 08/31/15)
https://chroniclevitae.com/jobs/134130-493314

Assistant Professor in the Area of Cognitive or Affective Science
University of Pennsylvania – Philadelphia, Pennsylvania, United States

Assistant Professor Developmental Psychopathology
University of Minnesota – Minneapolis, Minnesota, United States

ASSISTANT PROFESSOR IN QUANTITATIVE PSYCHOLOGY Including computational techniques for brain imaging
USC Psychology Department – Los Angeles, California, United States

Two (2) Tenure-track Appointments in Psychology
Queen's University – Kingston, Ontario, Canada

Assistant Professor - Department of Psychology - Developmental Psychology
University of California, Berkeley – Berkeley, California, United States

Assistant Professor of Psychology
Georgia State University – Atlanta, Georgia, United States

Tenure-track Assistant Professor in Abnormal Psychology
Bard College – Annandale-on-Hudson, New York, United States

Assistant Professor in Social Psychology
Boston College – Chestnut Hill, Massachusetts, United States
Assistant Professor in Psycholinguistics
Brown University – Providence, Rhode Island, United States

Tenure-track Assistant Professor in Social-Personality Psychology
University of Rochester – Rochester, New York, United States

PSYCHIATRY RESEARCH INSTITUTE AT MONTEFIORE/EINSTEIN (PRIME)
Albert Einstein College of medicine and Montefiore Medical Center – Bronx, NY, United States

Assistant Professor in Decision Sciences
University of Minnesota – Minneapolis, Minnesota, United States

Two Full-Time, Ten-Month, Tenure Track Positions
University of La Verne – La Verne, California, United States

Assistant Professor - Tenure Track
Rutgers, The State University of New Jersey – Camden, New Jersey, United States

Psychology - CFS Professorial Faculty
Brigham Young University Dept. of Psychology – Provo, Utah, United States

Assistant Professor in Developmental Psychology
University of Washington, Department of Psychology, Washington (Posted 08/30/17)
https://chroniclevitae.com/jobs/0000383826-01

Tenure Track - Assistant Professor
Vanderbilt University – Nashville, Tennessee, United States

Assistant Professor of Neuroscience
Middlebury College, Vermont (Posted 08/01/17)
https://chroniclevitae.com/jobs/0000378945-01
Appendix E

Specific RFAs and Program Announcements from NIH that reflect the increasing integration of neuroscience into the social and behavioral sciences.

Current funding opportunities in social and behavioral neuroscience from the National Institute on Aging:

- **Pilot Clinical Trials for the Spectrum of Alzheimer's Disease and Age-related Cognitive Decline (R01)**
  
  *NIA Number: PAR-16-365*
  
  *Release Date: October 6, 2015*
  
  *Expiration Date: September 8, 2018*

- **Phase III Clinical Trials for the Spectrum of Alzheimer's Disease and Age-related Cognitive Decline (R01)**
  
  *NIA Number: PAR-16-364*
  
  *Release Date: October 6, 2015*
  
  *Expiration Date: September 8, 2018*

- **Capturing Complexity in the Molecular and Cellular Mechanisms Involved in the Etiology of Alzheimer's Disease (R01)**
  
  *NIA Number: PAR-15-358*
  
  *Release Date: September 25, 2015*
  
  *Expiration Date: September 8, 2018*

- **Novel Approaches to Diagnosing Alzheimer's Disease & Predicting Progression (R01)**
  
  *NIA Number: PAR-15-359*
  
  *Release Date: September 25, 2015*
  
  *Expiration Date: September 8, 2018*

- **Major Opportunities for Research in Epidemiology of Alzheimer's Disease and Cognitive Resilience (R01)**
  
  *NIA Number: PAR-15-356*
  
  *Release Date: September 24, 2015*
  
  *Expiration Date: September 8, 2018*

- **Understanding Alzheimer's Disease in the Context of the Aging Brain (R01)**
  
  *NIA Number: PAR-15-357*
  
  *Release Date: September 24, 2015*
  
  *Expiration Date: September 8, 2018*

- **Aging Research on Stress and Resilience to Address Health Disparities in the United States (R01)**
  
  *NIA Number: RFA-AG-16-022*
Selected program announcements in social and behavioral science from the National Institute of Mental Health:

  PAR-17-176 From Genomic Association to Causation: A Convergent Neuroscience Approach for Integrating Levels of Analysis to Delineate Brain Function in Neuropsychiatry (Collaborative U01).

- **Global Brain and Nervous System Disorders Research Across the Lifespan (R01)**
  PAR-17-314
  Expiration: 11/8/2009

- **PsychENCODE: Non-coding Functional Elements in the Human Brain and their Role in the Development of Psychiatric Disorders (Collaborative U01)**
  PAR-18-258
  Expiration: 6/7/2019

- **From Genomic Association to Causation: A Convergent Neuroscience Approach for Integrating Levels of Analysis to Delineate Brain Function in Neuropsychiatry**
  PAR-17-252
  Expires: 9/8/2020

NICHD Active Funding opportunities in social and behavioral neuroscience:

- **Interaction of HIV and Neurodevelopment of Children in Resource-Limited Settings: Improving Assessments (R01)**
  RFA-HD-18-019

- **Genetic Susceptibility & Variability of Human Structural Birth Defects (R01)**
  PAR-17-236

- **Outcome Measures for Use in Treatment Trials for Individuals with Intellectual and Developmental Disabilities (R01)**
  PAR-16-216

- **Preclinical Research on Model Organisms to Predict Treatment Outcomes for Disorders Associated with Intellectual and Developmental Disabilities (R01)**
  PAR-16-215

- **Systems Developmental Biology for Understanding Embryonic Development and the Ontogeny of Structural Birth Defects**
  PAR-15-020
• Research on Autism and Autism Spectrum Disorders (ASDs) (R01)
  PA-16-388
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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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: Smeal College of Business
Department or Instructional Area: Management and Organization

New Graduate Program, Option, or Minor: Add

Designation of new graduate program: Master of Strategic Management and Executive Leadership
Classification of Instructional Programs (CIP) Code: [Blank]
Designation of new graduate option: [Blank]
Designation of new graduate minor: [Blank]

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

Existing Graduate Program Option, or Minor: Change Drop
Office of the Vice Provost and Dean of the Graduate School

Current designation of graduate program: [Blank]
Current designation of graduate option: [Blank]
Current designation of graduate minor: [Blank]

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

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

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

Submitted by Graduate Program Head

Vilmos Misangyi
Printed name
Signature

Date: 4/2/18

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

Arvind Rangaswamy
Printed name
Signature

Date: 4/5/18

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

Russell Barton
Printed name
Signature

Date: 4/3/18
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb
Printed name
Signature
Date: 11/6/2018

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

On Behalf of C. Andrew Cole
Printed name
Signature
Date: 11/6/2018

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken
Printed name
Signature
Date: 11/6/2018
From: Al Vicere <avicere@vicere.com>  
Date: Friday, April 6, 2018 at 10:24 AM  
To: Michelle Rockower <mkk114@psu.edu>  
Subject: SMExL

Hi Michelle,

I have reviewed the updated SMExL program proposal and I approve the document and recommend it for submission to the Graduate School. Please let me know if you have any questions.

Thanks,

Al

Dr. Albert A. Vicere  
Vicere Associates, Inc.  
Phone: +1.814.667.3137
PROPOSAL —

MASTER OF MANAGEMENT IN STRATEGIC MANAGEMENT AND EXECUTIVE LEADERSHIP

THE PENNSYLVANIA STATE UNIVERSITY — SMEAL COLLEGE OF BUSINESS
ALBERT A. VICERE, PROFESSOR OF BUSINESS ADMINISTRATION, SMEAL COLLEGE OF BUSINESS
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Introduction

The Smeal College of Business is proposing a Master of Management in Strategic Management and Executive Leadership (SMEXL) program. The SMEXL program is a 30 credit online graduate program targeted to those who typically have about 10 years of work experience including five or more years of management experience, though exceptional students that fall outside of these general guidelines may be considered. The SMEXL program is designed to be an engaging, practical and comprehensive program that helps seasoned professionals learn how to formulate compelling strategies, align organizational elements in the pursuit of those strategies, and build culture and commitment across an organization.

The program format enables busy professionals to balance work, education, and personal demands more effectively in pursuit of their degree. With core course work in Strategic Management, Strategic Leadership, Strategy Implementation and Organizational Change, Leadership and Identity, and Ethical Responsibilities of Leadership, mid-career, experienced professionals gain a solid foundation for advancing in leadership positions. In addition to the core curriculum, students may select from electives and earn concentrations in the fields of Negotiations and Influence or Corporate Innovation and Entrepreneurship.

A. Program Justification

This proposed program is well researched and has been validated with a formal market study conducted by Global Diagnostics, LLC and corroborated by additional market research by World Campus. The program is unique. Other institutions currently offer Master’s level programs in strategy and/or management targeted to recent college graduates, but the market for a strategic management and executive leadership program targeted to mid-career, experienced managers looking to advance in leadership positions is largely unserved. The proposed Master of Management in Strategic Management and Executive Leadership to be offered through the World Campus would fill a gap in the existing World Campus graduate business and management portfolio.

Background

According to Association to Advance Collegiate Schools of Business (AACSB), “business schools offer a diverse set of degree programs (as well as many certificate, continuing education, and executive education programs) to meet the lifelong learning needs of individuals. This variety of programs is necessary because no single program is right for all individuals or for any single individual over the course of their career. As a whole, the business school ecosystem, including the business community, must work in concert to provide individuals with the right knowledge, skills, and abilities at the beginning of their career and throughout their work life” (AACSB Blog, 2018). Expanding on that notion, the European Foundation for Management Development (EFMD) recently reported on a CarringtonCrisp/EFMD study that found the combined percentage of respondents who prefer part-time (16%), online (19%) or blended (5%) study exceed the total of either full-time option, reflecting programmatic changes and opportunities brought about by new technologies and new delivery models (EFMD, 2018).

P. Christopher Earley, dean at the Krannert School of Management at Purdue University estimated in a US News interview that half of Krannert’s students were pursuing specialized degree programs. Earley noted, "I would predict within five years Krannert will probably have three-quarters of [its] students in..."
specialized programs and only 25 percent in a full-time, two-year M.B.A." (Smith-Barrow, 2013). Paula Steisel Goldfarb, director of M.B.A. and executive M.B.A. admissions and financial aid at NYU’s Stern School of Business, noted that specialized degree program candidates, "really want to focus and deepen their knowledge in a specific subject area, whereas for an M.B.A. program, students are looking at broad-based skills.” Careers and employment are changing rapidly, so students want to acquire new skills and achieve a return on their investment quickly (Smith-Barrow, 2013).

In a recent analysis, the Association to Advance Collegiate Schools of Business (AACSB) used a controlled set of schools that reported enrollment data for the periods 2011–12 and 2016–17 in order to quantify and compare enrollment growth between degree programs. Total business degree program enrollment over this five-year period increased by almost 11 percent globally. The “rising star” was in specialized master’s programs, which registered more than a 30 percent increase. Generalist master’s degree enrollments (M.B.A.) were up a modest 3 percent globally (AACSB Blog, 2018).

Poets&Quants, a news website devoted to the coverage of business schools, suggested that at least in the U.S. market, “there’s nowhere for business master’s programs to go but up.” Quoting a recent Graduate Management Admissions Council (GMAC) study, “Fueled by growing candidate demand, non-M.B.A. business master’s programs continue to proliferate. Globally, the percentage of candidates considering only business master’s degrees — such as Master of Finance, Master of Accounting, and Master in Management — has increased from 15% in 2009 to 23% in 2016. This rise in interest has been particularly strong among candidates from East and Southeast Asia and Western Europe, where now more than 2 in 5 candidates report considering only these program types” (Either, 2017).

In another Poets&Quants article, Baron (2015) quoted from a recent GMAC study, “Globally, 22% of prospective business school students are focused exclusively on specialized master’s programs, according to the 2015 Prospective Students Survey by the Graduate Management Admission Council, which administers the GMAT. Student interest in specialized business master’s programs alone has increased across all respondent groups—career enhancers, career switchers, and aspiring entrepreneurs, the GMAC report says. Among ‘career enhancers,’ who are defined by GMAC as those who want personal and professional growth, and to be recognized by their employers as able to contribute more, the percentage interested only in specialized master’s programs grew to 31% from 22% between 2010 and 2014. The percentage of ‘career switchers’ interested only in those programs nearly doubled to 19% from 10%, while 16% of those in the ‘aspiring entrepreneur’ category were focused only on specialized master’s programs by 2014, compared to 10% in 2010.”

Baron (2015) noted that in a 2013 study, AACSB, the global accrediting body for business schools, reported fast-rising interest in specialized master’s programs, while interest in M.B.A. programs was dropping slightly. AACSB reported that from 2008/09 to 2012/13, M.B.A. enrollment had fallen 3% in North America, while the numbers of students taking specialized master’s programs had skyrocketed 38%. Worldwide, schools had added 142 such programs, many of them in finance and accounting, followed by general business, strategic management, and quantitative methods. In the same article, Tim Westerbeck, founder of the business school consulting firm Eduvantis, said his firm’s research showed a general upward trend in interest in specialized master’s programs. Westerbeck offered that contributing to the popularity of many programs is millennial graduate students’ tendency to seek relatively short programs with a narrow focus and rigorous discipline (Baron, 2015).
Our research indicated that the number of U.S. managers who have at least five years of managerial experience, are interested in a business-related Master’s degree, and prefer the SMEXL specialized concept is 464,000, using a combination of Bureau of Labor Statistics data and the data obtained in our study (Global Diagnostics LLC, 2017, 2018). Consistent with the above discussion, we found that although the online M.B.A. continues to be the most desirable Master’s level option for most experienced managers who are interested in pursuing a business-related degree at Penn State, a significant number of potential students prefer a specialized program specifically focused on the skills and knowledge required to formulate compelling strategies, align organizational elements in the pursuit of those strategies, and build culture and commitment across an organization. The SMEXL concept addresses that group of potential students.

Penn State currently offers three programs that are somewhat related to the proposed SMEXL program: the online M.B.A. program coordinated by the Smeal College of Business which focuses on broad functional areas of business and quantitative skills; the Psychology of Leadership (PSYLD) program offered by the College of Liberal Arts which focuses on the application of psychological and leadership theory to organizational leadership; and the Organization Development and Change (ODC) program offered by the College of Education which focuses on the theory and practice of organization change and development. By comparison, SMEXL is a professional business degree focused on strategic leadership, strategy development ad strategy implementation. In addition, while the age of the target population for the online M.B.A. is similar to SMEXL, the program is targeted to a different segment of the market. Similarly, the PSYLD and ODC programs are targeted to very different market segments and academic interests. Of our sample of prospective students, 19% preferred the SMEXL concept over the online M.B.A. program, the Psychology of Leadership (PSYLD) program offered by the College of Liberal Arts and the Organization Development and Change (ODC) program offered by the College of Education. Moreover, 43% of the respondents in this study would pursue a similarly-designed degree at another university if Penn State did not offer the option.

The research cited above corroborates the observations of our faculty and staff who have had discussions with individuals who were interested in a master’s level program in business but were not interested in an M.B.A.. Those individuals tended to be mid-career with managerial experience and familiarity with budgets and business fundamentals. Rather than the foundational and financial focus of an M.B.A., an executive audience was expressing interest in a program focused on strategic thinking and strategic leadership to be better prepared for continued advancement in leadership positions.

Summary

With core course work in Strategic Management, Strategic Leadership, Strategy Implementation and Organizational Change, Leadership, and Ethics, the proposed Master of Management in Strategic Management and Executive Leadership (SMEXL) program will give mid-career, experienced professionals looking for a specialized business degree in the areas of Strategic Leadership and Strategic Management a solid foundation for advancing their careers. SMEXL students will come from diverse disciplines and organizational backgrounds and already will have gained significant experience, typically about 10 years of work experience including five or more years of management experience, though exceptional students that fall outside of these general guidelines may be considered. They will possess a desire to advance in strategic management and Executive Leadership roles. SMEXL courses will be taught by professors from Smeal’s highly-regarded Department of Management & Organization.
Faculty Members

**CVs are available for all faculty**

Program Head

Albert A. Vicere, Professor of Business Administration, Smeal College of Business

The Graduate Faculty

Briscoe, Forrest, Associate Professor of Management and Organization

Dang, Carolyn, Assistant Professor of Management and Organization

Eury, Jennifer, Instructor of Management and Organization

Garud, Raghu, Professor of Management and Organization, Research Director of Farrell Center for Corporate Innovation and Entrepreneurship

Gioia, Denny, Professor of Management and Organization

Gustafson, D. Andy, Senior Lecturer of Management and Organization

Hambrick, Don, Professor of Management and Organization

Humphrey, Stephen, Professor of Management and Organization

Joshi, Aparna, Professor of Management and Organization

Kreiner, Glen, Professor of Management and Organization

Lungeanu, Razvan, Assistant Professor of Management and Organization

Misangyi, Vilmos, Professor of Management and Organization, Department Head of Management and Organization

O’Hara, Lisa, Senior Lecturer of Management and Organization

Paruchuri, Srikanth, Associate Professor of Management and Organization

Pollock, Tim, Professor of Management and Organization, Program Coordinator of Management and Organization

Trevino, Linda, Professor of Management and Organization

Tsai, Wenpin, Professor of Management and Organization

Vicere, Albert A., Professor of Business Administration

Zietsma, Charlene, Associate Professor of Management and Organization
B. Program Objectives

With core course work in Strategic Management, Strategic Leadership, Strategy Implementation and Organizational Change, Leadership, and Ethical Responsibilities of Leadership, mid-career, experienced professionals will gain a solid foundation for advancing their careers and leading an organization into the future. In addition to the core curriculum, students may select from electives and earn concentrations in the fields of Negotiations and Influence or Corporate Innovation and Entrepreneurship. Penn State Smeal SMEXL students will come from diverse disciplines and organizational backgrounds and already will have gained significant management experience in the workplace. They will possess a desire to advance in strategic management and leadership roles. SMEXL courses will be taught by professors from Smeal's highly-regarded Department of Management & Organization.

Key features of the SMEXL program include:

- **Fluency in the “Language and Process of Strategy”:** Students will learn how to formulate compelling strategies, align organizational elements in the pursuit of those strategies, and build culture and commitment across an organization.
- **Ethical and societal implications of managerial decisions:** The program will emphasize principled approaches to leadership, managerial decision-making, valuing others’ perspectives, and acting with integrity.
- **Leadership development:** By exploring contemporary leadership styles and ongoing self-evaluation, students gain deep self-awareness and set goals for enhancing their own leadership skills.
- **The potential to explore multiple concentration areas en route to completing a master’s degree:** The program course list is organized in a way that allows students to explore concentration areas that are relevant to their interests.
- **Learning from peers with diverse backgrounds online:** Online programs become hotbed of social network activity as students with diverse business backgrounds, yet sharing common interests, gather to learn, work as teams, and share insights.
- **Experiential learning:** The program delivers core business knowledge through high-impact experiential learning, small-group interaction in class, and team-based projects focused on real-world application.
- **World class online learning environment:** Students engage in challenging course work that will prepare them to successfully deal with on-the-job demands in a wide range of organization environments.
- **World-class faculty:** Students in the program will take classes from Smeal’s world-class faculty, who research and understand best practices in the fields of strategy, leadership, organizational change, and business ethics. Our professors are respected experts in their fields, renowned for their cutting-edge research and passion for teaching.
Learning Goals and Objectives

The Master of Management in Strategic Management and Executive Leadership Goals and Objectives:

1. **Strategy Formulation**
   SMEXL graduates will master the tools, concepts, and perspectives necessary to develop and articulate organizational strategies to drive effectiveness and performance.
   Learning Objectives:
   - SMEXL graduates will demonstrate the competency to think strategically about organizational issues and challenges and develop effective strategies for changing, complex environments.
   - SMEXL graduates will be able to analyze social, political, technological, economic, and global factors; evaluate industry and market structure; and assess organizational strengths and weaknesses.
   Assessment Method: Course-embedded measure MBADM 571, BA 865

2. **Strategic Leadership**
   SMEXL graduates will acquire the ability to think strategically, recognize patterns in the organizational environment, and set organizational direction.
   Learning Objectives:
   - SMEXL graduates will develop the skills and knowledge to meet the demands of senior management and assume leadership roles within any organization.
   - SMEXL graduates will be able to facilitate change across the enterprise and identify and develop the talent necessary to sustain performance.
   Assessment Method: Course-embedded measure MGMT 831, BA 888

3. **Strategy Implementation**
   SMEXL graduates will be skilled at aligning organizational elements and facilitating change.
   Learning Objectives:
   - SMEXL graduates will be able to align direction and goals of an organization with the structures, processes and systems necessary to execute strategy and generate organizational performance.
   - SMEXL graduates will acquire the skills to create organizational cultures that facilitate the implementation of strategy and a collaborative mindset that facilitates meaningful and lasting action.
   Assessment Method: Course-embedded measure MGMT 831, BA 865

4. **Leadership and Identity**
   SMEXL graduates will demonstrate will develop the self-awareness and interpersonal skills needed to lead an organization.
   Learning Objectives:
   - SMEXL graduates will develop enhanced personal leadership style by discovering strengths, motivations and the conditions necessary to build and lead high-performing teams.
   - SMEXL graduates will develop enhanced capabilities in leadership, team building, and the management of change.
5. Ethical Responsibilities of Leaders
SMEXL graduates will be attuned to the ethical and social responsibilities of leaders.

Learning Objectives:
- SMEXL graduates will learn to consider and evaluate the ethical and societal implications of managerial decisions.
- SMEXL graduates will cultivate a principled approach to leadership, valuing others’ perspectives and acting with integrity.

Target Market
The Penn State Smeal SMEXL targets students from diverse backgrounds and disciplines who possess a bachelor’s degree, typically about 10 years of work experience including five or more years of management experience, and who are interested in a Master’s level business program specifically focused on providing the knowledge and skills to develop strategies for their organizations, and lead and motivate people in pursuit of those strategies. Exceptional students that fall outside of these general guidelines may be considered.

Program Title Justification
Based on our extensive market research, the faculty committee responsible for the design of the program has determined that Master of Management in Strategic Management and Executive Leadership is the most appropriate title to effectively position the program in a competitive marketplace. Examples of similar competing programs are listed below. Most of these professional masters programs use the MS designation but a few use “Master of” or “Master in”. The primary audiences for this program are mid-career and senior level executives. These audiences are very conscious of the title of the program and degree designation. The program title is very likely to be a factor in their decision-making processes.

Examples of Existing Similar Programs:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan State University</td>
<td>MS, Management, Strategy and Leadership</td>
</tr>
<tr>
<td>Indiana University</td>
<td>MS, Strategic Management</td>
</tr>
<tr>
<td>Northeastern University</td>
<td>MS, Leadership</td>
</tr>
<tr>
<td>Norwich University</td>
<td>MS, Leadership</td>
</tr>
<tr>
<td>Southern New Hampshire University</td>
<td>MS, Organizational Leadership</td>
</tr>
</tbody>
</table>
Projected Size of the Program

Initially, the size of the first class will be limited to approximately 30-40 students to ensure that teaching, advising, and supervising are appropriately matched with faculty resources. In subsequent years, multiple sections may be needed. Classes taught in the SMEXL program can be considered part of the faculty member’s teaching load or as an overload with extra compensation (on a voluntary basis) and will not impact the college’s ability to staff other curricular programs in the college.

Impact on Existing Programs

Penn State currently offers three programs that are somewhat related to the proposed SMEXL program, the Online M.B.A. program led by the Smeal College of Business, the Psychology of Leadership (PSYLD) program offered by the College of Liberal Arts, and the Organization Development and Change (ODC) program offered by the College of Education. While the age of the target population for the online M.B.A. is similar to SMEXL, the program content is targeted to a different segment of the market. The PSYLD and ODC programs are targeted to very different markets from the SMEXL. Research conducted for the Smeal College by Global Diagnostics (2017) indicated that offering SMEXL would have minimal impact on enrollments in other Penn State online, graduate business degree programs and suggested that potential applicants to the SMEXL are likely to seek out similar programs at other institutions rather than apply to other online programs at Penn State.

Ability to Offer a Quality SMEXL Program

The Smeal College of Business currently offers highly ranked Resident and Executive M.B.A. programs as well as leading Master’s programs. The College has 68 tenured, 29 tenure-track, and 68 fixed-term faculty with Ph.D. degrees. The Smeal faculty are respected experts in their fields, renowned for their cutting-edge research and passion for teaching.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quinnipiac On-line University</td>
<td>MS, Organizational Leadership</td>
</tr>
<tr>
<td>Pepperdine University</td>
<td>Master in Management and Leadership</td>
</tr>
<tr>
<td>Regis University</td>
<td>MS, Organizational Leadership: Project Management and Leadership</td>
</tr>
<tr>
<td>HEC Paris</td>
<td>MSc, Strategic Management</td>
</tr>
<tr>
<td>London School of Economics Management</td>
<td>MSc, Management and Strategy</td>
</tr>
<tr>
<td>St. Bonaventure University</td>
<td>Masters in Strategic Leadership</td>
</tr>
<tr>
<td>Creighton University</td>
<td>MS, Organizational Leadership</td>
</tr>
</tbody>
</table>
The College has thoroughly considered workload issues within the context of existing programs and is confident that there will be no impact on existing programs. The program will not require any new courses as all core and elective courses already exist.

C. New and Redesigned Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>None required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D. Program Statement

Program Statement (to be included in the graduate student handbook)

D.1 Program Description

The Master of Management in Strategic Management and Executive Leadership (PROGRAM/SMEXL) program requires a minimum of 30 credits. All courses will be at the 500 or 800 level. The student will take 18 credits of required courses, will select a 6-credit primary concentration and select an additional 6 credits of elective coursework based on their interests. The courses will be delivered in an online format.

Program Description

The Master of Management in Strategic Management and Executive Leadership requires 30 credits comprised of 18 required core credits, a 6-credit primary concentration and 6 credits of electives.

CORE COURSES (18 credits)

The core SMEXL courses are designed to teach students to think more strategically, assess external trends, learn from exemplar organizations, enhance their ability to formulate, articulate and implement strategy, and lead in an ethical and responsible manner.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBADM 571</td>
<td>Global Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 831</td>
<td>Strategy Implementation and Organizational Change (proposed change from 531 to 831 in process)</td>
<td>3</td>
</tr>
<tr>
<td>BA 865</td>
<td>Strategic Leadership (Capstone) (proposed change from 565 to 865 in process)</td>
<td>3</td>
</tr>
<tr>
<td>BA 888</td>
<td>Strategic Leading and Identity</td>
<td>3</td>
</tr>
<tr>
<td>BA 804</td>
<td>Ethical Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>
PRIMARY CONCENTRATIONS (6 credits)
In addition to the core curriculum, students will select a 6-credit primary concentration in the fields of either Negotiations and Influence or Corporate Innovation and Entrepreneurship. The concentrations may change over time in response to market demand.

Negotiations and Influence

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 805</td>
<td>Negotiation Theory and Skills</td>
<td>3</td>
</tr>
</tbody>
</table>
| MGMT 821 | Complex Negotiations  
(proposed change from 521 to 821 in process) | 3       |

Corporate Innovation and Entrepreneurship

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBADM 531</td>
<td>Corporate Innovation and Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>ENTR 820</td>
<td>Corporate Innovation Strategies and Entrepreneurial Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

ELECTIVES (6 Credits)
In addition, students may select any two courses from the following list. This list may change over time in response to market demand.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 805</td>
<td>Negotiation Theory and Skills</td>
<td>3</td>
</tr>
</tbody>
</table>
| MGMT 821 | Complex Negotiations  
(proposed change from 521 to 821 in process) | 3       |
| MBADM 531 | Corporate Innovation and Entrepreneurship | 3       |
| ENTR 820  | Corporate Innovation Strategies and Entrepreneurial Methods | 3       |
| ENTR 502  | Business Modeling and New Venture Creation | 3       |
| BAN 530  | Business Strategies for Data Analytics | 3       |
This course list may contain relevant select courses from other colleges such as:

WF ED 582 Assessing Data: Organizational Diagnosis (3)

Pattern of Course Scheduling for the Master of Management in Strategic Management and Executive Leadership Program

The following is a sample schedule of classes required for completion of the SMEXL program. The degree will require at least five semesters of study with each semester consisting of at least two courses. The first-year courses may be taken in any order which allows for fall, spring, and summer entry points into the program.

**Fall Semester**
2 courses / 6 credits: Complete required courses BA 888 and MGMT 565.

**Spring Semester**
2 courses / 6 credits: Complete required courses BA 804 and MBADM 571.

**Summer Semester**
2 courses / 6 credits: Complete the MGMT 831 required course. Complete one course from the electives list.

**Fall Semester**
2 courses / 6 credits: Complete two courses from primary concentration.

**Spring Semester**
2 courses / 6 credits: Complete the BA 865 required capstone course. Complete one course from the electives list.

E. Graduate Bulletin Copy

Strategic Management and Executive Leadership

Dr. Albert A. Vicere, Professor of Business Administration
The Smeal College of Business
220S Business Building
814-863-1460
The Graduate Faculty

Briscoe, Forrest, Associate Professor of Management and Organization
Dang, Carolyn, Assistant Professor of Management and Organization
Eury, Jennifer, Instructor of Management and Organization
Garud, Raghu, Professor of Management and Organization, Research Director of Farrell Center for Corporate Innovation and Entrepreneurship
Gioia, Denny, Professor of Management and Organization
Gustafson, D. Andy, Senior Lecturer of Management and Organization
Hambrick, Don, Professor of Management and Organization
Humphrey, Stephen, Professor of Management and Organization
Joshi, Aparna, Professor of Management and Organization
Kreiner, Glen, Professor of Management and Organization
Lungeanu, Razvan, Assistant Professor of Management and Organization
Misangyi, Vilmos, Professor of Management and Organization, Department Head of Management and Organization
O’Hara, Lisa, Senior Lecturer of Management and Organization
Paruchuri, Srikanth, Associate Professor of Management and Organization
Pollock, Tim, Professor of Management and Organization, Program Coordinator of Management and Organization
Trevino, Linda, Professor of Management and Organization
Tsai, Wenpin, Professor of Management and Organization
Vicere, Albert A., Professor of Business Administration
Zietsma, Charlene, Associate Professor of Management and Organization
Master of Management in Strategic Management and Executive Leadership

The Master of Management in Strategic Management and Executive Leadership program will prepare graduates to stand out in a competitive job market by studying at a highly reputed business school with some of the world’s leading academic thinkers and industry experts. This program will provide students with the strategic management, leadership, and organizational capabilities essential for a senior-level leadership position. Students will learn the skills to formulate compelling strategies, align organizational elements in the pursuit of those strategies, and build culture and commitment across an organization. The program will be taught by the same world-class professors who teach our M.B.A. students. A solid foundation in strategy, leadership, organizational change, and ethics will make the target audience more attractive for positions of increasing leadership responsibility and prepare them to advance more rapidly into those positions. These learning outcomes will be achieved by a combination of lectures by faculty, invited guest lecturers, reading of key literature, individual and team projects, and practical involvement in a leadership culminating experience.

Admission Requirements

Admission 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.

The following are required:

- Baccalaureate degree with a 3.0 minimum undergraduate GPA (or equivalent).
- Submission of a completed online Graduate School Application for Admission, including a Statement of Purpose, resume, and two letters of recommendation.
- Official transcripts from all post-secondary institutions attended.
- A minimum of 5 years management experience.

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.

Core Application Packet

- Completed online Graduate School application and payment of nonrefundable application fee.
- Statement of purpose: a 2-3 page essay articulating career and educational goals that demonstrates your written communication skills.
- Vita or Résumé.
- Two letters of recommendation that attest to your readiness for graduate study and document the requisite of about 10 years of work experience including five or more years of management experience. Letters must be submitted through the online application. Within the online application you will be asked to enter the names and email addresses of two individuals who will be providing your recommendations. Those individuals will receive a note via email asking them to complete a brief form that will serve as your recommendation. Please inform all recommenders they must submit the form for your application to be complete.
• **Official transcripts from all post-secondary institutions attended.**

• Candidates may be asked to participate in a video interview as part of the admissions process.
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 at the 400, 500, or 800 level is required, with a minimum of 18 credits at the 500 or 800 level, and at least 6 credits at the 500 level.

CORE COURSES (18 credits)
The core SMEXL courses are designed to teach students to think more strategically, assess external trends, learn from exemplar organizations, and enhance their ability to formulate, articulate, and implement strategy.

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<td>3</td>
</tr>
<tr>
<td>BA 804</td>
<td>Ethical Leadership</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 565</td>
<td>Power and Influence</td>
<td>3</td>
</tr>
</tbody>
</table>

PRIMARY CONCENTRATIONS (6 credits)
In addition to the core curriculum, students will select a 6-credit primary concentration in the fields of either Negotiations and Influence or Corporate Innovation and Entrepreneurship. The courses that satisfy the concentration requirements can be chosen from a list of approved courses maintained by the graduate program office.

ELECTIVES (6 Credits)
Students will also complete 6 credits of elective courses. A list of elective courses approved to count towards the degree requirements will be maintained by the program office.

Culminating Experience
The culminating experience for the degree is a capstone course, BA 865 (3 credits), that provides an opportunity for students to apply and integrate the knowledge and skills that were gained throughout the SMEXL program.
Student Aid

Students in this program are not eligible for graduate assistantships. World Campus students in graduate degree programs may be eligible for other types of 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 to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

F. Online Delivery

According to Graduate Council’s “Residency and Related Policies for Off-Campus Graduate Degree Programs”: “Professional master’s degree programs that fall under the definition of “off-campus degree programs’ must incorporate as many of the essential elements of residency as possible, including faculty-student and student-student interaction, access to instructional and other resources, exposure to and socialization in the field of study, and suitable academic advising.” The following sections address issues related to the special needs of the online program/options.

Interaction between Faculty and Students beyond Direct Instruction

The Program Director works with the Professional Graduate Programs Office on all administrative matters associated with the degree program and conducts entry interviews with newly admitted students, semi-annual reviews of student progress mediated by a mutually agreeable combination of email, Web/audio conferencing, telephone, in-person meetings, and exit interviews with graduates. Additionally, the Program Director writes letters of recommendation when requested.

A bulletin board accessible to all students will be setup for each course through Canvas. Each student is required to post at least one message during each session, either asking a new question or responding to another student’s question in a meaningful way. The course instructor will monitor the bulletin board discussions, answer the questions and if needed bring essential questions up for class discussion. The interaction will be counted as no less than 10% of the class participation grade.

Video conference through Internet (e.g., Skype) will be provided for faculty to interact with students beyond the classroom instruction. Video conference capabilities over the internet will provide opportunities for program faculty to interact with students beyond the instructional content.

Interaction among Students

A key challenge in an Internet-mediated course offering is to create and sustain an interactive learning environment among students. As offered through CANVAS, each course will incorporate threaded student discussion forums in which students are required to post responses to instructor-provided discussion questions. These interactive sessions will typically count from 15 to 20% of a student’s final course grade. As demonstrated in other online programs, it is the norm for students to post beyond the
minimum number of responses. Most students will have at least a moderate level of professional experience in business or the military. Through the threaded discussion questions, students are encouraged to share relevant personal experiences with one another.

Course instructors are responsible for creating and sustaining a learning environment that breeds valuable and respectful interactions among students.

Group Projects

In addition to the threaded discussion forums, courses will incorporate two to four small group projects. These will be based on business case studies or real-world problems, and typically account for 30 to 40% of an individual’s final grade. Students will collaborate in three to four-person teams to complete group projects. Private virtual team electronic collaborative spaces will be created for each project and team to facilitate interaction; groups are encouraged to collaborate by any means they feel are most effective.

Access to Information and Instructional Resources

Distinguished Speakers

The program provides access to content experts other than the program’s instructors, distinguished speakers will be brought in virtually to speak to classes and present the opportunity for students to interact with the speakers. The speakers for these programs are largely private industry and government executives or distinguished researchers and their presentations/discussions will be captured for later playback. These resources will be available for students in the program.

Libraries

Penn State’s University Libraries provides an extraordinary array of services to Penn State students who participate in classes through the World Campus. Master’s degree students enrolled in the World Campus program can use library resources to identify and locate articles and books needed for their study and research just as graduate students enrolled in residence at Penn State University Park currently do. In addition to the Library’s hard copy holdings and growing number of electronic resources, University Libraries provides access to interlibrary loan and document delivery materials in PDF format. Students can request assistance from reference librarians via ASK!, the Libraries’ virtual reference service that provides access to live chat, and e-mail reference.

Through the University Libraries homepage, students have access to the CAT, the Libraries’ online catalog and, with their Penn State Access account, over 375 online citation databases and full-text resources. Among these resources are Compendex, Inspec, IEEE, Safari, and the ACM Digital Library. Electronic reserve facilities enable faculty members to make library resources available to online students. Once registered with the University Libraries, online students may request mail delivery of books and journal articles owned by any Penn State library location, as well as materials from other libraries through the Interlibrary Loan link on the homepage. A postage-paid and pre-addressed return envelope is provided for return of books to University Libraries. Students may also obtain articles not found in the Penn State Libraries by using unmediated document delivery provided by the Libraries. Materials requested via document delivery are faxed directly to the student. Special arrangements are made for international students whose access to mail services is limited.

The Libraries’ participation in the Pennsylvania Academic Consortium, Inc. (PALCI) and Access Pennsylvania permits students to access materials from academic and public libraries throughout the
Commonwealth of Pennsylvania. Through other consortia memberships held by University Libraries, students have access to the resources of research libraries throughout the world.

University Libraries has developed online instruction in the use of its resources that is available from the LIAS instruction page. Students who need reference assistance may call any Penn State Library to ask questions. The Library staff is currently investigating the adoption of software that allows for real-time reference assistance over the Web.

**Exposure to and Socialization in the Field of Study, including but not limited to seminar series, workshops, research exhibitions, discussions with professional peers, informal departmental activities, and other shared experiences**

Students gain exposure to the field of study through their professional work experience and memberships in professional and community organizations of their choice. Students in the program will be encouraged to join and participate in these organizations as well as programs sponsored by Penn State and the Smeal College. Participation in these activities will help students gain further exposure to the field, develop their network of professionals, and provide valuable opportunities to socialize with the program faculty who attend the meetings.

**Access to Suitable Academic Advising and Support Services**

**Academic Advising**

The Program Director and Professional Graduate Programs staff work with students on all administrative matters associated with the degree program and conducts entry interviews with newly admitted students, semi-annual reviews of student progress mediated by a mutually agreeable combination of email, Web/audio conferencing, telephone, or in-person meetings, and exit interviews with graduates. Additionally, the Program Director writes letters of recommendation when requested.

**Student Services**

The Office of Professional Graduate Programs will provide services to students. In addition, World Campus Student Services is typically the first point of contact with prospective students inquiring about Penn State courses and academic programs delivered online. This team fields questions from prospective students, processes enrollments, and collects and accounts for tuition and fees. A World Campus technical support group provides timely help to students having difficulties with their system or network configurations or who need tutoring on basic computing skills. Additionally, World Campus maintains the online course and program catalog and schedule.

**Students’ Contribution to the Program, College and University**

Students completing the program online via the World Campus often share experiences from their work, which provide valuable insight to the other class members as well as to faculty. This shared knowledge is a valuable contribution to the program.

New students entering the first course in the program introduce themselves to the rest of the class by posting the following types of information: contact information; primary professional interests (topic areas, issues, problems); employer, job title, and primary job responsibilities; and family and personal
interests outside of work and studies as appropriate. Entering students prepare and maintain home
pages containing this type of information and make these pages readily available in an electronic
location that is not tied to a particular course.

Identification with Penn State

Students completing the program online will be considered identical to all other students within the
College in that they will receive the same notices of College events and activities. In addition, activities,
such as the Seminar Series and Distinguished Lecture Series, will be available as a live or archived web-
cast for online students to participate in or view.

A listserv to announce new professional Master degree graduates, new course offerings, employment
opportunities and alumni news facilitates this objective. Current students and graduates also receive
the College’s newsletter. College-sponsored receptions at major professional conferences provide
further opportunities for students, alumni, and faculty to sustain their professional community. The
Associate Dean for Professional Graduate Programs and the Program Director will develop network
opportunities through outreach efforts to alumni with an interest recruiting students for positions their
organizations.

G. Program Operation and Maintenance

Program Coordination

Dr. Albert A. Vicere, Director, Professor of Business Administration, will administrate, coordinate, and
provide supports to program development, admission, and evaluation.

Academic Support to Students

The academic support for online students will be provided by the Office of Professional Graduate
Programs and the World Campus. Student scheduling, registration, and billing will be handled by the
LionPATH system. Faculty will submit grades through World Campus. The World Campus Technical Help
Desk provides student technical support by telephone and/or e-mail.

Instructional Design Support and Available Facilities

Revisions to existing course content as well as the creation of new course content delivered through
Canvas will be done by the Office of Professional Graduate Programs.

Program courses are conducted within Canvas, the University’s Web-based course management system,
which is maintained by Information Technology Services. Canvas supports content delivery (e.g., text,
graphics, animations, digital audio and video, and interactive simulations), communications (including
email, asynchronous threaded discussions, and synchronous chat), automated quizzing with immediate
feedback, and grade management and reporting, which is done via LionPATH.

The World Campus offers an online teaching and learning professional development course for
faculty/instructors titled Online (OL) 2000. This three-week course is offered a month prior to the
beginning of each semester, plus two additional offerings are available -- mid-fall and mid-spring
semesters. It is available completely online at no cost to instructors of programs offered via the World Campus. The faculty for the program will be required to participate in OL 2000 prior to teaching their first online course in this program. They also will be encouraged to complete other professional development workshops offered by the World Campus and Webinars offered by distance education organizations such as OLC and WCET.

**Technological Resources Needed by Students**

**Computing Hardware and Related Software**

Students in the online Program are expected to possess or have access to personal computers and a broadband Internet connection. Minimum system and software specifications and required software are outlined at http://www.worldcampus.psu.edu/general-technical-requirements.

**H. Program Quality**

Off-campus programs must incorporate a mechanism for assessing program quality through student surveys for feedback at critical milestones in the program as well as a student exit questionnaire at the time of graduation. The Program Director is responsible for the proposed program’s quality assurance plan in cooperation with the World Campus Evaluation Team. The online SRTE will be used as an evaluation instrument. Additionally, the Office of Professional Graduate Programs and Program Director will initiate one or more peer evaluations of instructors each year and will review, as well as regularly preview, course content to assure that it is current and represents an appropriate level for graduate study. Access to the online courses will be gained through the course instructor, with the full knowledge of the respective students, so course content can be reviewed, and instructor-to-student and student-to-student interactions can be observed.

**Course Evaluation Surveys**

Following completion of each online course, World Campus administers an online End-of-Course Survey (SRTE) for student feedback on the course offering. The survey includes questions that specifically address characteristics of the online learning experience. The Program Director conducts exit interviews.

Upon each student’s completion of the online degree, the Program Director conducts an exit interview for the purpose of preparing a summary evaluation of the student’s experience in the online program. Similar interviews are conducted with online students who begin but then withdraw from the program prior to completing the degree requirements.

**I. Degree Title Justification**

The degree conferred by the SMEXL program will be a Master of Management in Strategic Management and Executive Leadership. This type of professional degree was chosen for the following reasons:

- Rather than training students to conduct research to generate new knowledge, the SMEXL program trains students to apply existing knowledge to practical problems.
The SMEXL program contains no research requirement; instead, there is a Culminating Project.

- The SMEXL program has a strong focus on strategic management and leadership foundations.
- The SMEXL program focuses on professional development for advancement in the student’s specific career.

Examples of Existing Similar Programs:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Degree</th>
<th>Indicated Admission Req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michigan State University</td>
<td>MS, Management, Strategy and Leadership</td>
<td>Bachelor’s degree + 3 years of experience</td>
</tr>
<tr>
<td>Indiana University</td>
<td>MS, Strategic Management</td>
<td>Bachelor’s degree + 2 years of experience</td>
</tr>
<tr>
<td>Northeastern University</td>
<td>MS, Leadership</td>
<td>Bachelor’s degree + 1-3 years of experience</td>
</tr>
<tr>
<td>Norwich University</td>
<td>MS, Leadership</td>
<td>Bachelor’s degree</td>
</tr>
<tr>
<td>Southern New Hampshire University</td>
<td>MS, Organizational Leadership</td>
<td>Not indicated</td>
</tr>
<tr>
<td>Quinnipiac Online University</td>
<td>MS, Organizational Leadership</td>
<td>4 years</td>
</tr>
<tr>
<td>Pepperdine University</td>
<td>Master in Management and Leadership</td>
<td>Minimum 3 years; 5 years recommended</td>
</tr>
<tr>
<td>Regis University</td>
<td>MS, Organizational Leadership: Project Management and Leadership</td>
<td>Not indicated</td>
</tr>
<tr>
<td>HEC Paris</td>
<td>MSc, Strategic Management</td>
<td>Not indicated</td>
</tr>
<tr>
<td>London School of Economics</td>
<td>MSc, Management and Strategy</td>
<td>First degree</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>St. Bonaventure University</td>
<td>Masters in Strategic Leadership</td>
<td>“Working professional”</td>
</tr>
<tr>
<td>Creighton University</td>
<td>MS, Organizational Leadership</td>
<td>“Busy professional”</td>
</tr>
</tbody>
</table>

J. Accreditation

The Master of Management in Strategic Management and Executive Leadership will be reviewed as part of the Association to Advance Collegiate Schools of Business Smeal College accreditation process.

K. Consultation Responses

From Smeal Graduate Policy Committee:
From: Lisa Bolton
Sent: Sunday, March 25, 2018 11:26 AM
To: Brian Cameron
Subject: RE: Program Proposal Strategic Management and Executive Leadership

Brian, This proposal has been approved by the committee. Best, Lisa

From: Lisa Bolton
Sent: Sunday, March 18, 2018 8:13 AM
To: Brent Ambrose <bwa10@psu.edu>; Lisa Posey <llp3@psu.edu>; Dan Givoly <dgivoly@psu.edu>
Tony Kwasnica <kwasnica@psu.edu>; Hui Zhao <huz10@psu.edu>
Cc: Brian Cameron <bcameron@smeal.psu.edu>
Subject: RE: Program Proposal Strategic Management and Executive Leadership

Folks, As a friendly reminder, could you please send your feedback to Brian and vote to me by Mar 23 (if you haven’t already done so)? Thanks, Lisa

From: Lisa Bolton
Sent: Wednesday, February 28, 2018 3:37 PM
To: Brent Ambrose <bwa10@psu.edu>; Lisa Posey <llp3@psu.edu>; Dan Givoly <dgivoly@psu.edu>
Tony Kwasnica <kwasnica@psu.edu>; Hui Zhao <huz10@psu.edu>
Cc: Brian Cameron <bcameron@smeal.psu.edu>
Subject: Program Proposal Strategic Management and Executive Leadership
Importance: High

Folks,

The grad policy committee has been asked to review a new online master’s...see attached. Can you please send a) your feedback/questions/concerns to Brian and b) your vote to me by Mar 23?

Thanks, and enjoy your spring break!
Lisa

From: Brian Cameron
Sent: Wednesday, February 28, 2018 2:54 PM
To: Lisa Bolton <boltonle@psu.edu>
Cc: Michelle Rockower <mkk114@psu.edu>; Mike Gilpatrick <mjg11@psu.edu>; Al Vicere <avicere@vicere.com>
Subject: Draft Program Proposal Strategic Management and Executive Leadership
Importance: High

Hi Lisa

Attached is the draft program proposal for a new online master of strategic management and executive leadership.

Could you send to the grad policy committee and ask for a vote by March 23?
Please let me know if you have any questions regarding this program.

Thanks,

Brian

Brian H. Cameron, Ph.D.
Associate Dean for Professional Graduate Programs
Smeal College of Business
The Pennsylvania State University
220S Business Building
University Park, PA 16802-3603
814.863.1460 office
bcameron@smeal.psu.edu
www.smeal.psu.edu
http://www.linkedin.com/pub/brian-cameron/0/814/51

Affiliate Faculty Member
Center for Enterprise Architecture
http://ea.ist.psu.edu/cameron.php

From Black School of Business, Penn State Erie

From: Greg Filbeck <mgf11@psu.edu>
Sent: Thursday, March 1, 2018 8:31 AM
To: Brian Cameron
Cc: Al Vicere
Subject: Re: Draft Program Proposal Strategic Management and Executive Leadership

Brian

No further questions! Good luck moving forward.

Greg
Dr. Greg Filbeck, CFA, FRM, CAIA, CIPM, PRM
Samuel P. Black III Professor of Finance and Risk Management
Director, Black School of Business
Penn State Erie, the Behrend College
281 Burke
Erie, PA 16563

On Mar 1, 2018, at 8:24 AM, Brian Cameron <bcameron@smeal.psu.edu> wrote:
Definitely – the OMBA is a concern of ours as well.
The SMExL program has only one strategic management course in common with the OMBA and primarily targets: (a) people that received the type of general business education found in the OMBA earlier in their careers and are looking for a deeper dive in strategic management and executive leadership and/or (b) people that already have an MBA and are looking for a more advanced degree in management and leadership.

There are a number of people that have contacted us in the past that already have an MBA and are looking for a degree of this nature.

We have discussed the program with Janet Duck and Stacey Dorang Peeler from the OMBA team as well as with the World Campus and all agree that this program would have minimal impact on the OMBA and would serve a need in the market.

Please let me know if you have any additional questions or if you want to set up a time to discuss further.

Thanks,

Brian

Brian H. Cameron  |  Associate Dean for Professional Graduate Programs  |  Smeal College of Business  |  The Pennsylvania State University  |  University Park, PA  16802  |  Phone: 814-863-1460  |  Email:  bcameron@smeal.psu.edu

From: Greg Filbeck [mailto:mgf11@psu.edu]
Sent: Wednesday, February 28, 2018 5:15 PM
To: Brian Cameron
Cc: Al Vicere
Subject: Re: Draft Program Proposal Strategic Management and Executive Leadership

Brian,

The proposal looks solid! My primary concern was whether the program was sufficiently differentiated from the OMBA program. The draft does address the topic although anything that you can add that further provides that differentiation would be appreciated.

Greg

Dr. Greg Filbeck, CFA, FRM, CAIA, CIPM, PRM
Samuel P. Black III Professor of Finance and Risk Management
Director, Black School of Business
Penn State Erie, the Behrend College
281 Burke
Erie, PA  16563
Hi Greg

Attached is a draft program proposal for a new online Master of Strategic Management and Executive Leadership.

Could you look over the proposal and send any feedback by March 23?

I would like to get a note of concurrence to include with the program proposal as well once you’re comfortable with the proposal.

I’m starting my stop watch to see how long this one takes :)

Hope all is well,

Brian
Hi Brian,

Thanks for the opportunity to review your proposed Master of Strategic Management and Executive Leadership.

We don't have any objections to the proposal and support your efforts.

Regards,
Steve

Stephen P. Schappe, Ph.D.
Director, School of Business Administration
Penn State Harrisburg
777 W. Harrisburg Pike
Middletown, PA 17057
717-948-6141
http://hbg.psu.edu/sba

From: "Brian Cameron" <bcameron@smeal.psu.edu>
To: "Steve Schappe" <sxs28@psu.edu>
Cc: "Al Vicere" <avicere@vicere.com>
Sent: Wednesday, February 28, 2018 3:48:00 PM
Subject: Draft Program Proposal Strategic Management and Executive Leadership

Hi Steve

Attached is a draft program proposal for a new online Master of Strategic Management and Executive Leadership.

Could you look over the proposal and send any feedback by March 23?

I would like to get a note of concurrence to include with the program proposal as well.

Hope all is well,

Brian

Brian H. Cameron, Ph.D.
Associate Dean for Professional Graduate Programs
Smeal College of Business
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220S Business Building
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www.smeal.psu.edu
http://www.linkedin.com/pub/brian-cameron/0/814/51

Affiliate Faculty Member
Center for Enterprise Architecture
http://ea.ist.psu.edu/cameron.php
From Penn State Great Valley:

From: Kathryn Jablokow <kwl3@psu.edu>
Sent: Friday, March 30, 2018 2:15 PM
To: Brian Cameron
Cc: JAMES A NEMES; avicere; Melissa Forsha; KATHRYN WEED JABLOKOW; KAREN DUHALA
Subject: Re: Draft Program Proposal Strategic Management and Executive Leadership

All:

Great Valley concurs with the proposal, given the addition of Great Valley's two courses (LEAD 556 and MGMT 507) to the list of electives and our agreement to continue the longer-term discussion on substitutions for concurrent degrees, etc.

We look forward to working with you!
Best regards,
Kathryn

Kathryn W. Jablokow, Ph.D., FASME
Associate Chief Academic Officer
Professor of Engineering Design and Mechanical Engineering
School of Graduate Professional Studies
The Pennsylvania State University
30 E. Swedesford Road, Malvern, PA 19355
Phone: 610-648-3372
Fax: 610-648-3377

----- On Feb 28, 2018, at 3:38 PM, Brian Cameron <bcameron@smeal.psu.edu> wrote:

Hello Jim

Since we spoke last about this proposed program (some time ago), we had additional discussions with the World Campus and recently arrived at resolution to our ongoing discussions regarding our proposed master’s program.

World Campus proposed a title for the program of Master of Strategic Management and Executive Leadership. We have agreed to this title and the draft program proposal is attached. As part of these recent discussions, the World Campus asked us to make some changes to the flow and design of the program.

Al Vicere (the program faculty director) and I would like to set up a time to review the design of the program and update you and Kathryn further on our recent discussions with the World Campus.

I’ll ask Melissa to work with you and Kathryn to find a good time to talk within the next week if possible.

Thanks,

Brian
From The Organization Development and Change (ODC) Program:

From: Roy Clariana <rbc4@psu.edu>
Sent: Monday, March 19, 2018 11:10 AM
To: Brian Cameron
Cc: Al Vicere; William Rothwell; Wesley Donahue
Subject: RE: Draft Program Proposal Strategic Management and Executive Leadership

HI Brian, cc All

the proposal that you presented on Friday (Mar 16) does not compete with our existing online ODC MPS degree since the student audience for these two degrees is so different.

So LPS does not push back on your proposal. I hope that we can integrate across the two programs with certs in the future.

...Roy

From: Brian Cameron <bcameron@smeal.psu.edu>
Sent: Monday, March 19, 2018 8:58 AM
To: Roy Clariana <rbc4@psu.edu>
Cc: Al Vicere <avicere@vicere.com>; William Rothwell <wjr9@psu.edu>; Wesley Donahue <wed105@psu.edu>
Subject: RE: Draft Program Proposal Strategic Management and Executive Leadership

Hello Roy
Would I be able to get an email of your concurrence with our latest program proposal this week if possible?

I’d like to include this note with the other notes of concurrence in the proposal.

Thanks again,

Brian

---

Brian H. Cameron | Associate Dean for Professional Graduate Programs | Smeal College of Business | The Pennsylvania State University | University Park, PA 16802 | Phone: 814-863-1460 | Email: bcameron@smeal.psu.edu

From: Brian Cameron
Sent: Friday, March 9, 2018 9:06 AM
To: 'Roy Clariana'
Cc: 'Al Vicere'; 'William Rothwell'; 'Wesley Donahue'
Subject: RE: Draft Program Proposal Strategic Management and Executive Leadership

Hello Roy & Wes

Attached is a slightly revised version of the program proposal. The years of experience text is tweaked a bit based on a recent discussion and suggestions from Liberal Arts.

We can discuss further when we meet.

Thanks,

Brian

---

From The Psychology of Leadership (PSYLD) Program:

March 30, 2018

Hello Brian:

The College leadership and that of the relevant academic units have taken the opportunity to review the proposal for the MPS Strategic Management and Executive Leadership. Before I offer our consultation on the substance of the program of study, I need to express our concern with the process in which the
MPS SMEXL has moved through the curricular process. The usual process is that an academic unit submits a prospectus for general review and consultation by and within the academic community before fully developing a proposal for review. That sequence apparently was not followed in this instance, and we would like to see this as an exception rather than an effort to reshape the process.

That said, we believe that the concept for the program has come a long way and is less directly competitive with CoLA programs. However, the potential for competition particularly with the MPS Psychology of Leadership remains, and we want to minimize it as much as possible. The first area where concerns remain is in the admissions requirement. The proposal states that with 10 years of experience, including at least 5 in management, students have satisfactory work experience qualify for the program, and that exceptions would be made for exceptional candidates. As you know, we have always been concerned about potential overlap in market. While a 10-year minimum is certainly preferable to the 5-year minimum of the initial prospectus, we remain concerned about overlap with the Psychology of Leadership market, where the average work experience of applicants is 8 1/2 years. Obviously, any possible downward trending your admissions requirements would compete. We would like to see the SMEXL admissions criteria increased to at least 12 years of work experience with at least 7 in management. That would also enhance the SMEXL program’s ability to provide the kind of advanced training to more senior managers that the program aspires to reach. If SMEXL is to be approved, we want it to be complementary rather than competitive, and the entrance criteria is a key factor for achieving this.

The importance of attending to the entrance criteria for SMEXL and to marketing is underscored by the fact that content overlap exists between the proposed program’s curricula and that of two existing programs. The proposed curriculum for SMEXL overlaps in part with PSYLD (those areas being Leadership & Identity and Ethical Responsibilities of Leadership) and with Organizational Development and Change (those areas being Strategy Implementation and Organizational Change). With such overlap, maintaining a differentiation of markets is critical. In particular, marketing needs to be clear as to the distinctions between the programs. Each program’s website may need to offer a comparison that helps guide prospective students into the more appropriate program. Of course, all programs should have a voice in such materials. More generally, World Campus should tailor choice of search terms, ad content, target audiences, to ensure that prospects are attracted to appropriate programs. A title change for the proposed SMEXL program would reduce prospective students’ confusion about the proposed program and PSYLD. For example, if the program title were shortened from Strategic Management and Executive Leadership to Strategic Management – which appears to encompass the proposed curriculum – our concern about target populations and marketing would be reduced. Absent such a change, the importance of addressing these concerns is substantial. Finally, especially should the SMEXL proposal go forward, we hope that the World Campus will practice caution about its future portfolio of leadership-related programs. There may not be room for additional programs in this space without their cannibalizing each other.

Best Regards,

Avis Kunz, D.Ed.
Assistant Dean for Online Education and Outreach
cc: Karen Pollack
From Chair of the Online MBA Executive Committee on the use of MBADM 571:

From: Lorraine Reitz On Behalf Of Charles H. Whiteman  
Sent: Friday, March 30, 2018 9:47 AM  
To: RALPH FORD <rmf7@psu.edu>; MUKUND SHIVRAM KULKARNI <msk5@psu.edu>; JAMES A NEMES <jan16@psu.edu>; rse1@psu.edu; MICHAEL VERDERAME <mxv8@psu.edu>  
Cc: RHONDA J STEG <rjv3@psu.edu>; SHARON ANN BLOUCH <svb5@psu.edu>; SUZAN LYNN KERSHNER <slk28@psu.edu>; Brian Cameron <bcameron@smeal.psu.edu>; Judy Wills <jcw25@psu.edu>; CATHLEEN J MURGAS <cjm28@psu.edu>; Stacey Dorang Peeler <sld138@psu.edu>; Melissa Forsha <mzc4@psu.edu>; Charles H. Whiteman <cwhiteman@psu.edu>  
Subject: Request for approval of additional sections of OMBA core courses

Dear Members of the Online MBA Executive Committee,

This is to certify that the request below has been approved by the OMBA Executive Committee.

Thanks to all of you for your timely responses.

Regards,  
Chuck

From: Lorraine Reitz On Behalf Of Charles H. Whiteman  
Sent: Monday, March 12, 2018 1:36 PM  
To: RALPH FORD <rmf7@psu.edu>; MUKUND SHIVRAM KULKARNI <msk5@psu.edu>; JAMES A NEMES <jan16@psu.edu>; rse1@psu.edu; MICHAEL VERDERAME <mxv8@psu.edu>  
Cc: RHONDA J STEG <rjv3@psu.edu>; SHARON ANN BLOUCH <svb5@psu.edu>; SUZAN LYNN KERSHNER <slk28@psu.edu>; Brian Cameron <bcameron@smeal.psu.edu>; Judy Wills <jcw25@psu.edu>; CATHLEEN J MURGAS <cjm28@psu.edu>; Stacey Dorang Peeler <sld138@psu.edu>; Melissa Forsha <mzc4@psu.edu>; Charles H. Whiteman <cwhiteman@psu.edu>  
Subject: Request for approval of additional sections of OMBA core courses

Dear Members of the Online MBA Executive Committee,

Last year, Smeal made the request below to create sections of select core online MBA courses for use in other Smeal masters programs (see note below).

We are now planning a new online Master of Strategic Management and Executive Leadership in Smeal and are asking permission of the Executive Committee to use an existing Smeal section of the following course:

MBADM 571 – Global Strategic Management - a Smeal section of this course already exists and we would like to use that Smeal section and possibly one or more future Smeal sections of this course in this program.
Please let me know if you concur with our request by **March 30, 2018**.

Best regards,
Chuck

________________________________
Charles H. Whiteman
John and Becky Surma Dean
Smeal College of Business
The Pennsylvania State University
210 Business Building
University Park, PA 16802-3603
814-863-0448
814-865-7064 (fax)
cwhiteman@smeal.psu.edu
MOA From The World Campus:

MEMO OF AGREEMENT

To: Charles Whiteman, Dean, Smeal College of Business

Fr: Karen Pollack, Assistant Vice Provost for Online and Blended Programs, World Campus

Da: April, 2, 2018

Sbj: Revenue Sharing Agreement – Master of Strategic Management and Executive Leadership

The purpose of this memo is to formalize our joint agreement to deliver the Master of Strategic Management and Executive Leadership expected to launch Fall 2019 under Revenue Distribution Category (RDC) 2, with all university and unit approvals in place by mutually agreed upon timelines. The Smeal College of Business will receive 66% of the revenue generated by the program’s courses. A full description of this revenue distribution category is available in Section 5 of the World Campus Administrative Manual. In accordance with the RDC-2 policy:

- The Smeal College of Business has academic authority for the Master of Strategic Management and Executive Leadership and agrees to provide timely and complete courses for the World Campus to offer online that meet the Penn State Quality Assurance Standards. In addition, the Smeal College of Business is responsible for and funds the following functions: academically qualified course faculty/instructors, design and instruction related expenses; associated maintenance and revision of courses, prospect and applicant communication, program admissions, advising, and administration for the Master of Strategic Management and Executive Leadership.

- The World Campus is responsible for and funds the following functions: program management for World Campus functions; set up 50 courses appear in LionPath for student registration, program and brand marketing, student services including registration and bursar support, student affairs services including career and mental health support, and related budget/finance services. Additional detail on these services is provided in Appendix 8.1 of the above noted manual.

This agreement will be in effect until the University modifies the Gross Revenue Sharing Policy or the Smeal College of Business and the World Campus jointly agree to operate the Master of Strategic Management and Executive Leadership at a different RDC. If there are questions about this agreement, please direct them to me. Otherwise, Shubha Kasyap, the World Campus Director of Academic Affairs, is the appropriate point of contact.

cc: Brian Cameron, Associate Dean for Professional Programs, Smeal College of Business
    Vilmos Misangyi, Department Head, Management and Organization, Smeal College of Business
    Albert A. Vicer, Professor of Business Administration, Smeal College of Business
    Wesley Bumbarger, Financial Officer, Smeal College of Business
    Alana Loth, Director of Finance and Operations, World Campus
    Mary German, Finance Manager, World Campus
    Shubha Kasyap, Director of Academic Affairs, World Campus
L. SARI Requirements

All graduate students must receive Scholarship and Research Integrity (SARI) training during the program and prior to taking the capstone course. The Penn State Smeal Master of Management in Strategic Management and Executive Leadership program will fulfill this requirement by ensuring SARI related material and discussions are incorporated into the required core courses, with a particular emphasis during BA 888, Strategic Leading and Identity and BA 804, Ethical Leadership.
M. Consultation with ORP-SARI Documentation

March 1, 2018

Dear Dr. Cameron,

I am pleased to inform you that the SARI@PSU Program Plan for Smeal College of Business, Master of Strategic Management & Executive Leadership has been received and approved for implementation beginning in the fall semester of 2019. Thank you very much for your time and attention to detail.

We have set up a folder in Box at Penn State to facilitate SARI@PSU program tracking and communication. Here, we will keep a copy of your plan, your syllabi for the courses that will provide RCR instruction to your graduate students, and a tracking form you will need to upload once a year (in June or July) letting the ORP know the progress of your students. Once your program is under way, please contact us with information regarding your program administrator so we will know who to contact. The first time you will need to upload the spreadsheet will be the summer of 2020. Our goal is to make this system as simple and transparent as possible, so please let us know if you have any comments or suggestions.

If, in the future, you find that changing needs require you to modify your SARI@PSU plan, please let us know and submit a revised SARI@PSU program plan form to the Office for Research Protections at least 30 days prior to the change. You may do this by email. Documents to support the SARI@PSU program can be found on the SARI@PSU website (www.research.psu.edu/training/sari), which includes additional resources for SARI@PSU education. As always, your questions, comments, and suggestions concerning any aspect of the SARI@PSU program are welcome.

Thank you again for your participation in this important initiative, and for supporting Penn State’s commitment to modeling and teaching the responsible conduct of research and scholarship in our community.

Sincerely,

Deb

Debrah Poveromo
Education Coordinator
Dap192@psu.edu
814-863-1441
References


Global Diagnostics, LLC. (2017). Strategic management and leadership online master’s program research study: A survey of perceptions and preferences among experienced managers who are interested in an online, business-related Master’s program. Research report prepared for Penn State Smeal College of Business.


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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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: Eberly College of Science
Department or Instructional Area: Astronomy & Astrophysics

New Graduate Program, Option, or Minor: Add

Designation of new graduate program:
Classification of Instructional Programs (CIP) Code: Penn State Graduate School
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: Astronomy & Astrophysics
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): Change number of eligible departments for two required elective courses

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

Submitted by Graduate Program Head
Randall L. McEntaffer
Printed name
Signature
Date: 8/31/18

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
Steven F. Heppelman
Printed name
Signature
Date: 9/13/18

Approved by College/School Dean/Chancellor (or Designee):
Aleksandra Slavkovic
Printed name
Signature
Date: 9/16/18
Recommending by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb ___________________________  
Printed name  
Signature  
Date: 11/6/2018

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

On Behalf of C. Andrew Cole ___________________________  
Printed name  
Signature  
Date: 11/6/2018

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken ___________________________  
Printed name  
Signature  
Date: 11/6/2018
Graduate Program Proposal
Department of Astronomy & Astrophysics
Proposal for an existing program change

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1. Context and Justification

The Ph.D. program in Astronomy & Astrophysics has ten required courses of which six must be Astronomy & Astrophysics 500-level courses and two must be Physics 500-level courses. In the past 8 years the department of Astronomy & Astrophysics has expanded its faculty and has built substantial and prominent research groups working on extrasolar planets, astronomical instrumentation, computational astrophysics, and astrostatistics including astronomy with large data sets. These groups include approximately half of the Astronomy & Astrophysics graduate students at the time of writing. Moreover, about 1/3 of the Astronomy & Astrophysics graduate students seek the Dual Title Degree in Astrobiology or the Computational Science Minor. As a result of the above, it is extremely beneficial for the graduate students in our program to take courses in fields that they did not need to before. These fields include Statistics, Mathematics, Applied Mathematics, Biology, Chemistry, Astrobiology, Geosciences, Meteorology, Materials Science and Engineering, Computer Science, and the Engineering or Information Science and Technology disciplines. In view of this new need for diverse coursework, the requirement for two Physics 500-level courses does not serve our students well because it limits their ability to take courses that are immediately relevant and very useful to their field of research. This requirement also limits their ability to complete the course requirements for the Dual Title Degree in Astrobiology or the Computational Science Minor.

We propose to change the requirement of two Physics courses so that the graduate students interested in extrasolar planets, astronomy with large data sets, and other areas of astrophysics listed above can take more courses that are close to their area of research, such as courses in planetary atmospheres, meteorology, astrobiology, statistical methods, and high-performance computing. Such courses will serve much better the students interested in these emerging fields. This change, of course, does not preclude students from taking physics courses according to their research interests and the scope of their dissertation work. This change maintains the requirement for ten 3-credit courses.

2. Current and Revised Text in Graduate Bulletin

Here is the second paragraph of the section of the graduate bulletin entitled Degree Requirements as it currently reads, with the phrase we propose to change underlined. This was taken from the new version of the bulletin, revised in the spring of 2018, to appear on-line in the fall of 2018.

“A minimum of 37 credits are required for the Ph.D., including 30 credits of 3-credit courses, 3 credits of ASTRO 596 for directed research in the second year, 3 credits of ASTRO 589 Seminars in current research, 1 credit of ASTRO 590 Colloquium, and 1 credit of ASTRO 602 for supervised teaching; however the 1 credit for ASTRO 602 cannot be counted towards the minimum credits required for the degree. The ten 3-credit courses must include ASTRO 501, ASTRO 502, at least four additional ASTRO 500-level courses, and at least two PHYS 500-level courses. One 400-level class may be substituted for a course that is not one of the ASTRO 500-level courses. A GPA of 3.2 in the ten 3-credit courses is required.”

Here is the proposed new paragraph, with the revised text underlined.

“A minimum of 37 credits are required for the Ph.D., including 30 credits of 3-credit courses, 3 credits of ASTRO 596 for directed research in the second year, 3 credits of ASTRO 589 Seminars in current research, 1 credit of ASTRO 590 Colloquium, and 1 credit of ASTRO 602
for supervised teaching; however the 1 credit for ASTRO 602 cannot be counted towards the minimum credits required for the degree. The ten 3-credit courses must include ASTRO 501, ASTRO 502, and at least four additional ASTRO 500-level courses. The remaining courses may be chosen from 500-level offerings in any of the following fields: Astronomy & Astrophysics, Physics, Statistics, Mathematics, Applied Mathematics, Biology, Chemistry, Astrobiology, Geosciences, Meteorology, Materials Science and Engineering, Computer Science, or one of the Engineering or Information Science and Technology disciplines. One 400-level class may be substituted for a course that is not one of the ASTRO 500-level courses. A GPA of 3.2 in the ten 3-credit courses is required.”

3. Consultations With Departments Affected
An email was sent to the Graduate Program heads and administrators of the proposed departments listed notifying them of the proposed change and asking for feedback. The content of the email is shown here:

“Dear fellow Graduate Program Head,

I am writing to you today to notify you of a proposed change to the Astronomy & Astrophysics Department’s graduate program bulletin (see pg 2 of the attached document). In short, we are changing our 2-course requirement in physics to a 2-course requirement in a variety of fields, of which yours is one. Our department has a graduate population that has diversified significantly in recent years. Branching out to other disciplines is now a necessity for some of our students so that they may receive the coursework most salient to their research interests. We do not anticipate a heavy burden on your programs as ~5 students (spread over various disciplines) utilize this opportunity each year.

I welcome any feedback/concerns/suggestions that you may have with this proposed change given that your department is named as one in which our students may attend a course. After incorporating any feedback, we will proceed with proposing this change to the Graduate School.”

The Department of Materials Science and Engineering and the Department of Statistics replied stating that the proposed change is acceptable. No denials, or requests for changes were received.

4. Consultation With the Office of Student Protections
There are is no change to SARI requirements for this program. Therefore, there was no need for a consultation with the office of research protections.
Astronomy and Astrophysics (ASTRO)

Program Home Page

DONALD P. SCHNEIDER, Head of the Department of Astronomy and Astrophysics
525 Davey Laboratory
814-865-0418

Degrees Conferred:

Ph.D., M.S., Dual-title Ph.D. in Astronomy and Astrophysics and Astrobiology.

The Graduate Faculty

The Program

The graduate program in Astronomy and Astrophysics prepares students for careers in astronomy, space science and education. Graduate instruction and research opportunities are available in theoretical, observational, and instrumental astronomy and astrophysics. Currently active areas of theoretical research include high-energy astrophysics (including theory of neutron stars, black holes, and gamma-ray bursts), relativity and cosmology, stellar dynamics and planet formation, and computational methodology. Observational areas include spectroscopic and photometric observations of high-redshift quasars, galaxies and the intergalactic medium; gamma-ray bursts; X-ray and visible light studies of quasars, starburst and other active galaxies; visible light studies of nearby galaxies and their stellar populations; infrared study of brown dwarfs and protoplanetary disks; spectroscopy and modeling of binary, magnetically active, pre- and post-main sequence stars; spectroscopic searches for planetary systems. Instrumental areas include: development of X-ray telescopes and detectors; and high-precision visible and near-infrared light spectrographs. Department faculty members participate in several university cross-disciplinary organizations: Astrobiology Research Center, Center for Astrostatistics, Center for Exoplanets and Habitable Worlds, and the Institute for Gravitation and the Cosmos.

The department played a seminal role in and leads many science investigations using two NASA-launched satellites, the Chandra X-ray Observatory and the Swift panchromatic gamma-ray burst mission, and the Innovative 9-meter Hobby-Eberly Telescope located at the McDonald Observatory in Texas. Faculty and students also observe with other space-based observatories (GALEX, Hubble Space Telescope, Spitzer Space Telescope, XMM-Newton) and ground-based telescopes (Gemini and other national facilities, Magellan, Keck, South Africa Large Telescope, Very Large Telescopes). Physics faculty members closely associated with the Department are involved in particle and gravitational wave observations using the Auger, AMANDA, Ice Cube, and LIGO instruments. The Department has extensive computing facilities, and research is also conducted with university and national supercomputing resources.

Graduate students also have ample opportunity to acquire experience in undergraduate teaching and public outreach.

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.

Scores from the Graduate Record Examinations (GRE), including the Physics test, are required for admission

Normally, students admitted to the program are required to have a bachelor’s degree in physics and/or astronomy with a grade-point average of at least 3.0 in their junior/senior courses in physics, astronomy, math, and related subjects. Typical GRE scores for entering students are 720 or more on the general test, and 680 or more on the Physics test. 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. Applicants to the Astronomy and Astrophysics program must have a minimum TOEFL score of 590 on the paper-based test, or a total score of 90 with a 23 on the speaking section for the Internet-based test (IBT).

Degree Requirements

In the Bulletin listing, under Degree Requirements, add the following as the first paragraph: *Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.*
A minimum of 37 credits are required for the Ph.D., including 30 credits of 3-credit courses, 3 credits of ASTRO 596 for directed research in the second year, 3 credits of ASTRO 588 Seminars in current research, 1 credit of ASTRO 590 Colloquium, and 1 credit of ASTRO 602 for supervised teaching; however the 1 credit for ASTRO 602 cannot be counted towards the minimum credits required for the degree. The ten 3-credit courses must include ASTRO 501, ASTRO 502, and at least four additional ASTRO 500-level courses. The remaining courses may be chosen from 500-level offerings in any of the following fields: Astronomy & Astrophysics, Physics, Statistics, Mathematics, Applied Mathematics, Biology, Chemistry, Geosciences, Meteorology, Materials Science and Engineering, Computer Science, or one of the Engineering or Information Science and Technology disciplines. One 400-level class may be substituted for a course that is not one of the ASTRO 500-level courses. A GPA of 3.2 in the ten 3-credit courses is required.

The Candidacy Examination is an oral examination covering any area of astronomy. Students who fail the Examination may make a second attempt. At the Comprehensive Examination, the student presents a significant body of original research conducted at Penn State. This Examination tests the student's mastery of the chosen field of research. The student prepares an extended written report and oral presentation, and answers questions on the research and closely related areas. Graduation requires the completion of a dissertation of original research and a final oral examination (the dissertation defense). To earn the Ph.D. degree, doctoral candidates must write a dissertation that is accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

The Master of Science degree requires completion of the Ph.D. course requirements (except the 3 credits of ASTRO 588) with 3.00 grade point average, passage of the Candidacy Exam, and submission of an acceptable scholarly paper, completed while enrolled in ASTRO 596.

Dual-Title Ph.D. in Astronomy and Astrophysics and Astrobiology

Admissions Requirements

Students must apply and be admitted to the graduate program in Astronomy and Astrophysics and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Astrobiology dual-title program. Refer to the Admissions Requirements section of the Astrobiology Bulletin page. Doctoral students must be admitted into the dual-title degree program in Astrobiology prior to taking the candidacy examination in their primary graduate program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the degree requirements for the Ph.D. in Astronomy and Astrophysics, listed above. In addition, students must complete the degree requirements for the dual-title in Astrobiology, listed on the Astrobiology Bulletin page.

The candidacy examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Astronomy and Astrophysics and must include at least one Graduate Faculty member from the Astrobiology program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both Astronomy and Astrophysics and Astrobiology. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of an Astronomy and Astrophysics and Astrobiology dual-title Ph.D. student must include at least one member of the Astrobiology 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 Astrobiology, the member of the committee representing Astrobiology must be appointed as co-chair. The Astrobiology representative on the student's doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

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 Astronomy and Astrophysics and Astrobiology. 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.

Graduate Teaching Assistantships, externally funded graduate Research Assistantships, and/or University fellowships are typically provided to student admitted and continuing in good standing. Many students also apply for externally funded fellowships.
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.

ASTRONOMY AND ASTROPHYSICS (ASTRO) course list
Learning Outcomes

Master of Science

1. Know/Think/Apply: Graduates will have demonstrated command of basic observational astronomy and astrophysics, including observing techniques, methods of data analysis, and common theoretical frameworks and techniques. This will include the ability to apply physics and mathematics knowledge to standard problems in astrophysics, as well as application of statistical principles to data analysis.

2. Communicate: Graduates will be able to clearly and cogently describe the background and motivation of their work, describe their methodology, and present and defend their arguments and conclusions in oral presentations, written papers and reports.

3. Ethical Professional Conduct: Graduates will demonstrate working knowledge of the standards for ethical conduct in research through their professional behavior and work.

Doctor of Philosophy

1. Know/Think: Graduates will have demonstrated command of basic observational astronomy and astrophysics, including observing techniques, methods of data analysis, and common theoretical frameworks and techniques. This will include the ability to apply physics and mathematics knowledge to standard problems in astrophysics, as well as application of statistical principles to data analysis.

2. Apply/Think/Create: Graduates will be able to carry out original research in theoretical astrophysics, observational astronomy, or laboratory astrophysics (including but not limited to instrumentation development). This entails identifying and evaluating the status of outstanding questions, developing strategies to answer them, and formulating hypotheses and testing them through one or more of the following means: calculations or simulations, model development, analysis of existing data, acquisition and analysis of new data, and design and/or construction of new instruments.

3. Communicate: Graduates will be able to clearly and cogently describe the background and motivation of their research, describe their research methodology, and present and defend their arguments and conclusions in oral presentations, written papers and reports, and, where applicable, proposals.

4. Ethical Professional Conduct: Graduates will demonstrate working knowledge of the standards for ethical conduct in research through their professional behavior and work.
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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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.

<table>
<thead>
<tr>
<th>College/School:</th>
<th>The College of Health and Human Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department or Instructional Area:</td>
<td>Biobehavioral Health</td>
</tr>
</tbody>
</table>

**New Graduate Program, Option, or Minor:** Add

- Designation of new graduate program: Dual-Title Doctoral Degree in Psychology and Social and Behavioral Neuroscience
- Classification of Instructional Programs (CIP) Code: 26.1501
- Designation of new graduate option:
- Designation of new graduate minor:

Indicate effective semester: X
- First semester following approval
- Second semester following approval

---

**Existing Graduate Program Option, or Minor:** 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

[Signature]  Date: 11/22/18

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

[Signature]  Date: 1/22/19

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

[Signature]  Date: 1/22/18
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb
Printed name
Signature
Date: 11/6/2018

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

On Behalf of C. Andrew Cole
Printed name
Signature
Date: 11/6/2018

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken
Printed name
Signature
Date: 11/6/2018
A Proposal to Graduate Council to Adopt the Dual-Title Doctoral Degree Program in Social and Behavioral Neuroscience

Submitted by Department of Biobehavioral Health

Contact:

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I. Overview

The graduate program in Biobehavioral Health (BBH) proposes to adopt the dual-title Ph.D. degree program in Social and Behavioral Neuroscience.

II. Justification for the Dual-Title Ph.D. in BBH and Social and Behavioral Neuroscience

The department of Biobehavioral Health (BBH) is an innovative and interdisciplinary program designed to explore health from all angles. Scholarship and teaching in BBH focuses on how biological, behavioral, psychological, sociocultural, and environmental variables interact to influence health across time scales and levels of analysis. Our faculty members are leading experts in how to weave together diverse approaches and methodologies in these and other domains, and specific research foci include (but are not limited to) physiological processes; health behaviors; genetics and epigenetics; chronic disease; neuroscience; global health; psychological states and processes; environmental exposures; bioethics; health disparities; prevention science, and intervention science. One of the first programs of its kind, BBH hosts a highly successful undergraduate program, a novel, interdisciplinary doctoral training program, and a university-wide Minor in Global Health. BBH also hosts the Biomarker Core Laboratory.

A number of faculty within BBH are trained in Neuroscience and related fields, and a neuroscience perspective and methods have long been utilized in BBH. With growing awareness that Neuroscience is best perceived as inherently interdisciplinary, the involvement of faculty who are trained in a variety of disciplines and who utilize an integrative approach is very important. In keeping with this, the incorporation of a neuroscience perspective has been growing among faculty in BBH and we recognize the need to provide yet more graduate training opportunities to graduate students in areas that include Social and Behavioral Neuroscience. Such training will be needed to attract and retain the most competitive applicants and to help them achieve competitive academic positions. BBH also plans to make a strategic hire in Neuroscience in the next year or two in order to meet this strategic training need and to continue to be at the forefront of merging neuroscience with approaches from other Biological disciplines and disciplines including Psychology, Behavioral Health, and Public Health and Policy.

The proposed dual-title Ph.D. in Biobehavioral Health will help:

- provide a cohesive curriculum for in-depth training in Biobehavioral Health processes that incorporate a neurobiological level of analysis, which we view as needed for our graduates to become independent researchers in Neuroscience.
- prepare graduates to be competitive on the academic job market in traditional departments related to Biobehavioral Health (e.g. Psychology, Behavioral Medicine, Health Promotion, Neuroscience, Biology) with well-developed programs in neuroscience, or to become leaders in departments expanding their disciplinary representation in this domain.
- enhance students’ literacy and fluency in neuroscience research to become highly skilled and valuable members of interdisciplinary research teams, making them exceptionally competitive for securing research funding across multiple funding agencies.
III. Description of Required Social and Behavioral Neuroscience (SBN) Course Work

A. General Course Work Requirements for the Dual-Title Ph.D. program in BBH and Social and Behavioral Neuroscience

The minimum course work requirements for the dual-title Ph.D. degree in BBH and Social and Behavioral Neuroscience are as follows:

- Course work and other requirements for Biobehavioral Health (which are described in detail below).
- NEURO 520 (3 credits): Cellular and Molecular Neuroscience
- NEURO 521 (3 credits): Systems Neuroscience
- SBN 590 (2 credits): Proseminar in Social and Behavioral Neuroscience (1 credit course taken twice)
- 12 or more elective credits from courses specific to social and behavioral neuroscience. These can be fulfilled by courses listed or cross listed with the SBN classification and with additional approved courses (shown in the Table below). Requests for alternative courses to apply toward the SBN title (e.g. new courses offered as 597)

Within BBH, there are four required core content courses, two required core statistics courses, a required professional development seminar, and a requirement of 12 additional "methods courses" (defined broadly as methods or research content courses that are relevant to the student's interests, and as approved by the student's advisor). Any 9 credits of the SBN elective courses could be counted toward this BBH "methods" requirement of 12 credits. As such, an BBH student could complete the dual-title in as few as 11 credits beyond the requirements of the BBH degree. This is further illustrated below in a side-by-side comparison of the course work requirements for BBH vs. Social and Behavioral Neuroscience.

B. Course Work Requirements, Dual-Title Ph.D. in BBH and Social and Behavioral Neuroscience

The following provides a side-by-side summary of how Social and Behavioral Neuroscience course work requirements interact with BBH course work requirements in the dual-title Ph.D. in BBH and Social and Behavioral Neuroscience.

<table>
<thead>
<tr>
<th>Table 1. Comparison of Course Work Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ph.D. in BBH</strong></td>
</tr>
<tr>
<td><strong>Total credits</strong></td>
</tr>
<tr>
<td>A minimum of 31 post-baccalaureate credits of course work.</td>
</tr>
<tr>
<td><strong>Required substantive core courses (12 credits)</strong></td>
</tr>
<tr>
<td>All students must take the following courses:</td>
</tr>
<tr>
<td>Required core statistics courses</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>• BBH 501 (3 credits)</td>
</tr>
<tr>
<td>• BBH 502 (3 credits)</td>
</tr>
<tr>
<td>• BBH 503 (3 credits)</td>
</tr>
<tr>
<td>• BBH 504 (3 credits)</td>
</tr>
<tr>
<td>• NEURO 520 (3 credits)</td>
</tr>
<tr>
<td>• NEURO 521 (3 credits)</td>
</tr>
</tbody>
</table>

### Additional Electives

#### Additional core department Methodology/Electives

A minimum of 12 elective credits must be in methodology or content related to the student’s research area.

SBN courses could fulfill 9 credits of this requirement for BBH with the approval of the BBH PIC of Graduate Studies

#### A minimum of 12 credits in SBN-approved electives must be taken

Approved elective options are the following

- NEURO 511 (3 credits) or NEURO 512 (4 credits)
- SBN 505 (3 credits, variable)
- SBN 508 (3 credits, variable)
- SBN 511 (3 credits, variable)
- HDFS 502: Biological Systems in Developmental Context
- HDFS 512: Cognitive Developmental Neuroscience of Adolescence
- PSY 524: Biological Basis of Behavior

As noted above, 9 credits of these courses could be used toward the BBH methods electives requirement, with the approval of the BBH PIC of Graduate Studies

#### Required seminars

- A 1-credit BBH seminar is required in the first year
- A 1-credit BBH seminar is required in the first year
- SBN 590 (1 credit), taken twice
Scholarship and Research Integrity

SARI@PSU requirement is currently filled through a combination of certification of CITI course completion in year 1, and discussion-based ethics training in BBH and College-level workshops

C. Example Course Work Path, Dual-Title Ph.D. in BBH and Social and Behavioral Neuroscience

Table 2 illustrates an example path through course work and other milestone requirements of the dual-title Ph.D. in BBH.

Table 2. Example Path Through Dual-Title Ph.D.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>BBH</th>
<th>SBN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1 Fall (Semester 1)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBH 501: Biobehavioral Systems in Health and Development: Theory and Processes</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>BBH 505: Behavioral Health Research Strategies</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>BBH 590: BBH Colloquium</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><strong>Year 1 Spring (Semester 2)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBH 503: Biobehavioral Systems in Health and Development: Processes and Integration</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>NEURO 520: Cellular and Molecular Neuroscience</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>BBH 597: Continuation of data analytic models relevant to biobehavioral research</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>BBH 590: BBH Colloquium</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2 Fall (Semester 3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBH 502: Health: Biobehavioral Perspectives</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>NEURO 521: Systems Neuroscience</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>PSY 524: Proseminar in Cognitive Psychology</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>SBN 590: Proseminar in Social and Behavioral Neuroscience</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><strong>Year 2 Spring (Semester 4)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BBH 504: Behavioral Health Intervention Strategies</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>SBN 505: Seminar in Social and Behavioral Neuroscience</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>SBN 590: Proseminar in Social and Behavioral Neuroscience</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Candidacy (Note, student may request to take candidacy earlier; we suggest that students take Neuro 520 and Neuro 521 prior to candidacy)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBN 508</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>
Year 4

<table>
<thead>
<tr>
<th>SBN 511</th>
<th>3</th>
<th>Elective</th>
</tr>
</thead>
</table>

Comprehensive Exam (end of Year 3 or start of Year 4)
Dissertation Proposal (end of Year 4 or start of Year 5)

Year 5

Dissertation

- **Core** = course required of all students to complete the degree
- **Elective** = credit requirement toward degree, with flexibility in specific course

IV. Additional Requirements, Dual-Title Ph.D. in BBH and Social and Behavioral Neuroscience

The following provides a side-by-side summary of how additional Social and Behavioral Neuroscience requirements compare to and interact with BBH requirements in the dual-title Ph.D. in BBH and Social and Behavioral Neuroscience.

**Table 3. Comparison of Other Requirements**

<table>
<thead>
<tr>
<th>Ph.D. in BBH</th>
<th>Ph.D. in BBH &amp; Social and Behavioral Neuroscience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Candidacy Committee</strong></td>
<td><strong>Candidacy Committee</strong></td>
</tr>
<tr>
<td>Candidacy committees must consist of 3 committee members including the student’s academic adviser and two members of the BBH graduate faculty. Committee composition must be approved by the Graduate P.I.C.</td>
<td>Candidacy for students pursuing the dual title will be conducted in an identical manner, with the caveat that at least one candidacy committee member must be a faculty member affiliated with the Social and Behavioral Neuroscience graduate faculty. The chair of the candidacy committee must be an affiliate of the SBN program or an affiliated member be appointed as a co-chair. Faculty members who hold appointments in both programs may serve in a combined role.</td>
</tr>
<tr>
<td>Students generate a dossier consisting of (1) a personal statement including long term professional goals, (2) CV, (3) grades in all completed coursework (4) all prior annual plans of study, and (5) an independently written original professional writing sample (an empirical research paper or a review paper) to be circulated to the Committee 2 weeks prior to the candidacy meeting. The Committee will discuss the student’s progress, proposed plans, and candidacy paper in light of the student’s expressed future goals; structured feedback will be provided via the Department’s Candidacy evaluation form. The Committee presents their evaluation of the student to the BBH faculty at large, after which the full BBH faculty vote to admit the student to candidacy or to recommend termination from the</td>
<td>Students must apply, and be admitted, to the SBN dual title program prior to scheduling their candidacy meeting. To allow for the extra time needed for coursework, the candidacy examination must be held by the end of the 4th semester. Students may request that the candidacy examination occur earlier.</td>
</tr>
<tr>
<td>program.</td>
<td>Candidacy exams are typically held by the end of the 3rd semester.</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

**Doctoral Committee**

Once admitted to candidacy students must form their doctoral committee. In accordance with Graduate Council requirements, the doctoral committee is composed of at least four members of the graduate faculty, at least one of whom must be from outside the BBH department, or represent a different disciplinary perspective (based on scholarly work or field in which the Ph.D. was received). A minimum of three committee members must hold primary appointments in BBH (the chair of the committee and two committee members). One faculty member is designated as the chair of the doctoral committee; typically this person is also the student’s general adviser. In the event that a student is conducting dissertation research under the direct supervision of two faculty members, faculty may be appointed as co-chairs of the doctoral committee.

**Doctoral Committee**

The committee composition for students completing the dual-title in Social and Behavioral Neuroscience follows the same general structure, with the caveat that both the dissertation chair and the outside member are affiliated with the Social and Behavioral Neuroscience faculty. Exceptions to the role of the 2 SBN affiliated committee members (e.g. both SBN affiliated faculty are from the home department) must be approved by the SBN steering committee. As with the candidacy committee, if the chair of the candidacy committee is not an affiliate of the SBN program, an affiliated member must be appointed as a co-chair.

**Comprehensive Exam**

Prior to the examination, each committee member provides 10-20 readings selected to provide students with depth and breadth of exposure to literature related to BBH and their research interests. The comprehensive examination itself involves a written and an oral component. The written component is comprised of two parts: an independently written review paper or NSRA-style grant proposal (the choice of which is determined by consultation between student and advisor), and written answers to a comprehensive examination designed by the doctoral committee. The oral part is a defense of the written component and discussion of general progress in the graduate program.

The goal of the examination questions and defense is to evaluate the student’s acquired knowledge and ability to critically evaluate the

**Comprehensive Exam**

Students pursuing the dual-title will follow the same format for the comprehensive exam. It is expected that a substantial portion of the exam emphasizes research relevant to the Social and Behavioral Neuroscience field. The representation of neuroscience in the exam materials will be evaluated by the committee members who hold affiliations with the SBN program.
state of the field at the level needed to make meaningful scientific contributions to the field.

**Dissertation Proposal**

The dissertation proposal occurs after passing the comprehensive exam. The student submits a dissertation proposal to the doctoral committee, outlining the proposed research study(ies) that will comprise the dissertation. A proposal defense is scheduled in which the committee can provide feedback regarding the student's proposed approach, and approve the dissertation plan.

**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. The oral examination is administered by the doctoral committee. The dissertation must be accepted by the doctoral committee, the P.I.C. of the graduate program, and the Graduate School.

**V. Proposed Amendment to Graduate Bulletin for Biobehavioral Health (BBH)**

**Changes relevant to dual-title program tracked in red*. Please note that we are using this opportunity to also make some revisions to the description of the BBH Program, which was outdated; thus, the below text about the Biobehavioral Health Program should replace our material in the Graduate Bulletin overall**

**Biobehavioral Health (BBH)**

BBH Graduate Program Home Page

THOMAS J GOULD, Department Head, Biobehavioral Health
JENNIFER E GRAHAM-ENGELAND, Professor in Charge of the Graduate Program
Biobehavioral Health
219 Biobehavioral Health Building
814-863-7256

**Degrees Conferred**

Ph.D., M.S. (The BBH program does not admit applicants for the terminal master's degree.)
Dual-Title Ph.D. in BBH and Bioethics
The BBH Program

The graduate program in Biobehavioral Health (BBH) is an innovative, interdisciplinary graduate program within the College of Health and Human Development. The focus of the program is on the intersection of biological, psychological, behavioral, social, environmental, and cultural influences on health and disease throughout the lifespan. It is the fundamental principle of our department that an integrative approach to health research and health care holds the greatest potential to advance health. The program is designed to cultivate competence in basic, mechanistic, and applied research that addresses fundamental issues in health and prevention throughout the lifespan; we also provide training in the role of diversity and ethics in research, statistical and procedural research methods, and in university teaching. Graduates are prepared for research, teaching, or policy roles in academia (universities and medical schools), health care settings, private and public research laboratories, and government agencies.

There are special resources available to students in BBH that provide valuable training and support. Several are housed in BBH, including the Biomarker Core Lab and a specialized metabolic kitchen. BBH is also home to the Global Health Minor, which provides training in how to think critically about current public health challenges around the world. Furthermore, BBH is linked with many well-funded centers in the College, including the Prevention Research Center, the Methodology Center, the Center for Healthy Aging, the Clinical and Translational Science Institute, the Huck Institute of the Life Sciences, the Social Science Research Institute, and the Social, Life, and Engineering Imaging Center. State-of-the-art library, teaching, and computing resources are provided by the College and University.

Admission Requirements

Admission requirements listed here are in addition to requirements stated in the Graduate Bulletin. Applicants apply for admission to the program via the Graduate School application for admission.

Scores from the Graduate Record Examinations (GRE), or from the Medical College Admission Test (MCAT), are required for admission. Applicants should have a minimum grade-point average of 3.00 (A=4.00), an above-average score on the GRE or MCAT, and three supporting recommendations. At the discretion of the graduate program, exceptions may be made to these requirements for students with special backgrounds, abilities, and interests. Admission will be offered to candidates who are the best qualified, in the judgment of the faculty, taking all factors in to account.

Entering students should have a basic background in biological sciences, the behavioral sciences, or a combination of the two. In addition, they should have a basic background in quantitative methods. In exceptional cases, superior students who do not meet these requirements may be admitted provisionally while correcting their deficiencies. This must occur during their first two semesters in the program.

Master’s Degree Requirements

Requirements listed here are in addition to requirements stated in the Graduate Bulletin.

BBH does not offer a terminal Master’s Degree. A minimum of 33 credits at the 400, 500, 600, or 800 level is required, with at least 18 credits at the 500 and 600 level, combined. Master of
Science degree candidates must take 15 credits in BBH 501 (3 credits), BBH 502 (3 credits), BBH 503 (3 credits) BBH 504 (3 credits), and BBH 505 (3 credits) and 12 additional credits in methods individually designed in consultation with and with the approval of their adviser and committee. All M.S. degree candidates must complete a formal master's thesis or a master's paper. Candidates selecting the thesis option must complete an additional 6 credits of master's thesis research (BBH 600). Candidates selecting the paper option must complete an additional 6 credits of individual studies (BBH 596). The master's thesis will typically describe original research. The master's paper may describe original research, but may also involve a substantial review of the literature, or a substantial description of a new research-related procedure. The choice of thesis or paper options will be made by the student in consultation with the adviser. The student's advisory committee judges the quality and acceptability of the paper or thesis. This thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School.

**Doctoral Degree Requirements**

Requirements listed here are in addition to requirements stated in the *Graduate Bulletin*.

All doctoral students must take 15 credits in BBH 501 (3 credits), BBH 502 (3 credits), BBH 503 (3 credits), BBH 504 (3 credits), and BBH 505 (3 credits), and 12 additional credits in research methods individually designed in consultation with the student's adviser and doctoral committee (and with approval of the PIC of the Graduate Program) to develop doctoral-level competence in biobehavioral health and one or more related specialized areas.

All doctoral students must demonstrate competency in college-level teaching by completing two semesters in the role of a teaching assistant; the professional development seminar provides support and mentoring to facilitate development of competency in college-level teaching.

**Dual-Title Ph.D. in BBH and Bioethics**

**Admission Requirements**

Students must apply and be admitted to the graduate program in Biobehavioral Health and the Graduate School before they can apply for admission to the dual-title degree program in Bioethics. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Bioethics dual-title program. Refer to the Admissions Requirement section of the *Bioethics bulletin page*. Doctoral students must be admitted to the dual-title degree program in Bioethics prior to taking the candidacy exam in their primary graduate program.

**Degree Requirements**

Biobehavioral Health Ph.D. students may pursue additional training in bioethics through the dual-title Ph.D. program in Bioethics. To qualify for the dual-title degree, students must satisfy the requirements of the Biobehavioral Health Ph.D. program. In addition, students must complete the degree requirements for the dual-title in Bioethics, listed on the *Bioethics bulletin page*. Within this framework, final course selection is determined by the student, their Biobehavioral Health adviser, and their Bioethics program adviser.

*Candidacy.* In accordance with Graduate Council policy, there will be a single candidacy examination, assessing candidacy for both the primary program and the dual-title program. At least one member of the candidacy committee must come from the Bioethics program. Faculty
members who hold appointments in both programs’ graduate faculty may serve in a combined role. 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 on semester beyond the normal period allowable.

**Comprehensive exam.** In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a Biobehavioral Health and Bioethics dual-title doctoral degree student must include at least one member of the Bioethics Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the committee 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 primary field.

**Dissertation and dissertation defense.** 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 BBH and Bioethics. 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.

**Dual-Title Ph.D. in BBH and Clinical and Translational Sciences**

**Admission Requirements**

Doctoral students with research and educational interests in clinical and translational science may apply for the Dual-Title Ph.D. degree in Biobehavioral Health and Clinical and Translational Sciences following admission to the Graduate School and Biobehavioral Health graduate 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. Refer to the Admissions Requirements section of the CTS Bulletin page. Doctoral students must be admitted into the dual-title degree program in CTS prior to taking the candidacy examination in their primary graduate program.

**Degree Requirements**

This dual-title degree program emphasizes interdisciplinary scholarship at the interface of basic sciences, clinical sciences, and human health. Students in the dual-title program are required to have two advisers from separate disciplines: one individual serving as the primary mentor in the graduate program in Biobehavioral Health and another individual serving as the secondary mentor in an area covered by the dual-title program who is a member of the Clinical and Translational Sciences faculty.

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in BBH, listed above. In addition, students must complete the degree requirements for the dual-title in CTS, listed on the CTS Bulletin page.

In accordance with Graduate Council policy, the candidacy committee must include at least one member of the Clinical and Translational Sciences graduate faculty. Faculty members who hold appointments in both programs’ graduate faculty may serve in a combined role. There will be a
single candidacy examination which will include content from both the Graduate Program in Biobehavioral Health and the Clinical and Translational Sciences programs. 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 on semester beyond the normal period allowable. [Link]

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee must include at least one member of the Clinical and Translational Sciences Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the committee is not also a member of the Graduate Faculty in Clinical and Translational Sciences, the member of the committee representing Clinical and Translational Sciences must be appointed as co-chair. The fields of Biobehavioral Health and Clinical and Translational Sciences will be integrated in the student’s comprehensive examination. The CTS representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

All students are required to conduct dissertation research that contributes fundamentally to the fields of Biobehavioral Health and Clinical and Translational Sciences. 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.

**Dual-Title Doctoral Degree in BBH and Social and Behavioral Neuroscience**

BBH doctoral students interested in having a degree that reflects interdisciplinary training in social and behavioral neuroscience as relevant to the domains of research expertise within BBH (e.g. integrating neuroscience techniques and perspectives to understanding integrative or interactive influences of biological, behavioral, psychological, sociocultural, and environmental variables on health across time scales and levels of analysis), may apply to pursue a dual-title Ph.D. in BBH and Social and Behavioral Neuroscience.

Social behavioral neuroscience reflects the study of how brain development and function influence, and are influenced by, social, environmental, and behavioral variables. The dual-title Ph.D. program provides students with additional training in an integrative neuroscience program in order to enable them to pursue innovative interdisciplinary research with intellectual sophistication.

**Admission Requirements**

Students must apply and be admitted to the graduate program in BBH and the Graduate School before they can be admitted to a dual-title degree program. Applicants interested in the dual-title degree program may note their interest in their applications to BBH. Students must apply and be admitted to the dual-title degree program in Social and Behavioral Neuroscience prior to taking the candidacy exam and must be in good standing in the BBH program. Students admitted to the BBH program will be admitted to the dual-title program in Social and Behavioral Neuroscience upon the recommendation of a Social and Behavioral Neuroscience Program faculty member in BBH. Additional admissions requirements are listed in the Admissions Requirements section of the Social and Behavioral Neuroscience Bulletin page.

**Degree Requirements**
To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D. in BBH, listed above. In addition, students pursuing the dual-title Ph.D. in BBH and Social and Behavioral Neuroscience must complete the degree requirements for the dual-title Social and Behavioral Neuroscience Ph.D., listed on the Social and Behavioral Neuroscience Bulletin page.

The Candidacy Examination committee for the dual-title degree will be composed of Graduate Faculty from BBH and must include at least one Graduate Faculty member from Social and Behavioral Neuroscience. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. The chair of the candidacy committee must be a member of the Graduate Faculty and an affiliated member of the SBN program or an affiliated member may be appointed as a co-chair. There will be a single candidacy examination, containing elements of both BBH and Social and Behavioral Neuroscience. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a dual-title doctoral degree student must include at least two members of the Social and Behavioral Neuroscience Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the committee representing BBH is not also a member of the Graduate Faculty in Social and Behavioral Neuroscience, the member of the committee representing Social and Behavioral Neuroscience must be appointed as co-chair. It is expected that the outside member of the doctoral committee serves as the second Social and Behavioral Neuroscience representative. Exceptions (e.g. having both Social and Behavioral Neuroscience committee members from within the home department) must be approved by the Social and Behavioral Neuroscience Steering committee. The Social and Behavioral Neuroscience representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

Ph.D. candidates must complete a dissertation on a topic that reflects their original research and their education in both BBH and Social and Behavioral Neuroscience. In order to earn the dual-title Ph.D. degree, the dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

**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 courses below the 400 level in order to make up deficiencies or to fill in gaps in previous education, but not to meet requirements for an advanced degree.
VII. Proposed Revision, BBH Graduate Student Handbook

The BBH Graduate Student Handbook is currently being revised. We will add material describing how the dual-title programs will work, using language similar to that included above for the Graduate Bulletin.
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 Education
Department or Instructional Area: Counselor Education

Penn State Graduate School

New Graduate Program, Option, or Minor: □ Add
Designation of new graduate program:
Classification of Instructional Programs (CIP) Code: OCT 1-7-2018
Designation of new graduate option:
Designation of new graduate minor:

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

Office of the Vice Provost and Dean of the Graduate School

Existing Graduate Program Option, or Minor: □ Change □ Drop
Current designation of graduate program: D.Ed. Counselor Education
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): Since the CNED PhD program began, there have been no new DEd admissions. Faculty therefore voted to drop the DEd.

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

Submitted by Graduate Program Head
Carlos Zalazuetta
Printed name
Signature
Date: 9/6/18

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

Printed name
Signature
Date: 10-11-18

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

Printed name
Signature
Date: 10/14/18
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Dropping D.Ed. Program in Counselor Education

Dropping of programs*, options**, and minors***

A. A justification for the requested drop.

The Ph.D. program in Counselor Education was approved 16 years ago and since that time no D.Ed. admissions have been made. The D.Ed. program was revised in 2012 as a specialized program that would be offered partly on-campus and partly on-line for specific cohorts of students. Subsequent changes in requirements by World Campus related to numbers and locations of students made the program academically unfeasible. Since that time, we have explored other options, but have not found any quality academic options that could be accommodated by the faculty and also meet the financial requirements of World Campus. The Counselor Education faculty therefore find no reason to continue with the D.Ed. program.

The courses in this program are not unique to this program and can be part of the Ph.D. program, so the courses themselves will not be dropped.

B. A copy of the existing Graduate Bulletin description, with all changes marked (with track changes, for example), as applicable. If the entire graduate program or minor is being dropped, it is not necessary to include a revised Bulletin description, but if an option is being dropped, the revised Bulletin description is required.

See attached Bulletin revisions.

C. Original written responses from departments affected by the proposed drop.

This program does not impact other Departments. No students or faculty from other departments have been involved with this D.Ed. degree program or the courses in the program for over 15 years.

See consultations below.
Counselor Education (CN ED)

Program Home Page

Peggy Van Meter, Director of Graduate Studies
226 CEDAR Building
814-863-2004
cned-program@psu.edu

Degrees Conferred:
Ph.D., M.Ed. (Deleted: D.Ed.,)

The Graduate Faculty

The Program

Professional preparation is offered at the master's level (M.Ed.) with emphasis areas in career counseling, clinical mental health counseling, school counseling, and rehabilitation counseling. The M.Ed. consists of 39 required credit hours plus specialization courses ranging from an additional 12 to 21 credit hours depending on the area of emphasis. All courses must be taken at the 400 level and above.

The Ph.D. program prepares candidates for positions as counselor education faculty members and consists of a minimum of four academic years of graduate level preparation (including master's-level preparation), defined as eight semesters, with a minimum of 96 credits at the 400 level and above required of all students in the program.

Admission Requirements

Scores from the Graduate Record Examination (GRE) are required for admission to the Ph.D. program. GRE scores are not required for the M.Ed. program. Requirements listed here are in addition to general Graduate Council requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin.

M.Ed. applications with a 3.0 junior/senior average (on a scale of 4.00) and with appropriate course backgrounds will be considered for admission. The best-qualified applicants will be
accepted up to the number of spaces that are available for new students. Exceptions to the minimum 3.0 grade-point average may be made for students with special backgrounds, abilities, and interests.

Doctoral applicants must have completed a master's degree in counselor education prior to admission into the Ph.D. program. A master's degree is required for admission that must be comprised of a minimum of 48 credit hours that align with the standards of the Counsel for Accreditation of Counseling and Related Educational Programs (CACREP). All doctoral applicants should present at least a 3.33 average in all graduate study completed prior to admission.

For admission to the Graduate School, an applicant must hold either (1) a baccalaureate degree from a regionally accredited U.S. institution or (2) a tertiary (postsecondary) degree that is deemed comparable to a four-year bachelor's degree from a regionally accredited U.S. institution. This degree must be from an officially recognized degree-granting institution in the country in which it operates.

The language of instruction at Penn State is English. All international applicants must take and submit scores for the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System), with the exceptions noted below. The minimum acceptable score for the TOEFL is 550 for the paper-based test, or a total score of 80 with a 19 on the speaking section for the internet-based test (IBT). Applicants with IBT speaking scores between 15 and 18 may be considered for provisional admission, which requires completion of specified remedial English courses ESL 114G (American Oral English for Academic Purposes) and/or ESL 116G (ESL/Composition for Academic Disciplines) and attainment of a grade of B or higher. The minimum acceptable composite score for the IELTS is 6.5. Graduate programs may have more stringent requirements.

International applicants are exempt from the TOEFL/IELTS requirement who have received a baccalaureate or a graduate degree from a college/university/institution in any of the following: Australia, Belize, British Caribbean and British West Indies, Canada (except Quebec), England, Guyana, Republic of Ireland, Liberia, New Zealand, Northern Ireland, Scotland, the United States, and Wales.

Degree Requirements

All candidates are expected to exhibit, in addition to academic competence, effectiveness in interpersonal relations and in both written and oral communication. They also must provide evidence in support of professional counseling activities and involvement in professional organizations. All degree options require students to participate in extensive practicum or fieldwork experience under supervision.

The M.Ed. program includes 51 to 60 credit hours depending on the area of emphasis. This includes 39 hours of core requirements plus 12 to 21 credit hours depending on the area of emphasis. All courses must be taken at the 400 or 500 levels.
CORE COURSES for Counselor Education M.Ed. Program:

Counselor Education (CN ED)

- 404. Group Procedures in Guidance and Counseling (3)
- 500. Introduction to Counseling and Development (3)
- 501. Counseling Theory and Method (3)
- 503. Guidance Services in Elementary Education (3)
- 505. Foundations of Career Development and Counseling Information (3)
- 506. Individual Counseling Procedures (3)
- 507. Multicultural Counseling: Foundations (3)
- 525. Applied Testing in Counseling (3)
- 526. Research in Counseling Education Research (3)
- 595A. Counseling Practicum (3)
- 595G. Counseling Internship (6)
- 596. Individual Studies (Master's Paper) (3)

The Ph.D. program consists of a minimum of 96 credit hours including master-level preparation in counselor education. Ph.D. students must satisfy advanced degree requirements in the CACREP counselor education core areas (36 credit hours including a counseling and teaching internship), a specialty area of study (15 credit hours), and empirical foundations (15 credit hours). Students in the Ph.D. program are expected to complete a dissertation involving independent and original research. Students are expected to use theoretical models of counseling to investigate problems of importance to the field. The additional credits in the Ph.D. program incorporate advanced coursework in research design, statistics, and counseling theory to prepare students for their subsequent roles as faculty members in counselor education programs.

CORE COURSES for Counselor Education Ph.D. Program:

COUNSELOR EDUCATION (CN ED)

- 502. Advanced Counseling Theory and Method (3)
- 554. Multicultural Counseling (3)
- 555. Career Counseling (3)
- 580. Foundations: History and Trends in Counselor Education (3)
- 581. Professional Issues in Counselor Education (3)
- 582. Advanced Group Psychotherapy (3)
- 589. Seminar on Counseling Supervision (3)
- 595D. Supervision of Counselors (3)
- 595I. Counselor Education Doctoral Internship (6)
- 595K. Counselor Education Doctoral Counseling Internship (3)
- 595P. Counselor Education Doctoral Counseling Practicum (3 credits per semester; two semesters [6 credits] are required)

Qualifying Examination

Deleted: The D.Ed. Program consists of a minimum of 91 credit hours including the master-level preparation in counselor education. Students in the D.Ed. program in Counselor Education must satisfy degree requirements in core counselor education courses (21 credit hours), empirical foundations (12 credit hours), and a counseling specialty area (15 credit hours) such as: career guidance, administration, planning, and management in service delivery settings. D.Ed. students must complete a dissertation (15 dissertation credit hours) that is of practical significance to the delivery or administration of counseling services.}

CORE COURSES for Counselor Education D.Ed. Program:

COUNSELOR EDUCATION (CN ED)

- 554. Multicultural Counseling (3)
- 580. Foundations: History and Trends in Counselor Education (3)
- 581. Professional Issues in Counselor Education (3)
- 589. Seminar on Counseling Supervision (3)
- 595D. Supervision of Counselors (3)
- 595I. Counselor Education Doctoral Internship (6)
- 595P. Counselor Education Doctoral Counseling Practicum (3)
All Ph.D. students are required to have a master's degree in counselor education prior to admission. After completion of 12 credits of doctoral study, which may allow the student to take the qualifying examination as early as the second semester in their doctoral program, Ph.D. students may take a qualifying examination. Given the requirement that doctoral students will have a master's degree in counselor education thereby demonstrating their ability to complete graduate work successfully, the nature of the qualifying examination will include a review of the following by the student's committee: (1) the student's professional resume, (2) a statement regarding the general direction of the student's research interests and possible areas of dissertation inquiry, (3) grades from completed graduate courses, (4) proposed course of study for subsequent semesters, (5) selected graduate papers written by the student, and (6) a statement regarding the student's professional goals. In the qualifying examination, the student's committee determines the student's ability to continue in the program and to conduct doctoral research.

**Comprehensive Examination**

Ph.D. candidates are required to take a written and oral comprehensive examination once their coursework is completed (or when they are in their final semester of required coursework) and prior to the dissertation. The examination, prepared by the student's doctoral committee, covers all areas of the student's doctoral work. The comprehensive examination for Ph.D. students must include an assessment of the student's competence related to conducting independent and original research.

**Doctoral Committee Composition**

General guidance of a doctoral candidate is the responsibility of a doctoral committee consisting of four or more active members of the Graduate Faculty, which includes at least two faculty members in the major field. The dissertation adviser must be a member of the doctoral committee. The dissertation adviser usually serves as chair, but this is not required. If the candidate is also pursuing a dual-title field of study, a co-chair representing the dual-title field must be appointed. In most cases, the same individual (e.g., dissertation adviser) is a member of the Graduate Faculty in both the major and dual-title fields, and in such cases may serve as sole chair.

At least one regular member of the doctoral committee must represent a field outside the candidate's major field of study in order to provide a broader range of disciplinary perspectives and expertise. This committee member is referred to as the "Outside Field Member." In cases where the candidate is also pursuing a dual-title field of study, the dual-title representative to the committee may serve as the Outside Field Member.

Additionally, in order to avoid potential conflicts of interest, the primary appointment of at least one regular member of the doctoral committee must be in an administrative unit that is outside the unit in which the dissertation adviser's primary appointment is held (i.e., the adviser's administrative home; in the case of tenure-line faculty, this is the individual's tenure home). This committee member is referred to as the "Outside Unit Member." In the case of co-advisers, the Outside Unit Member must be from outside the administrative home(s) of both co-advisers. In
some cases, an individual may have a primary appointment outside the administrative home of the student’s dissertation adviser and also represent a field outside the student’s major field of study; in such cases, the same individual may serve as both the Outside Field Member and the Outside Unit Member.

**Doctoral Dissertation and Final Oral Examination**

Ph.D. students should complete the writing of the dissertation and make revisions to the satisfaction of the committee chair, who is expected to ensure that the dissertation is in final form before allowing the final oral examination (defense) to be scheduled. The student is responsible for arranging and scheduling a time (2 hours) so that all members of the committee can be present. The student must give each committee member a copy of the complete dissertation **two weeks before the final oral examination**. Students should not expect this to be the final version for submission to the Graduate School, as there are typically revisions after successful completion of the oral defense.

**English Competence**

Candidates for the Ph.D. program are required to demonstrate high-level competence in the use of English language, including reading, writing, and speaking, as part of the language. Counselor Education evaluates English language proficiency in several ways. Prior to admission all students are required to provide written goals statements and personal development statements that are evaluated by faculty as a portion of the application process. Additionally, international students must have either earned a master’s degree in the United States or supply official minimum scores for the TOEFL (total score 80 and 19 on speaking section) or IELTS (6.5 composite). Once admitted to the program and prior to gaining candidacy, students are evaluated for their reading, writing, and speaking in class assignments and as a part of their first-year portfolio evaluation. When problems are identified, individual remediation programs are developed that utilize faculty and all appropriate University resources.

**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.

**Courses**

Graduate courses carry numbers from 500 to 699 and 800-899. 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.

**COUNSELOR EDUCATION (CN ED) course list**
Lasted Revised by the Department: Fall Semester 2018

Blue Sheet Item #: 42-06

Review Date: 04/08/2014

Faculty linked: 6/5/14
Hi, Chris,

Sorry for the delay as I checked in with a few people. The drop and changes seem fine.

Happy curriculum shepherding!
Rose

On Sep 4, 2018, at 4:43 PM, Andrus, Christine Marie <cma18@psu.edu> wrote:

Hello,
The Counselor Education Program is preparing to submit two program changes (M.Ed., Ph.D.) and one program drop (D.Ed.) for curricular review.
Please see attached. We kindly request your consultation on these proposals. Please email myself (cma18@psu.edu) and Dr. Peggy Van Meter (pvn1@psu.edu) with your questions/approval/disapproval of the three proposals within the two-week timeframe if at all possible.
Thanks very much for your time and consideration.
Take care,
Chris

Christine M. Andrus
Administrative Support Assistant
Graduate Programs
Department of Educational Psychology, Counseling, & Special Education
Penn State University
125 CEDAR Building
University Park, PA 16802
814-865-8304
814-865-7066 FAX
cma18@psu.edu

<CNED DEd drop Final.docx><CNED MEd change Final.docx><CNED PhD change Final.docx>
I approve of the proposed program changes.

Julia

Julia Plummer, Ph.D.
Associate Professor of Science Education
Penn State University
Curriculum & Instruction Department
Director of Curriculum
149 Chambers Building
(814) 863-8922

From: "Andrus, Christine Marie" <cma18@psu.edu>
Date: Tuesday, September 4, 2018 at 4:45 PM
To: "Lee, David" <dxl34@psu.edu>, "Clariana, Roy" <rbc4@psu.edu>, "Zbiek, Rose Mary" <rmz101@psu.edu>, "Kinser, Kevin" <kpk9@psu.edu>, "GAMSON, DAVID ALEXANDER" <dag17@psu.edu>, "Lloyd, Gwendolyn Monica" <gml14@psu.edu>, "Land, Susan Mary" <sml11@psu.edu>, Julia Plummer <jdp17@psu.edu>, "Holst, John Dennis" <jdh91@psu.edu>
Cc: "Van Meter, Peggy Noel" <pnv1@psu.edu>
Subject: Counselor Education Program Changes- Consultation Needed

Hello,
The Counselor Education Program is preparing to submit two program changes (M.Ed., Ph.D.) and one program drop (D.Ed.) for curricular review.
Please see attached. We kindly request your consultation on these proposals. Please email myself (cma18@psu.edu) and Dr. Peggy Van Meter (pnv1@psu.edu) with your questions/approval/disapproval of the three proposals within the two-week timeframe if at all possible.
Thanks very much for your time and consideration.
Take care,
Chris

Christine M. Andrus
Administrative Support Assistant
Graduate Programs
Department of Educational Psychology, Counseling, & Special Education
Penn State University
125 CEDAR Building
University Park, PA 16802
814-865-8304
814-865-7066 FAX
cma18@psu.edu
Andrus, Christine Marie

From: Land, Susan Mary
Sent: Friday, September 14, 2018 2:35 PM
To: Andrus, Christine Marie; Van Meter, Peggy Noel
Subject: Re: Counselor Education Program Changes- Consultation Needed

these changes look fine to me.
thanks-
susan

From: Andrus, Christine Marie
Sent: Friday, September 14, 2018 12:59:20 PM
To: Lee, David; Clariana, Roy; Zbiek, Rose Mary; GAMSON, DAVID ALEXANDER; Lloyd, Gwendolyn Monica; Land, Susan Mary; Plummer, Julia Diane; Holst, John Dennis
Cc: Van Meter, Peggy Noel
Subject: RE: Counselor Education Program Changes- Consultation Needed

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University Park, PA 16802
814-865-8304
814-865-7066 FAX
cma18@psu.edu
Andrus, Christine Marie

From: Kinser, Kevin
Sent: Tuesday, September 11, 2018 10:12 AM
To: Andrus, Christine Marie
Cc: Van Meter, Peggy Noel
Subject: Re: Counselor Education Program Changes- Consultation Needed

Thanks for checking. We have no issues with these proposed changes. Thanks for checking.

Best,
-kevin kinser

From: "Andrus, Christine Marie" <cma18@psu.edu>
Date: Tuesday, September 4, 2018 at 4:45 PM
To: "Lee, David" <dxl34@psu.edu>, "Clarina, Roy" <rbc4@psu.edu>, "Zbiek, Rose Mary" <rmz101@psu.edu>, "Kinser, Kevin" <kpk9@psu.edu>, David Gamson <dag17@psu.edu>, "Lloyd, Gwendolyn Monica" <gml14@psu.edu>, "Land, Susan Mary" <sml11@psu.edu>, "Plummer, Julia Diane" <jdp17@psu.edu>, "Holst, John Dennis" <jh91@psu.edu>
Cc: "Van Meter, Peggy Noel" <pvm1@psu.edu>
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Take care,
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Penn State University
125 CEDAR Building
University Park, PA 16802
814-865-8304
814-865-7066 FAX
cma18@psu.edu
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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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: The College of Health and Human Development
Department or Instructional Area: Human Development and Family Studies

New Graduate Program, Option, or Minor: Add HDFS
Designation of new graduate program: Dual-Title Doctoral Degree in Psychology and Social and Behavioral Neuroscience
Classification of Instructional Programs (CIP) Code: 26.1501
Designation of new graduate option: Penn State Graduate School
Designation of new graduate minor: JAN 25 2018

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

Existing Graduate Program Option, or Minor: Change Drop Office of the Vice Provost and Dean of the Graduate School

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

Date: 1/18/2018

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

Date: 1/22/18

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

Date: 1/22/18
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb  
Printed name:  
Signature:  
Date: 11/6/2018

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

On Behalf of C. Andrew Cole  
Printed name:  
Signature:  
Date: 11/6/2018

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken  
Printed name:  
Signature:  
Date: 11/6/2018
A Proposal to Graduate Council to Adopt the Dual-Title Doctoral Degree Program in Social and Behavioral Neuroscience

Submitted by
Department of Human Development & Family Studies

Contact:
Doug Teti
Head, Department of Human Development & Family Studies
HHD 105
814-863-9570
dmt16@psu.edu

Lisa Gatzke-Kopp
Professor-in-Charge of Human Development & Family Studies Graduate Program
HHD 228
814-867-2371
lmk18@psu.edu
I. Overview
II. Justification for the Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience
III. Description of Required Social and Behavioral Neuroscience Course work
   A. General Course work Requirements in the Dual-Title Ph.D. program in Social and Behavioral Neuroscience
   B. Course work Requirements, Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience
   C. Example Course work Path, Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience
IV. Additional Requirements, Dual-Title Ph.D. in Social and Behavioral Neuroscience
V. Proposed Amendment to Graduate Bulletin for Human Dev & Family Studies (HDFS)
   Degrees Conferred
   The Program
   Admission Requirements
   Degree Requirements
   Dual-Title Ph.D. in HDFS and Demography
   Dual-Title Ph.D. in HDFS and Social Data Analytics
   Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience
   Admission Requirements
   Degree Requirements
   Student Aid
   Courses
VI. Proposed Revision, HDFS Graduate Handbook
VII. Endorsements From Other Programs
I. Overview

The graduate program in Human Development & Family Studies (HDFS) proposes to adopt the dual-title Ph.D. degree program in Social and Behavioral Neuroscience.

II. Justification for the Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience

Human Development and Family Studies is among the highest ranked graduate programs in the study of developmental psychology. Our faculty members are leading experts in developmental processes across the lifespan, with a strong emphasis in the dynamic developmental interplay between a person and their environment. The disciplinary pursuit of these questions has increasingly expanded to incorporate the study of the human nervous system as the nexus of environmental exposure and behavioral expression in human development. This domain of human development has become increasingly represented within HDFS, through multiple strategic Social Science Research Institute (SSRI) co-hires [Hobart Cleveland, Lisa Gatzke-Kopp, Charles Geier], expanding the breadth of neuroscience research and teaching being conducted in the department. The changes reflected in these strategic hires reflect changing priorities in the field and major federal funding agencies, and as such, HDFS recognizes the need to provide advanced graduate training to students in the area of Social and Behavioral Neuroscience in order to both attract the most competitive applicants, and maintain our long record of placing graduates in competitive academic positions.

In summary, the proposed dual-title Ph.D. in Human Development & Family Studies and Social Data Analytics will:

- Provide a cohesive curriculum for in-depth training in human development and family processes incorporating a neurobiological level of analysis needed to become an independent researcher in this disciplinary domain.
- Prepare graduates to be competitive on the academic job market in traditional social behavior departments (e.g. HDFS, Psychology, Sociology, Education, Economics) with well-developed programs in neuroscience, or to become leaders in departments expanding their disciplinary representation in this domain.
- Enhance students’ literacy and fluency in neuroscience research to become highly skilled and valuable members of interdisciplinary research teams, making them exceptionally competitive for securing research funding across multiple funding agencies.

III. Description of Required Social and Behavioral Neuroscience Course Work

A. General Course Work Requirements in the Dual-Title Ph.D. program in Social and Behavioral Neuroscience

The minimum course work requirements for the dual-title Ph.D. degree in Social and Behavioral Neuroscience are as follows:
• Course work and other requirements for the primary program.
• NEURO 520: Cellular and Molecular Neuroscience
• NEURO 521: Systems Neuroscience
• SBN 590: Proseminar in Social and Behavioral Neuroscience (taken twice)
• A minimum of 12 additional elective credits from courses specific to social and behavioral neuroscience. These can be fulfilled by courses listed or cross listed with the SBN classification. With the recommendation of the dissertation advisor, students may use NEURO 511 (Neurobiology) or NEURO 512 (Comparative Neuroanatomy) to fulfill 3 of the 12 elective credits. Requests for alternative courses to apply toward the SBN title (e.g. new courses offered as 597) can be submitted to the Steering Committee for approval.

Within HDFS, SBN 505 would be accepted as fulfilling an individual development elective requirement, SBN 508 would be accepted as fulfilling an individual development and/or prevention elective requirement, and SBN 506 would be accepted as fulfilling an HDFS methods requirement. As such, an HDFS student could complete the dual-title in as few as 8 credits beyond the requirements of the HDFS degree (2 3-credit courses, 2 1-credit symposia).

B. Course Work Requirements, Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience

The following provides a side-by-side summary of how Social and Behavioral Neuroscience coursework requirements interact with HDFS coursework requirements in the dual-title Ph.D. in HDFS and Social and Behavioral Neuroscience.

<table>
<thead>
<tr>
<th>Table 1. Comparison of Course work Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph.D. in HDFS</td>
</tr>
<tr>
<td><strong>Total credits</strong></td>
</tr>
<tr>
<td>A minimum of 42.5 post-baccalaureate credits of course work.</td>
</tr>
<tr>
<td><strong>Required substantive core courses</strong></td>
</tr>
<tr>
<td>All students must take the following courses:</td>
</tr>
<tr>
<td>• HDFS 501 (3 credits)</td>
</tr>
<tr>
<td>• HDFS 503 (3 credits)</td>
</tr>
<tr>
<td>• HDFS 525 (3 credits)</td>
</tr>
<tr>
<td>• NEURO 520 (3 credits)</td>
</tr>
<tr>
<td>• NEURO 521 (3 credits)</td>
</tr>
<tr>
<td><strong>Required methods course work</strong></td>
</tr>
</tbody>
</table>
- HDFS 516/518 (4 credits)
- HDFS 519 (3 credits)
- HDFS 523 (3 credits)
- HDFS 526 (3 credits)

<table>
<thead>
<tr>
<th>Additional Electives</th>
<th>Additional Electives</th>
</tr>
</thead>
<tbody>
<tr>
<td>A total of 18 elective credits must be distributed according to the minimum requirements indicated below. At least 6 credits must be in methodology courses. A minimum of 6 credits must be in non-methodology courses.</td>
<td>A minimum of 18 elective credits must be distributed according to the minimum requirements indicated below. At least 6 credits must be in methodology courses. A minimum of 6 credits must be in non-methodology courses.</td>
</tr>
<tr>
<td><strong>Professional development seminars</strong></td>
<td><strong>Professional development seminars</strong></td>
</tr>
<tr>
<td>- HDFS 590 (1 credit)</td>
<td>- HDFS 590 (1 credit)</td>
</tr>
<tr>
<td>- HDFS 515 (1.5 credits)</td>
<td>- HDFS 515 (1.5 credits)</td>
</tr>
<tr>
<td><strong>Required Social and Behavioral Neuroscience seminars</strong></td>
<td><strong>Required Social and Behavioral Neuroscience seminars</strong></td>
</tr>
<tr>
<td>- SBN 590 (1 credit) taken twice</td>
<td></td>
</tr>
<tr>
<td><strong>Scholarship and Research Integrity</strong></td>
<td><strong>Scholarship and Research Integrity</strong></td>
</tr>
<tr>
<td>SARI@PSU requirement is fulfilled through HDFS 590: first year orientation seminar, and HDFS 515: second year professional development, and</td>
<td>SARI@PSU requirement is fulfilled through HDFS 590: first year orientation seminar, and HDFS 515: second year professional development, and</td>
</tr>
</tbody>
</table>
C. Example Course Work Path, Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience

Table 2 illustrates an example path through course work and other milestone requirements of the dual-title Ph.D. in HDFS.

**Table 2. Example Path Through Dual-Title Ph.D.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>HDFS</th>
<th>SBN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 1 Fall (Semester 1)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 501: Human Development</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 525: Introduction to Family Studies</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 516: Methods of Research in Human Development</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 518: Applied Statistics Lab</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 590: HDFS Seminar</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><strong>Year 1 Spring (Semester 2)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 503: Human Development Intervention</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 519: Methods of Statistical Analysis in Human Development</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>NEURO 520: Cellular and Molecular Neuroscience</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 600: Thesis (if needed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 2 Fall (Semester 3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 526: Measurement in Human Development</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>NEURO 521: Systems Neuroscience</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 502: Biological Systems in Developmental Context</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>SBN 590: Proseminar in Social and Behavioral Neuroscience</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 600: Thesis (if needed)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 2 Spring (Semester 4)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDFS 523: Data Analysis in Developmental Research</td>
<td>3</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 515: Professional Issues in HDFS</td>
<td>1.5</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>HDFS 530: Structural Equation Modeling</td>
<td>3</td>
<td>Methods</td>
<td></td>
</tr>
<tr>
<td>SBN 505: Seminar in Social and Behavioral Neuroscience</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>SBN 590: Proseminar in Social and Behavioral Neuroscience</td>
<td>1</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td><em>M.S. Thesis defense (if needed)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBN 508</td>
<td>3</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>HDFS 508: Best Practices in Intervention</td>
<td>3</td>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>SBN 506: Methods in Social and Behavioral Neuroscience</td>
<td>3</td>
<td>Methods</td>
<td>Elective</td>
</tr>
<tr>
<td><em>Candidacy</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year 4</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Comprehensive Exam</em></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Year 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Dissertation

| Total credits required by program | 42.5 | 20 |
| Unique credits required by program (does not double count) | 30.5 | 8 |
| Total course credits completed by student (not including thesis) | 50.5 |

- **Core** = course required of all students to complete the degree
- **Elective** = credit requirement toward degree, with flexibility in specific course
  - HDFS ≥ 18 credits with the following distribution criteria
    - ≥ 6 credits *methods* courses (SBN 506 course can fulfill this requirement)
    - ≥ 6 credits non-methods courses, SBN 505 and 508 fulfill these requirements
  - SBN ≥ 12 credits

### IV. Additional Requirements, Dual-Title Ph.D. in Social and Behavioral Neuroscience

The following provides a side-by-side summary of how additional Social and Behavioral Neuroscience requirements compare to and interact with HDFS requirements in the dual-title Ph.D. in HDFS and Social and Behavioral Neuroscience.

#### Table 3. Comparison of Other Requirements

<table>
<thead>
<tr>
<th>Ph.D. in HDFS</th>
<th>Ph.D. in HDFS &amp; Social and Behavioral Neuroscience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Candidacy Committee</strong></td>
<td><strong>Candidacy Committee</strong></td>
</tr>
<tr>
<td>Candidacy committees must consist of 5 committee members including the student’s academic advisor, and one representative from each of the 4 departmental program areas (methodology, individual development, family, and prevention). Committee composition must be approved by the Graduate P.I.C.</td>
<td>Candidacy for students pursuing the dual title will be conducted in an identical manner, with the caveat that the candidacy committee must contain at least one member affiliated with the Social and Behavioral Neuroscience graduate faculty. Faculty members who hold appointments in both programs’ may serve in a combined role.</td>
</tr>
<tr>
<td>Students generate a dossier consisting of (1) a personal statement including long term professional goals, (2) CV, (3) grades in all completed coursework (4) all prior annual plans of study, and (5) a professional writing sample to be circulated to the Committee 2 weeks prior to the candidacy meeting. The Committee will discuss the student’s progress and proposed plans in light of their future goals and provide structured feedback following the Department’s Candidacy evaluation form. The Committee presents their evaluation of the student to the HDFS faculty at large, after which the full HDFS</td>
<td>Students must apply, and be admitted, to the SBN dual title program prior to scheduling their candidacy meeting.</td>
</tr>
</tbody>
</table>
faculty vote to admit the student to candidacy or to recommend termination from the program.

Candidacy exams are held after the student has completed the Master’s degree. For most students this takes place in the Fall of the 3rd year, but will take place earlier for students for whom the Master’s degree requirement is waived (i.e. students with a master’s degree from another program, whose thesis is approved by the Graduate PIC)

<table>
<thead>
<tr>
<th>Doctoral Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once admitted to candidacy students must form their doctoral committee. In accordance with Graduate Council requirements, the doctoral committee is composed of at least four members of the graduate faculty, at least one of whom must be from outside the HDFS department, or represent a different disciplinary perspective (based on scholarly work or field in which the Ph.D. was received). A minimum of two committee members must hold primary appointments in HDFS. One faculty member is designated as the chair of the doctoral committee; typically this person is also the student’s general adviser. In the event that a student is conducting dissertation research under the direct supervision of two faculty members, faculty may be appointed as co-chairs of the dissertation committee.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Doctoral Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>The committee composition for students completing the dual title in Social and Behavioral Neuroscience follows the same general structure, with the caveat that both the dissertation chair and the outside member are affiliated with the Social and Behavioral Neuroscience faculty. Exceptions to the role of the 2 SBN affiliated committee members (e.g. both SBN affiliated faculty are from the home department) must be approved by the SBN steering committee.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comprehensive Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>In consultation with their adviser, students will select between 2 formats for completing the comprehensive exam. Formats differ only with regard to the timing of the reading and writing components of the process. In both formats, students will prepare a research statement describing the domain of research expertise they seek to achieve. Students also identify 2 of the 4 Departmental program areas (methodology, individual development, prevention, family) that will inform the theoretical framework from which they examine their research area. Along with this</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comprehensive Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students pursuing the dual title will follow the same format for the comprehensive exam. It is expected that a substantial portion of the exam emphasizes research relevant to the Social and Behavioral Neuroscience field. The representation of neuroscience in the exam materials will be evaluated by the committee members who hold affiliations with the SBN program.</td>
</tr>
</tbody>
</table>
statement, students compile a reading list consisting of no more than 100 readings selected to provide students with depth and breadth of exposure to the pertinent literature. The doctoral committee provides feedback and guidance on the reading list, and composes a set of comprehensive exam questions designed to evaluate the student’s acquired knowledge and ability to critically evaluate the state of the field at the level needed to make meaningful scientific contributions to the field. Students respond to the exam questions in written format, which is followed by an oral defense.

<table>
<thead>
<tr>
<th>Dissertation Proposal</th>
<th>Dissertation Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>The dissertation proposal occurs after passing the comprehensive exam. The student submits a dissertation proposal to the doctoral committee, outlining the proposed research study(ies) that will comprise the dissertation. A proposal defense is scheduled in which the committee can provide feedback regarding the student’s proposed approach, and approve the dissertation plan.</td>
<td>As with the comprehensive exam, the dissertation study(ies) of any student pursuing the dual-title is expected to examine the association between brain and behavior. The suitability of the dissertation topic as fulfilling the dual-title objective is evaluated by the 2 committee members affiliated with the dual-title faculty.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dissertation Defense</th>
<th>Dissertation Defense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The oral examination is administered by the doctoral committee. The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School.</td>
<td>The dissertation defense requirements are identical.</td>
</tr>
</tbody>
</table>

V. Proposed Amendment to Graduate Bulletin for Human Development & Family Studies (HDFS)

(Changes relevant to dual-title program tracked in red)

Human Development and Family Studies (HD FS)

Program Home Page
(Opens New Window)
DOUGLAS M. TETI, Department Head, Human Development and Family Studies
LISA GATZKE-KOPP, Professor in Charge of Graduate Programs in Human Development and Family Studies
119 Health and Human Development
814-863-8000

Degrees Conferred
Ph.D., M.S. (The program does not admit applicants for the terminal master’s degree.)
Dual-Title M.S. and Ph.D. in HDFS and Demography
Dual-Title Ph.D. in HDFS and Social and Behavioral Neuroscience
Dual-Title Ph.D. in HDFS and Social Data Analytics

The Graduate Faculty

The Program
This interdisciplinary program is one of the graduate programs of the College of Health and Human Development. It is administered through the Department of Human Development and Family Studies. The Human Development and Family Studies graduate program is designed to educate students about research, theory, and methodology related to the study of individuals and families across diverse populations and diverse settings. There is a strong interest in the ways in which social institutions and settings such as day care facilities, schools, neighborhoods, and social policy institutions facilitate (or inhibit) opportunities for development and change for individuals and families. Understanding the characteristics and conditions that place individuals or families at risk for developing problems, designing effective prevention programs to address those risks, and mounting rigorous evaluations of such programs is a growing emphasis in the program. All students, regardless of substantive area, are encouraged to develop strong skills in research methods, a hallmark of our graduate training. Through course work and apprenticeship experiences, students develop an understanding of the program’s multidisciplinary life span/life course, and applied orientation. As students progress through the program, they are expected to develop specialized expertise in two or more of the department’s areas of concentration: individual development, family studies, intervention research, and research methods.

Admission Requirements
Requirements listed here are in addition to general Graduate School 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.

Scores from the Graduate Record Examinations (GRE) are required for admission. Entering students should have some course work in social sciences, such as developmental and family science courses from psychology or sociology programs; and foundational courses in research methods and statistics. At the discretion of the program, students not meeting these requirements may be provisionally admitted with limited deficiencies to be made up concurrently with their graduate work.

Students with appropriate backgrounds will be considered for admission for fall semester only. The best-qualified applicants will be accepted up to the number of spaces that are available for new students.
Degree Requirements
Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

Students who enter the graduate program without a master’s degree must complete a master’s degree en route to the Ph.D. For the Master of Science degree, a minimum of 31 credits at the 400, 500, 600, or 800 level is required, with at least 18 credits in the 500 and 600 series combined. Students are required to complete (3) 3-credit substantive core courses: HDFS 501, HDFS 503, HDFS 525; (2) 3-credit courses in research methods: HDFS 516 and HDFS 519, and (1) 1-credit methods lab course: HDFS 518. In addition to the required courses, students take a minimum of 9 credits of course work (400 and 500 level) in their substantive field, 6 of which must be in HD FS (excluding independent study), and 6 credits of thesis research (HDFS 600 or 610). 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. Course work completed for the HD FS master’s degree at Penn State can be applied to satisfy the degree requirements for the HD FS Ph.D.

For the Ph.D., a minimum of 42.5 credits at the 400, 500, 600, or 800 level is required. Students are required to complete (3) 3-credit substantive core courses: HDFS 501, HDFS 503, HDFS 525; (4) 3-credit courses in research methods: HDFS 516, HDFS 519, HDFS 523, HDFS 526, and (1) 1 credit methods lab course HDFS 518. In addition to the required courses, students must take a minimum of 18 additional credits in elective course work, 15 of which must be HDFS courses. Of the 18 elective credits, a minimum of 6 must be in methodology courses, and a minimum of 6 must be in non-methodology courses. In addition, all students must take HDFS 590: Professional Development Orientation (1 credit) in their first year and HDFS 515 (1.5 credits) by the end of their second year in the program.

All doctoral students must pass a candidacy examination, a comprehensive written and oral examination, and a final oral examination (the dissertation defense). To earn the Ph.D. degree, doctoral students must also write a dissertation that is accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

Dual-Title Doctoral Degree in HDFS and Demography
This program is designed for students who want to integrate Population Studies (including such foci as fertility, marriage, cohabitation, labor force participation, mortality) with the study of human development and family studies. Details can be obtained from the HDFS graduate officer or director of the graduate program in Demography. Please see the Demography website for more information.

Admission Requirements
Students must apply and be admitted to the graduate program in HDFS and the Graduate School before they can be admitted to a dual-title degree program. Applicants interested in the dual-title degree program may note their interest in their applications to HDFS. Students admitted to the HDFS program will be admitted to the dual-title program in Demography upon the recommendation of a Demography Program faculty member in HDFS. Ph.D. students must apply and be admitted to the dual-title degree program in Demography prior to taking the candidacy exam.
Additional admissions requirements are listed in the Admissions Requirements section of the Demography Bulletin page.

**Degree Requirements**

To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D. in HDFS, listed above. In addition, students pursuing the dual-title Ph.D. in HDFS and Demography must complete the degree requirements for the dual-title Demography Ph.D., listed on the Demography Bulletin page.

The Candidacy Examination committee for the dual-title degree will be composed of Graduate Faculty from HDFS and must include at least one Graduate Faculty member from Demography. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both HDFS and Demography. 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.

In addition to the general Graduate Council requirements for doctoral committees, the chair and at least one additional member of the student’s doctoral committee must be members of the Graduate Faculty in Demography. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. The Demography faculty members on the student’s committee are responsible for administering an examination in demography that constitutes a portion of the comprehensive examination of the doctoral student in the dual-title.

Ph.D. candidates must complete a dissertation on a topic that reflects their original research and education in both HDFS and Demography. In order to earn the dual-title Ph.D. degree, the dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

**Dual-Title Doctoral Degree in HDFS and Social and Behavioral Neuroscience**

HDFS doctoral students interested in having a degree that reflects interdisciplinary training in social and behavioral neuroscience as relevant to the domains of research expertise within HDFS (e.g., integrating neuroscience techniques and perspectives to understanding individual development across the lifespan, effects of contextual environments e.g. families, schools, work, on physical and mental development, development and assessment of prevention programs, and application of advanced statistical methods for the analysis of neuroscience data), may apply to pursue a dual-title Ph.D. in HDFS and Social and Behavioral Neuroscience.

Social and Behavioral neuroscience reflects the study of how brain development and function influence, and are influenced by, social environments and human interaction. The dual-title Ph.D. program provides students with additional training in the neurobiological foundations of brain function in order to enable them to pursue innovative interdisciplinary research with intellectual sophistication.
Admission Requirements

Students must apply and be admitted to the graduate program in HDFS and the Graduate School before they can be admitted to a dual-title degree program. Applicants interested in the dual-title degree program may note their interest in their applications to HDFS. Students admitted to the HDFS program will be admitted to the dual-title program in Social and Behavioral Neuroscience upon the recommendation of a Social and Behavioral Neuroscience Program faculty member in HDFS. Students must apply and be admitted to the dual-title degree program in Social and Behavioral Neuroscience prior to taking the candidacy exam.

Additional admissions requirements are listed in the Admissions Requirements section of the Social and Behavioral Neuroscience Bulletin page.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D. in HDFS, listed above. In addition, students pursuing the dual-title Ph.D. in HDFS and Social and Behavioral Neuroscience must complete the degree requirements for the dual-title Social and Behavioral Neuroscience Ph.D., listed on the Social and Behavioral Neuroscience Bulletin page.

The Candidacy Examination committee for the dual-title degree will be composed of Graduate Faculty from HDFS and must include at least one Graduate Faculty member from Social and Behavioral Neuroscience. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both HDFS and Social and Behavioral Neuroscience. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a dual-title doctoral degree student must include at least two members of the Social and Behavioral Neuroscience Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the committee representing HDFS is not also a member of the Graduate Faculty in Social and Behavioral Neuroscience, the member of the committee representing Social and Behavioral Neuroscience must be appointed as co-chair. It is expected that the outside member of the doctoral committee serve as the second Social and Behavioral Neuroscience representative. Exceptions (e.g. having both Social and Behavioral Neuroscience committee members from within the home department) must be approved by the Social and Behavioral Neuroscience Steering committee. The Social and Behavioral Neuroscience representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

Ph.D. candidates must complete a dissertation on a topic that reflects their original research and their education in both HDFS and Social and Behavioral Neuroscience. In order to earn the dual-title Ph.D. degree, the dissertation must be accepted by the doctoral committee, the head of the graduate
program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

**Dual-Title Doctoral Degree in HDFS and Social Data Analytics**

HDFS doctoral students interested in having a degree that reflects interdisciplinary training in an array of tools, techniques, and methodologies for social data analytics, while maintaining a close association with HDFS, may apply to pursue a dual-title Ph.D. in HDFS and Social Data Analytics.

Social data analytics is the integration of social scientific, computational, informational, statistical, and visual analytic approaches to the analysis of large or complex data that arise from human interaction. The dual-title Ph.D. program provides additional training with the aim of providing scientists with the skills required to expand the field of social data analytics, creatively answer important social scientific questions, and communicate effectively with both academic and nonacademic audiences.

**Admission Requirements**

Students must apply and be admitted to the graduate program in HDFS and the Graduate School before they can be admitted to a dual-title degree program. Applicants interested in the dual-title degree program may note their interest in their applications to HDFS. Students admitted to the HDFS program will be admitted to the dual-title program in Social Data Analytics upon the recommendation of a Social Data Analytics Program faculty member in HDFS. Students must apply and be admitted to the dual-title degree program in Social Data Analytics prior to taking the candidacy exam.

Additional admissions requirements are listed in the Admissions Requirements section of the Social Data Analytics Bulletin page.

**Degree Requirements**

To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D. in HDFS, listed above. In addition, students pursuing the dual-title Ph.D. in HDFS and Social Data Analytics must complete the degree requirements for the dual-title Social Data Analytics Ph.D., listed on the Social Data Analytics Bulletin page.

The Candidacy Examination committee for the dual-title degree will be composed of Graduate Faculty from HDFS and must include at least one Graduate Faculty member from Social Data Analytics. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both HDFS and Social Data Analytics. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a dual-title doctoral degree student must include at least one member of the Social Data Analytics Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role.
Faculty may serve in a combined role. If the chair of the committee representing HDFS is not also a member of the Graduate Faculty in Social Data Analytics, the member of the committee representing Social Data Analytics must be appointed as co-chair. The Social Data Analytics representative on the student's doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

Ph.D. candidates must complete a dissertation on a topic that reflects their original research and education in both HDFS and Social Data Analytics. In order to earn the dual-title Ph.D. degree, the dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

**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.

**HUMAN DEVELOPMENT AND FAMILY STUDIES (HD FS) course list**

**VII. Proposed Revision, Human Development & Family Studies**

**Graduate Student Handbook**

The Handbook already accurately describes how general requirements apply to dual-title students in the existing Demography, and Social Data Analytics programs. However, the Handbook will be revised such that, on page 6, letter ‘D’ in the outline will represent the broader category “Dual Titles”, followed by a statement defining the purpose of dual title programs. Under this heading the individual dual title programs with which HDFS is affiliated will be listed and briefly described. Language for the Demography and Social Data Analytics programs is unchanged. Additional language for the Social and Behavioral Neuroscience program is added. The revised section appears below, with the new language highlighted in red.

**D. Dual-Title Doctoral Degree programs in HDFS**

The Graduate School and Penn State grants specialized doctoral degrees carrying a dual-title recognizing the home graduate degree program and a dual title program which provides a fully integrated program of study that integrates both the graduate major and dual-title fields early
in the program. HDFS currently affiliates with 3 dual-title programs that provide extensive and sophisticated training in areas that readily integrate with core research domains in HDFS. Students interested in pursuing a dual title must comply with the coursework and research requirements of both programs, and must demonstrate the commitment to the integrated training prior to the first doctoral benchmark, the candidacy exam. HDFS’s dual training affiliations are listed below.

1. **HDFS and Demography.** Penn State offers a dual-title program in Human Development and Family Studies and Demography. The program is designed for students who want to integrate Population Studies (including such foci as fertility, marriage, cohabitation, labor force participation, mortality) with the study of individual and family development. Participation in the program requires admission by both HDFS and Demography, the completion of specified coursework, and thesis research on a demographic topic. It is possible to earn a dual-title masters, Ph.D., or both. Additional information is available in the Appendix.

2. **HDFS and Social and Behavioral Neuroscience.** HDFS doctoral students interested in having a degree that reflects interdisciplinary training in social and behavioral neuroscience as relevant to the domains of research expertise within HDFS (e.g. integrating neuroscience techniques and perspectives to understanding individual development across the lifespan, effects of contextual environments e.g. families, schools, work, on physical and mental development, development and assessment of prevention programs, and application of advanced statistical methods for the analysis of neuroscience data), may apply to pursue a dual-title Ph.D. in HDFS and Social and Behavioral Neuroscience. Social and Behavioral neuroscience reflects the study of how brain development and function influence, and are influenced by, social environments and human interaction. The dual-title Ph.D. program provides students with additional training in the neurobiological foundations of brain function in order to enable them to pursue innovative interdisciplinary research with intellectual sophistication.

3. **HDFS and Social Data Analytics.** HDFS doctoral students interested in having a degree that reflects interdisciplinary training in an array of tools, techniques, and methodologies for social data analytics, while maintaining a close association with HDFS, may apply to pursue a dual-title Ph.D. in HDFS and Social Data Analytics. Social data analytics is the integration of social scientific, computational, informational, statistical, and visual analytic approaches to the analysis of large or complex data that arise from human interaction. The dual-title Ph.D. program provides additional training with the aim of providing scientists with the skills required to expand the field of social data analytics, creatively answer important social scientific questions, and communicate effectively with both academic and nonacademic audiences.
January 17, 2018

Drs. Teti and Mark,

I am writing to convey my enthusiastic endorsement for the proposal to establish a dual-title in Social Behavioral Neuroscience. I believe the establishment of this type of integrated training opportunity is vital for students seeking research careers that approach the study of behavioral health from a neuroscience perspective. I am delighted by your request to serve as the inaugural director of this dual title program pending its approval by the Faculty Senate. I am a member of the graduate faculty in both HDFS and Neuroscience, and have mentored doctoral students through the completion of their degree in both disciplines. I also currently serve as the Professor in Charge of the graduate program in HDFS, where I oversee the progress of approximately 60 graduate students at any given time. The combination of my experiences in individual mentoring and administrative program oversight will contribute to my ability to guide the ongoing development of the program and the students seeking the dual-title.

I believe that the departments of Human Development and Family Studies, Psychology, and Biobehavioral Health are ideal units to form the initial foundation for this program given the strong programs of research faculty in each unit have with regard to social behavioral neuroscience research. The complimentary nature of work in each department is evident in the faculty collaborations across departments, and will certainly generate a synergy of courses and research opportunities that will benefit these students. I look forward to continuing to work with the Department Heads and Graduate Professors in Charge of each unit in bringing this program to fruition.

Sincerely,

[Signature]

Lisa Gatzke-Kopp, Ph.D.
Associate Professor
Professor in Charge, Graduate Program
Human Development and Family Studies
228 HHD
Lmk18@psu.edu
(814) 867-2371
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 copy of the signed proposal form attached to each proposal copy, to the Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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 are unsure of 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 Information Sciences and Technology
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 X Drop
Current designation of graduate program: PhD in Informatics; M.S. in Information Sciences and Technology
Current designation of graduate option: ____________________________
Current designation of graduate minor: ____________________________
New designation of existing graduate program (if changing): Adding Dual-Title to Ph.D.; Changing M.S. to Informatics
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): Both programs will be listed under Informatics (one bulletin listing)

Indicate effective semester:
First semester following approval FA19
Second semester following approval

Submitted by Graduate Program Head
______________________________
Printed name
______________________________
Signature
Date: 9/20/18

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
______________________________
Printed name
______________________________
Signature
Date: 9/20/18

Approved by College/School Dean/Chancellor (or Designee):
______________________________
Printed name
______________________________
Signature
Date: 9/19/18
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<td>On Behalf of C. Andrew Cole</td>
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<tr>
<td>On Behalf of Regina Vasilatos-Younken</td>
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<td>11/6/2018</td>
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Program Change Proposal

PhD in Informatics
and
Master of Science
Information Sciences and Technology

Contact:
Dr. Mary Beth Rosson, Associate Dean for Graduate and Undergraduate Education
College of Information Sciences and Technology
Mur13@psu.edu   (814) 863-3450

September 19, 2018
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Supporting Documentation

A. Comparison of current vs. proposed changes

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<th>Proposed</th>
<th>Change</th>
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<td>Integrated B.S. in Security and Risk Analysis and M.S. in Informatics</td>
<td>ADOPTED DUAL-TITLE PH.D A dual title, Ph.D. in Informatics and Social Data Analytics has been adopted.</td>
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B. Justification

Regarding:
NAME CHANGE from M.S. Information Sciences and Technology to M.S. in Informatics
REMOVE BULLETIN LISTING for M.S. in Information Sciences and Technology
Effective summer 2018, the PhD in IST was changed to the PhD in Informatics. It was an over-sight that the M.S. in IST was not included at the same time. The PhD and MS should share the same program code and be under the same bulletin listing. As there is no change to the curriculum, the bulletin listing for Master of Science in Information Sciences and Technology (IST) can be removed from the bulletin and all current students should be transitioned over to the new code (INMAC).
Regarding:

ADOPTED DUAL-TITLE PH.D. in Informatics and Social Data Analytics

In response to ubiquitous and massive new sources of data, data science and analytics are emerging as new trans-disciplinary fields of inquiry, merging statistics, computer science, and visual analytics. Perhaps the greatest challenges and opportunities arise in particular from socially-generated big data, observed as a result of human interaction. As contemporary interactions become increasingly instrumented, recorded via web, mobile device, and distributed sensors, and as historic interactions become more easily quantifiable through digitization and sharing of document and image archives, society faces a transformative and disruptive data deluge, from which new scientific, economic, and social value can be extracted.

Big and complex social data challenge existing research models in the social sciences, in the computational and information sciences, and in the sciences of statistics and visualization. The scale and complexity of data has begun to overtake the capabilities of hardware, algorithms, and research designs of conventional social science, forcing us to reconfigure ourselves to face a new world of data-intensive social science. Conversely, the practices, concerns, and standards of statistics and social science methodology – reliability, validity, uncertainty, causality, ethics of human subjects research – challenge emerging practices in the new fields of data science and data analytics. As a result, big and complex social data overwhelm current disciplinary Ph.D. training models.

In 2009, the Penn State Quantitative Social Science Initiative, centered in the Department of Political Science, began discussions with faculty across Penn State about mechanisms for leveraging existing and emerging strengths in component disciplines to develop an interdisciplinary training model to meet these challenges. This culminated in 2012 with the awarding of a $3 million grant from the National Science Foundation’s Integrative Graduate Education and Research Traineeship (IGERT) program (which has received further support totaling over $2 million from the College of Liberal Arts, the College of Human Health & Development, the College of Information Sciences & Technology, the College of Sciences, the College of Earth & Mineral Sciences, the College of Engineering, the Social Science Research Institute, the Institute for CyberScience, and the Office of the Vice President for Research) to develop a new model for interdisciplinary Ph.D. training in “Big Data Social Science,” to be instantiated in a new dual-title Ph.D. program in “Social Data Analytics.”

From 2012 to 2018, the Big Data Social Science IGERT (BDSS-IGERT) has funded or will be funding six cohorts totaling fully funded 36 Ph.D. students, and 14 further unfunded affiliates that were admitted into the program— in Political Science, Human Development & Family Studies, Sociology,

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1 The IGERT (and now National Research Traineeship - NRT) programs are highly competitive and an explicit strategic target of the University’s Strategic Initiatives and Research Office (SIRO). SIRO’s official best practice guidelines, which govern the internal “downselect” process to determine the Penn State submission, include the proposal of a dual-title degree: https://www.research.psu.edu/limitedsubs/information/igert/IGERT_BP_Recomm.pdf. Penn State’s only other successful IGERT is instantiated in the Dual-Title Graduate Program in Biogeochemistry: http://www.biogeochemistry.psu.edu/.
Demography, Statistics, Geography, and Information Sciences & Technology – for two-year traineeships (the final cohort is for one year to conclude the training grant), involving research rotations, collaborative research projects, externships, and a transitional curriculum in Social Data Analytics. The student population is diverse according to criteria of ethnicity and gender. Over the years, there have been three students within the Department of IST that were fellows in the IGERT program. 28 students are currently active PhD IGERT fellows. From those graduated, ten IGERT graduates took positions as data scientists at organizations such as Google, IBM, NASA and Verisk. Seven are in non-tenure-track academic positions such as post-docs, one is in a TT position (initially U Minnesota). More than 150 papers were produced by fellows, with over 1000 citations so far.

The SoDA program has been successful, based on some early indicators. What follows is a list of awards to graduate students enrolled in SoDA.

- 2017 Data Science for Public Good Fellowship, Va Tech: Sayali Phadke (STAT), Claire Kelling (STAT)
- 2017 Data Science for Social Good Fellowship, U Wash: Mitch Goist (PLSC)
- 2015 Data Science for Social Good Fellowship, U Chicago: Fridolin Linder (PLSC)
- 2017 NASA Pennsylvania Space Grant Graduate Fellowship: Carolynne Hultquist (GEOG)
- 2017 Best Poster, Political Networks Conference: Matt Denny (PLSC)
- 2017 Population Association of America Best Poster Award: Cassie McMillan (SOC/DEMOG)
- 2016 Joint Statistical Meetings ASA Student Paper Award: Joshua Snoke (STAT)
- 2015 Rao Prize Conference Student Poster Award: Joshua Snoke (STAT)
- 2015 Sloan Foundation UCEM Award: Alexander G. Ororbia II (IST)
- 2015 NIH Pathways T32 Predoctoral Fellowship: Rachel Koffer (HDFS)

A unique and defining feature of the proposed Social Data Analytics dual-title Ph.D. degree program, within the current explosion of programs in “data science,” “analytics,” “big data,” and similar areas, is the focus on integration of a social science orientation to the field of study. In this view, social science is not seen as a domain” of data science, but rather we view social scientific thinking as a core pillar of Social Data Analytics. Further, the multidisciplinary, comparative intellectual vision of the proposed Dual-Title Doctoral Degree Program in Social Data Analytics is fundamental to IST’s vision for its degree programs and research agenda. Despite the push for training in the field of Big Data and Social Science, only a few cohesive doctoral level programs exist to date that would compare to the IST concept, and most do not provide multidisciplinary degrees: MIT Media Lab’s Ph.D. program has, for a long time, offered an integration of social science, design, and technology that is comparable to some of IST’s work; however, it does not quite capture the unique combination of big data and social science. Some labs at UPenn and George Mason offer research training in the area, but these are not cohesive Ph.D. programs with a defined selection of courses. Stanford’s Social Data Lab and Harvard’s Institute for Quantitative Social Science are great examples of sites for big data research in the social sciences.
intersecting with statistics, computer sciences, and other related fields, but do not offer doctoral programs. Most of the programs available are master’s degree programs and few, if any, focus on big data in the social sciences.

Anecdotal evidence of extensive interest in this type of program is found in the queries, calls, and emails received from students, directors of graduate studies, and other faculty after the announcement of the Big Data Social Science IGERT award at Penn State in September 2012.

The dual-title program will leverage the collaborative relationships, activities, and funding established within the ongoing IGERT program as a foundation on which to build a program for the study of big data integrating a social science orientation and technical aspects (A.I., machine learning, human-centered design) from IST. Owing to its uniqueness, the proposed program provides an academic niche, which will contribute to Penn State’s vision of becoming a leader in multidisciplinary, international, and multicultural scholarship. Moreover, we aim not only to place graduates in highly competitive academic positions to lead this new science, but also to demonstrate the relevance of Ph.D. training for some portion of those non-academic positions in “deep analytics.”

The Big Data in Social Science Dual Title already offers a dual-title PhD for graduate students in Statistics, where the Social Data Analytics dual-title offers an intellectual home that integrates statistical methodology with interdisciplinary approaches to big data and analytics arising from computational, informational, and visual analytic sciences, and different social sciences.

Complementing this program, we now propose a combination of courses that integrates an understanding of human cognition and human-centered design, intelligent systems, and security with the analysis of large and complex sets of data. Note that Information Sciences and Technology is already conceived as a multi-disciplinary, if not inter-disciplinary intellectual environment. The strengths of the College’s research lie in cyber security, computational cognitive science, artificial intelligence, and human-centered design (interfaces between humans and technology). The ideal graduate from IST’s MSc and PhD programs will have strong computational skills with in-depth understanding of one research area, while understanding the unique challenges of humans interfacing with the technology we create.

As a consequence, the proposed dual-title Ph.D. in Informatics and Social Data Analytics will:

- Provide a cohesive curriculum for in-depth training in informatics sufficient to succeed in data science, and a breadth of training across areas of social sciences in addition to computational, informational, and visual analytic sciences, sufficient to train successful contributors in the emerging field of social data analytics.
- Train human-centered designers, artificial intelligence, cybersecurity or cognitive science Ph.D’s who are able to expand the capabilities of social data analytics, and use those capabilities creatively to answer important social scientific questions and to address grand social challenges.
- Supply, to both the academic and nonacademic markets, IST Ph.D’s whose training leads them to instinctively consider diverse and multinational perspectives on social data issues combined with innovative computational and quantitative methodologies, to instinctively and effectively
prioritize ethics, scientific responsibility, and social consequences in the creation and use of social data, and to communicate effectively with both scientific and nonscientific audiences.

Regarding:
CONSOLATED GRADUATE BULLETIN for all Informatics graduate programs
Given the proposed name change for the M.S. degree, all graduate programs in Informatics should be listed under the same graduate bulletin.
C. Evidence of Consultation for M.S. in Informatics (PSU Great Valley, Harrisburg, and Liberal Arts)

On Wed, Aug 22, 2018 at 1:21 PM Mary Beth Rosson <mrosson@ist.psu.edu> wrote:

Steve, Burt, Jim:

A while ago we checked in with you when we were changing our PhD degree from IST to Informatics. That is done but now we are proposing to do the same thing for our RI MS program (see below). Along the way, we are also going back to the single Bulletin entry, as both degrees will now have the same name.

NAME CHANGE from M.S. Information Sciences and Technology to M.S. in Informatics and

REMOVE BULLETIN LISTING for M.S. in Information Sciences and Technology

Effective summer 2018, the PhD in IST was changed to the PhD in Informatics. It was an over-sight that the M.S. in IST was not included at the same time. The PhD and MS should share the same program code and be under the same bulletin listing. As there is no change to the curriculum, the bulletin listing for Master of Science in Information Sciences and Technology (IST) can be removed from the bulletin and all current students should be transitioned over to the new code (INMAC).

Please let us know if you have any questions or concerns about this change, thanks.

Mary Beth

From: "Nemes, James A" <jan16@psu.edu>
Date: Thursday, August 23, 2018 at 2:48 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Subject: RE: Consistency changes to IST MS degree

Mary Beth,

No objection to changing the name of the M.S. Consistency between the M.S. and Ph.D. makes sense.

Jim

James A. Nemes, D.Sc.

Chancellor and Chief Academic Officer

Professor of Mechanical Engineering

School of Graduate Professional Studies

Penn State Great Valley
From: Schappe, Stephen Patrick <sxs28@psu.edu>
Sent: Wednesday, August 22, 2018 4:13 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Cc: Nemes, James A <jan16@psu.edu>; Amy Stever <astever@ist.psu.edu>; David Fusco <dfusco@ist.psu.edu>; Lisa Lenze <llenze@ist.psu.edu>; Sherry Hartman <shartman@ist.psu.edu>; Burt Monroe <burtmonroe@psu.edu>
Subject: Re: Consistency changes to IST MS degree

Mary Beth,

We're fine with the degree name change.

Regards,

Steve

From: Burt Monroe <burtmonroe@psu.edu>
Sent: Wednesday, August 22, 2018 3:07 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Cc: sxs28@psu.edu; jan16@psu.edu; Amy Stever <astever@ist.psu.edu>; David Fusco <dfusco@ist.psu.edu>; Lisa Lenze <llenze@ist.psu.edu>; Sherry Hartman <shartman@ist.psu.edu>
Subject: Re: Consistency changes to IST MS degree

Makes sense to me.
C. Evidence of Consultation for PhD Dual-Title (Political Science, Sociology, Science, Health and Human Development)

From: Burt Monroe <burtmonroe@psu.edu>
Sent: Wednesday, September 26, 2018 10:18 AM
To: Amy Stever <astever@ist.psu.edu>
Cc: David Fusco <dfusco@ist.psu.edu>; Mary Beth Rosson <mrosson@ist.psu.edu>
Subject: Re: Needed ASAP - Email approval needed from Monroe for Dual-Title SODA adoption

My apologies. The response from Bruce was intended to be from both of us.

In any case, I wholeheartedly endorse the proposal for IST/Informatics to adopt the dual-title degree in Social Data Analytics.

I would be happy to provide a letter / memo to that effect if that would be helpful.

Best,
Burt Monroe (Head, Program in Social Data Analytics)

On Wed, Sep 26, 2018 at 10:08 AM Amy Stever <astever@ist.psu.edu> wrote:
Hello Dr. Monroe –

As Dr. Rosson is currently out of the office, I am writing to you for assistance.

We have submitted the program change to adopt the dual-title for SODA; however, it was noted that your response to Mary Beth’s email below was not recorded in the proposal. In order to make the deadline for tomorrow, could you kindly respond?

Many thanks – please contact me if you have questions
Amy

From: Bruce Desmarais <bdesmarais@psu.edu>
Date: Monday, February 19, 2018 at 2:09 PM
To: David ReiLer <reiLer@psu.edu>
Cc: Bruce Desmarais <bdesmarais@psu.edu>, Burt Monroe <burtmonroe@psu.edu>, Mary Beth Rosson <mrosson@ist.psu.edu>
Subject: Re: Dual-title PhD degree with IST - document for your review

David and Mary Beth,
Burt and I have just two revisions to recommend.
1. Throughout, change "Sta*ss*cs and Social Data Analy*cs" to "IST and Social Data Analy*cs" and revise other references to statistics degrees.
2. The course requirement list in, "VI. Proposed Revision, IST Graduate Student Handbook" excludes the DC1 requirement.

Here's the SoDA course requirement from the Bulletin: "3 or more credits in approved courses with the prefix STAT or that of a primarily social science department"

OK, we probably missed that because we were modeling on what Stat had done. Will fix as well.

We are excited to see this move forward!

-Bruce

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Bruce A. Desmarais
Associate Professor, Department of Political Science
Director, Graduate Programs in Social Data Analysis
Pennsylvania State University
brucedesmarais.com

On Tue, Feb 13, 2018 at 1:33 PM, David ReiLer <reiLer@psu.edu> wrote:

Page 2 of 2

Bruce and Burt,

I am sending you a draft of IST’s dual-title document for your review.

We were able to identify a path through the program that uses permanent courses (which I did not think was possible earlier). We’d like to get this through the review process in parallel with getting further permanent courses approved.

If you have several comments or proposed edits I can send a link to an editable document, but we’re not requesting that kind of involvement, of course.

Your feedback would be appreciated, and then we think we can go ahead and send it on.

David

__________________________________________

From: LEE ANN BANASZAK <lab14@psu.edu>
Sent: Thursday, June 28, 2018 12:39 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Cc: Aleksandra Slavkovic <sesa@stat.psu.edu>; Jennifer van Hook <jxv21@psu.edu>; Lisa Gatzke-Kopp <lmk18@psu.edu>; Priscilla Cetnar <pcetnar@ist.psu.edu>; David Reitter <reitter@psu.edu>; Sherry Hartman <shartman@ist.psu.edu>; Lisa Lenze <llenze@ist.psu.edu>
Subject: Re: IST dual title for SoDA PhD

Mary Beth,

The proposal looks great and has our full support.

Best,

Lee Ann

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Lee Ann Banaszak
Professor and Head
Department of Political Science E-mail: lab14@psu.edu
From: "Mary Beth Rosson" <mrosson@ist.psu.edu>
To: "Aleksandra Slavkovic" <sesa@stat.psu.edu>, "Jennifer van Hook" <jxv21@psu.edu>, "Lisa Gatzke-Kopp" <lmk18@psu.edu>, "LEE ANN BANASZAK" <lab14@psu.edu>
Cc: "Priscilla Cetnar" <pcetnar@ist.psu.edu>, "David Reitter" <reitter@psu.edu>, "Sherry Hartman" <shartman@ist.psu.edu>, "Lisa Lenze" <llenze@ist.psu.edu>
Sent: Thursday, June 28, 2018 11:34:41 AM
Subject: IST dual title for SoDA PhD

Sesa, Jennifer, Lisa and Lee-Ann:
We are in the penultimate phase of submitting a proposal for an IST PhD dual title in SoDA. We adapted the proposal from Statistics and have edited it to match our recently updated PhD program. David Reitter took the faculty lead in this and we’ve run it by both Bruce Desmarais and Burt Monroe and made changes based on their input. We’d now like your stakeholders to review the proposal, as you are leading other graduate programs that have or are considering related dual titles. Please pass this around to relevant folks in your departments/colleges and let us know if you have any suggestions or concerns. **If we hear nothing by July 12th, we’ll assume all is OK.** Thanks!
Mary Beth

Mary Beth Rosson
Professor and Associate Dean
College of Information Sciences & Technology
The Pennsylvania State University
http://mrosson.ist.psu.edu

From: JENNIFER LYNNE VAN HOOK <jxv21@psu.edu>
Sent: Saturday, June 30, 2018 4:47 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Cc: sesa <sesa@stat.psu.edu>; Kopp Lisa <lmk18@psu.edu>; LEE ANN BANASZAK <lab14@psu.edu>; Priscilla Cetnar <pcetnar@ist.psu.edu>; David Reitter <reitter@psu.edu>; Sherry Hartman <shartman@ist.psu.edu>; Lisa Lenze <llenze@ist.psu.edu>
Subject: Re: IST dual title for SoDA PhD

Looks good to me. Best of luck with the proposal.

Jenny
Sesa, Jennifer, Lisa and Lee-Ann:
We are in the penultimate phase of submitting a proposal for an IST PhD dual title in SoDA. We
adapted the proposal from Statistics and have edited it to match our recently updated PhD
program. David Reitter took the faculty lead in this and we’ve run it by both Bruce Desmarais and Burt
Monroe and made changes based on their input. We’d now like your stakeholders to review the
proposal, as you are leading other graduate programs that have or are considering related dual
titles. Please pass this around to relevant folks in your departments/colleges and let us know if you have
any suggestions or concerns. **If we hear nothing by July 12th, we’ll assume all is OK.** Thanks!
Mary Beth

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Mary Beth Rosson
Professor and Associate Dean
College of Information Sciences & Technology
The Pennsylvania State University
http://mrosson.ist.psu.edu

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From: Kopp, Lisa Michelle <lmk18@psu.edu>
Sent: Sunday, July 1, 2018 2:45 PM
To: Mary Beth Rosson <mrosson@ist.psu.edu>
Subject: Re: IST dual title for SoDA PhD

HDFS is pleased to see IST joining and thinks the proposal looks great

Lisa Gatzke-Kopp, Ph.D.
Professor of Human Development and Family Studies
Professor in Charge, Graduate Program
Penn State University
University Park, PA 16802
(814) 867-2371

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From: Mary Beth Rosson <mrosson@ist.psu.edu>
Sent: Thursday, June 28, 2018 11:34:41 AM
To: Aleksandra Slavkovic; Jennifer van Hook; Kopp, Lisa Michelle; LEE ANN BANASZAK
Cc: Priscilla Cetnar; David Reitter; Sherry Hartman; Lisa Lenze
Subject: IST dual title for SoDA PhD

Sesa, Jennifer, Lisa and Lee-Ann:
We are in the penultimate phase of submitting a proposal for an IST PhD dual title in SoDA. We
adapted the proposal from Statistics and have edited it to match our recently updated PhD
program. David Reitter took the faculty lead in this and we’ve run it by both Bruce Desmarais and Burt
Monroe and made changes based on their input. We’d now like your stakeholders to review the proposal, as you are leading other graduate programs that have or are considering related dual titles. Please pass this around to relevant folks in your departments/colleges and let us know if you have any suggestions or concerns. **If we hear nothing by July 12th, we’ll assume all is OK.** Thanks!

Mary Beth

Mary Beth Rosson  
Professor and Associate Dean  
College of Information Sciences & Technology  
The Pennsylvania State University  
http://mrosson.ist.psu.edu

From: Aleksandra Slavkovic <sesa@psu.edu>  
Sent: Monday, July 2, 2018 12:06 PM  
To: JENNIFER LYNNE VAN HOOK <jxv21@psu.edu>  
Cc: Mary Beth Rosson <mrosson@ist.psu.edu>; sesa <sesa@stat.psu.edu>; Kopp Lisa <lmk18@psu.edu>; LEE ANN BANASZAK <lab14@psu.edu>; Priscilla Cetnar <pcetnar@ist.psu.edu>; David Reitter <reitter@psu.edu>; Sherry Hartman <shartman@ist.psu.edu>; Lisa Lenze <llenze@ist.psu.edu>; MELANIE MCKINNEY <mum1@psu.edu>; Naomi Altman <nsa1@psu.edu>  
Subject: Re: IST dual title for SoDA PhD

I agree. Best of luck. I am also cc-ing Naomi Altman, the current graduate chair in statistics.

Best,
Sesa

Aleksandra (Sesa) Slavkovic, Ph.D.  
Professor, Departments of Statistics and Public Health Sciences  
Associate Dean for Graduate Education, Eberly College of Science  
421A Thomas Building  
The Pennsylvania State University  
University Park, PA 16802-2601

Phone: (814) 863-4918  
Fax: (814) 863-7114
Sesa, Jennifer, Lisa and Lee-Ann:

We are in the penultimate phase of submitting a proposal for an IST PhD dual title in SoDA. We adapted the proposal from Statistics and have edited it to match our recently updated PhD program. David Reitter took the faculty lead in this and we’ve run it by both Bruce Desmarais and Burt Monroe and made changes based on their input. We’d now like your stakeholders to review the proposal, as you are leading other graduate programs that have or are considering related dual titles. Please pass this around to relevant folks in your departments/colleges and let us know if you have any suggestions or concerns. **If we hear nothing by July 12th, we’ll assume all is OK.** Thanks!

Mary Beth

Mary Beth Rosson
Professor and Associate Dean
College of Information Sciences & Technology
The Pennsylvania State University

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Mary Beth Rosson
Professor and Associate Dean
College of Information Sciences & Technology
The Pennsylvania State University
http://mrosson.ist.psu.edu
The Master of Science in Informatics is a theoretical, application-oriented, and educational issues interdisciplinary degree program that focuses on the complex data that arise from human interaction. To pursue a dual-title degree under this program the student must apply to the Graduate School and register through one of the approved graduate programs.

The Dual-Title Ph.D. in Informatics and Social Data Analytics degree program is administered by the Social Data Analytics Committee, which is responsible for the management of the program. The committee maintains program definition, identifies faculty and courses appropriate to the program, and recommends policy and procedures for its operation to the Dean of the Graduate School. The program enables students from diverse graduate programs to attain and be identified with an interdisciplinary array of tools, techniques, and methodologies for social data analytics, while maintaining a close association with a home discipline. Social data analytics is the integration of social scientific, computational, informational, statistical, and visual analytic approaches to the analysis of large or complex data that arise from human interaction. To pursue a dual-title degree under this program the student must apply to the Graduate School and register through one of the approved graduate programs.

The Master of Science in Informatics is an interdisciplinary degree program that focuses on the theoretical, application-oriented, and educational issues facing a digital, global economy. The program is designed to build an understanding of how information and technology fundamentally impact (and are impacted by) people, organizations, and the world community. Topical areas within the program span a broad range including: human computer interaction, computational techniques, applications (e.g., bio-informatics and geographical information systems), societal issues (such as digital divide issues), user issues (e.g., computer-aided cognition), and information systems design and development providing exposure and grounding in many of the aspects of the information sciences. The program is especially attractive to students interested in gaining state-of-the-art understanding of informatics and its use as a solution in multiple venues.

The Integrated Undergraduate Graduate (IUG) program is available for strong undergraduate students who wish to pursue a bachelor’s and master’s degree in a shorter period of time than would be necessary if the degrees were pursued separately. There are two approved IUG programs: an Integrated B.S. in Information Sciences and Technology and M.S. in Informatics, and an Integrated B.S. in Security and Risk Analysis and M.S. in Informatics.

### Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (http://gradschool.psu.edu/prospective-students/how-to-apply). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 General Admissions Standards (http://gradschool.psu.edu/graduate-education-policies).

Applicants to the program are required to submit scores from the general portions of the Graduate Record Examinations (GRE), three letters of reference, a current resume (including present position and any publications), a 1 to 3 page statement of research background and goals related to pursuing an advanced degree and career in informatics, which also briefly discusses personal motivation for obtaining an M.S. or Ph.D., and a sample of the applicant’s writing (e.g., technical paper, etc.).

Because the program is multidisciplinary in nature, students from many different disciplines may be accepted for entry into the program. A bachelor’s degree in a related area (e.g., engineering and science), while not necessary for admission, is helpful in the successful completion of the degree. It is expected that students will have a basic level of competency in statistics, as well as computer and information technology. Related work experience can be used to demonstrate such competency. A student may be accepted into the program with provisional status (http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/provisional-admission) for no more than one year while work is completed to meet these expectations.

It is expected that the successful applicant will have an overall grade point average of 3.00 (on a 4.00 scale) or higher for his or her undergraduate study and/or graduate-level study. However, accomplishments demonstrated through work experience and recommendation letters from the applicant’s academic adviser or employer will also play an important role in making the admission process successful.
decision. The most qualified applicants will be accepted into the program until all spaces for new students are filled.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students (http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/admission-requirements-international-students) for more information.

For the Dual-Title Ph.D. in Informatics and Social Data Analytics, students must apply and be admitted to the graduate program in their home department and The Graduate School before they can apply for admission to the dual-title degree program. Applicants interested in the dual-title degree program may make their interest in the program known on their applications to the major programs and include remarks in their statement of purpose that address the ways in which their research and professional goals in their chosen home field reflect an expanded interest in Social Data Analytics.

To be enrolled in the Dual Title Doctoral Degree Program in Social Data Analytics, a student must submit a letter of application and transcript, which will be reviewed by the Social Data Analytics Admissions Committee. An applicant must have a minimum grade point average of 3.0 (on a 4 point scale) to be considered for enrollment in the dual-title degree program. Students must apply for enrollment into the dual-title degree program in Social Data Analytics prior to obtaining candidacy in their home department.

General Graduate Council admissions requirements are stated in the GENERAL INFORMATION section of the Graduate Bulletin.

Degree Requirements

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Requirements. (http://gradschool.psu.edu/graduate-education-policies)

The doctoral degree in Informatics requires a minimum of 32 credits, including 8 required core credits.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 501</td>
<td>Interdisciplinary Research Design for Information Sciences and Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select one of the following foundation courses:</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IST 510</td>
<td>Foundations in Computational Informatics</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>IST 520</td>
<td>Foundations in Human-Centered Design</td>
<td></td>
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<tr>
<td>IST 530</td>
<td>Foundations in Social Informatics</td>
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<tr>
<td>IST 590</td>
<td>Colloquium</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Research Methodology Courses

Specialization Courses

To complete a Ph.D. degree, students must in their first semester take the 3-credit introduction to interdisciplinary research methods (IST 501) and one credit of graduate colloquium (IST 590). In their second semester, students must take a second credit of graduate colloquium. During their first two semesters, students must take at least one of the three foundations courses (IST 510, IST 520, or IST 530).

In addition to these first-year requirements, doctoral students must complete 12 credits of research methodology courses selected to introduce or increase proficiency in methods relevant to their doctoral research agenda, and 12 credits of specialization courses, also selected to reinforce their research training.

In addition, all students must be competent in the English language and must have demonstrated skills in the communication of ideas both verbally and in writing commensurate with the requirement of scholarly and professional work. The qualifying examination will be used as an occasion to assess English proficiency and plan for remediation (including additional courses, mentoring, or experiences) for all students. A brief critical literature review in three complementary research areas will be included as part of the qualifying examination. Students must have completed 18 graduate credits before taking the qualifying exam and must pass the qualifying exam within three semesters. Students must pass the Ph.D. comprehensive examination after completion of most of the course work, usually at the end of the student's second year in the program. A research-based dissertation must be completed under the direction of the dissertation committee, with the student submitting a dissertation proposal and defending that proposal in the defense examination. To earn the Ph.D. degree, doctoral students must write a dissertation that is accepted by the dissertation committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

Dual-Title Doctor of Philosophy (Ph.D.) in Informatics and Social Data Analytics

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs.
To qualify for the dual-title degree, students must satisfy the requirements of the primary graduate program in which they are enrolled. In addition, they must satisfy the requirements described below, as established by the Social Data Analytics Committee.

The minimum course work requirements for the dual-title Ph.D. degree in Social Data Analytics are as follows:

• Course work and other requirements of the primary program.
• SODA 501 (3 credits)
• SODA 502 (3 credits)
• 12 or more elective credits in Social Data Analytics from a list of courses maintained by the Social Data Analytics Committee. Collectively the elective credits must satisfy the following requirements:
  • (A) Core analytics distribution. 3 or more credits in courses focused on statistical learning, machine learning, data mining, or visual analytics. Courses approved as meeting this requirement are designated (A) on the list of approved electives.
  • (Q) Quantification distribution. 6 or more credits in courses focused on statistical inference or quantitative social science methodology. Courses approved as meeting this requirement are designated (Q) on the list of approved electives.
  • (C) Computational/informational distribution. 6 or more credits in courses focused on computation, collection, management, processing, or interaction with electronic data, especially at scale. Courses approved as meeting this requirement are designated (C) on the list of approved electives.
  • (S) Social distribution. 6 or more credits in courses with substantial content on the nature of human interaction and/or the analysis of data derived from human interaction and/or the social context or ethics or social consequences of social data analytics. Courses approved as meeting this requirement are designated (S) on the list of approved electives.
• Cross-departmental distribution.
• 3 or more credits in approved courses with the prefix STAT or that of a primarily social science department.
• 3 or more credits in approved courses with the prefix IST, GEOG, or that of a primarily computer science or engineering department.
• 6 or more credits in approved courses outside the primary program.
• 3 or fewer credits in approved courses at the 400-level.

Students or faculty may request that the Social Data Analytics Committee consider approval of elective designations for any course, including temporary approvals for experimental or variable-title courses. Students are encouraged to take interdisciplinary courses that carry multiple (A), (Q), (C), (S) designations, as well as to select SODA electives that also meet requirements of the primary program. Within this framework, final course selection is determined by the student in consultation with academic advisers from their home department and Social Data Analytics.

The Social Data Analytics Program maintains a list of background and skills that it recommends students have in place by the time they begin the interdisciplinary coursework required to complete the Social Data Analytics degree.

Qualifying Examination Committee Composition
The qualifying examination committee must conform to all requirements of the primary program and the Graduate Council. In accordance with Graduate Council, the qualifying examination committee must include at least one member of the Social Data Analytics Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role.

Qualifying Examination
The dual-title degree will be guided by the qualifying examination procedure of the primary graduate program and the Graduate Council. In accordance with Graduate Council, there will be a single qualifying examination, assessing both the primary graduate program and the dual-title program. 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 qualifying examination may be delayed one semester beyond the normal period allowable.

Dissertation Committee Composition
The dissertation committee must conform to all requirements of the primary graduate program and the Graduate Council. In addition to the general Graduate Council requirements for dissertation committees, the dissertation committee of a Social Data Analytics dual-title doctoral degree student must include at least one member of the Social Data Analytics Graduate Faculty. Faculty members who hold appointments in both
programs’ Graduate Faculty may serve in a combined role. If the chair of the dissertation committee is not also a member of the Graduate Faculty in Social Data Analytics, the member of the committee representing Social Data Analytics must be appointed as co-chair.

**Comprehensive Exam**
The dual-title degree will be guided by the comprehensive exam procedure of the primary graduate program. After completion of required course work, doctoral students in the dual-title doctoral degree program must pass a comprehensive examination. In programs where this includes evaluation of a written exam, the Social Data Analytics representative on the student’s dissertation committee will participate in the writing and evaluation of the exam, in accordance with procedures maintained by the primary graduate program. In programs where the comprehensive exam involves defense of a dissertation prospectus, the Social Data Analytics representative on the student’s dissertation committee will participate in the evaluation of the prospectus, including ensuring the proposed dissertation has substantial Social Data Analytics content.

**Dissertation and 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 reflects their original research and education in their home discipline and Social Data Analytics. The dissertation must be accepted by the dissertation committee, the head of the graduate program, and the Graduate School.

**Social Data Analytics Doctoral Minor**
Requirements listed here are in addition to requirements for minors in Graduate Council policies listed under GCAC-600 Research Degree Requirements and GCAC-700 Professional Degree Requirements.

Doctoral students may take a doctoral minor in Social Data Analytics. This is the appropriate option for doctoral students in programs that have not adopted the dual-title Ph.D. degree in Social Data Analytics, and for students otherwise pursuing an incompatible degree program, such as another dual-title.

As with all graduate minors, a student seeking a minor must have the approval of the student’s major program of study, the Social Data Analytics program, and the Graduate School, and official requests to add a minor to a doctoral candidate’s academic record must be submitted to Graduate Enrollment Services prior to establishing the dissertation committee and prior to scheduling the comprehensive examination. At least one Graduate Faculty member from Social Data Analytics must serve on the student’s dissertation committee.

The doctoral minor in Social Data Analytics requires at least 15 credits in approved courses, with at least 6 at the 500 level, and a minimum of 9 elective credits from a list of approved electives maintained by the Social Data Analytics program. Additional deviations from distribution minimums and maximums may be allowed, but must be approved by the Social Data Analytics program.

**Master of Science (M.S.)**
Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

The M.S. in Informatics requires a minimum of 30 credits at the 400, 500, 600, or 800 level, with at least 18 credits at the 500 or 600 series combined; 27 of the 30 credits must be earned at Penn State. These 30 credits are distributed among the following requirements:

**Core Courses (3-6 credits).** All candidates are expected to develop a broad understanding of the core constructs of people, information, technology, and the significant interactions among those elements by taking IST 504. Candidates may also take IST 505 to gain a deeper understanding of research design.

**Specialization Courses (12-18 credits).** In consultation with his/her adviser, a candidate is expected to choose courses in one or more areas customized to support the thesis or scholarly paper. In addition to advanced courses in IST, a support area could be in cybersecurity, data science, law, business, education, engineering, the liberal arts, science, or any area that is linked to the information sciences. A list of suggested specialization courses is maintained by the graduate program office.

**Research Methods (6 credits).** All candidates must develop a basic understanding of the research methods utilized in the information sciences, by taking at least two research methods courses offered in IST or elsewhere. The focus of the course must be on the methods being learned rather than application of some method to a research topic. A list of courses that will
satisfy this requirement is maintained by the graduate program office.

Thesis or Scholarly paper (3-6 credits). Students may choose a thesis or scholarly paper option. Students who choose the thesis option must register for 6 credits of IST 600 or 610, write a satisfactory thesis accepted by the master's committee, the head of the graduate program, and the Graduate School, and pass a thesis defense. The thesis should focus on a well-defined problem relevant to the information sciences. Students who choose the thesis option must also complete IST 505. Students who choose the scholarly paper option must register for 3 credits of IST 594 and complete the scholarly paper. The scholarly paper will be a focused piece of technical work that applies the student's expertise and knowledge base, and that is documented and presented as a scholarly paper report. Students who choose the scholarly paper option must write a scholarly paper that is accepted by their M.S. committee. An oral presentation may be required at the discretion of the student's adviser.

Integrated B.S. in Information Sciences and Technology and M.S.

Integrated B.S. in Security and Risk Analysis and M.S. in Informatics

The first two to three years of undergraduate coursework follow the same undergraduate curriculum that other students follow in the IST or SRA undergraduate majors. College of IST undergraduates in IST or SRA may apply for admission to the IUG program no earlier than February 15th of their sophomore year and no later than February 15 of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in one of two College of IST undergraduate degree programs: IST or SRA.
2. Must have completed 60 credits of the IST or the SRA undergraduate degree program.
3. Must apply to the IUG program by February 15 of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the Graduate School application. Admission requirements for the M.S. in INMAC are listed in the Admission Requirements section above.
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members.
8. Must meet with both the Director of Graduate and Undergraduate Academic Affairs and the Graduate Program Director (or designate) to declare interest and receive information about the IUG program.

Students must fulfill all degree requirements for each degree in order to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the Bachelor of Science in Information Sciences and Technology and the Bachelor of Science in Security and Risk Analysis are listed in the Undergraduate Bulletin. Degree requirements for the Master of Science in Informatics degree are listed above. If students accepted into the IUG program are unable to complete the M.S. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted courses must be at the 500 or 800 level. Credits associated with the culminating experience for the graduate degree cannot be double-counted. The required 3 credits of IST 504 will apply to both the graduate program and the undergraduate program. Students may choose an additional 9 credits to double-count for both the undergraduate and graduate degrees from the following: IST 411, IST 412, IST 413, IST 420, IST 421, IST 431, IST 432, IST 505 (for IST majors), or SRA 433, SRA 468, SRA 471, IST 451, IST 452, IST 454, IST 505 (for SRA majors).

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (http://gradschool.psu.edu/graduate-funding) section of The Graduate School’s
Students on graduate assistantships must adhere to the course load limits (http://gradschool.psu.edu/graduate-education-policies/gsad/credit-loads-graduate-assistants) set by The Graduate School.

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.

**Learning Outcomes**

1. **KNOW**: Demonstrate appropriate breadth and depth of interdisciplinary knowledge, and comprehension of the major issues in information sciences and technology (IST).
2. **APPLY/Created**: Use interdisciplinary knowledge and methods of IST to plan and conduct a research thesis.
3. **COMMUNICATE**: Communicate the major issues of IST effectively, including publications in high quality journals and presentations at high value conferences.
4. **THINK**: Demonstrate analytical and critical thinking within IST, including across disciplines.
5. **PROFESSIONAL PRACTICE**: Know and conduct themselves in accordance with the highest ethical standards, values, and, where these are defined, the best practices of IST (as expressed in SARI training modules).

**Contact**

**Graduate Program Head**: Mary Beth Rosson

**Primary Program Contact**: Betty Houser

**Email**: bxh201@psu.edu

**Mailing Address**: Westgate Building, University Park, PA 16802

**Telephone**: (814) 867-5787

**Program Website**: Informatics (https://ist.psu.edu/education/degree)
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 Office of the Dean of the Graduate School, 211 Kern Building, University Park. 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: The College of the Liberal Arts
Department or Instructional Area: Psychology

New Graduate Program, Option, or Minor: Add
Designation of new graduate program: Dual-Title Doctoral Degree in Psychology and Social and Behavioral Neuroscience
Classification of Instructional Programs (CIP) Code: __________________________
Designation of new graduate option: __________________________
Designation of new graduate minor: __________________________

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

Existing Graduate Program Option, or Minor: Change Drop Office of the Vice Provost and Dean of the Graduate School
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
Melvin M. Mark __________________________ Date: 1/17/18
Printed name Signature

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
Michael T. Putnam __________________________ Date: 1/17/18
Printed name Signature

Approved by College/School Dean/Chancellor (or Designee):
Susan Welch __________________________ Date: 1/17/18
Printed name Signature
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of David Babb                      Signature                              Date: 11/6/2018
Printed name

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

On Behalf of C. Andrew Cole                  Signature                              Date: 11/6/2018
Printed name

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken         Signature                              Date: 11/6/2018
Printed name
PROGRAM CHANGE PROPOSAL,
THE DEPARTMENT OF PSYCHOLOGY:

A Proposal to the Graduate Council to Adopt the Dual-Title Doctoral Degree Program in Social and Behavioral Neuroscience

Submitted by
Melvin M. Mark
Professor and Head of Psychology
140 Moore Building
University Park, PA
PH: 814.865.9515
Email: m5m@psu.edu
Justification

Psychology departments at peer institutions commonly offer focused training in neuroscience. By way of background, graduate training in psychology departments is typically organized in terms of major sub-domains of psychology, such as clinical psychology, developmental psychology, and social psychology, with these labeled as “areas” or “programs.” Benchmarking with other Big 10 psychology departments reveals the common nature of neuroscience-related training in psychology departments. As detailed in the proposal for a dual-title Ph.D in Social and Behavioral Neuroscience (SBN), all of the Big Ten psychology departments other than Penn State have one or more graduate training areas involving neuroscience. Several other Big 10 psychology departments have more than one neuroscience-related graduate training areas. Indeed, there are 20 programs involving neuroscience across the 13 other Big Ten psychology departments.

Penn State’s Department of Psychology does not have a separate graduate training area involving neuroscience. This is because years ago, rather than develop a separate neuroscience area, we decided to integrate faculty with neuroscience expertise across departmental areas (i.e., clinical, cognitive, developmental, and social; neuroscience is not yet present in the industrial/organizational area). Psychology at Penn State also developed a departmentally-based Specialization in Cognitive and Affective Neuroscience (SCAN). Students in any of the graduate training areas can apply to participate in SCAN. SCAN served students’ training needs well, as did the model of a cross-cutting specialization rather than a separate program area related to neuroscience. In fact, SCAN was a co-recipient of the American Psychological Association’s (APA) inaugural Award for Innovative Practices in Graduate Education in 2003. At that time the APA Bureau of Education Affairs stated, “There is much to commend this program. We were particularly struck by the manner in which this program maintains the unity of Psychology as a discipline along a dimension that is all too often a fault line.”

Over time, however, SCAN has become inadequate for students who plan to spend their careers investigating research questions at the intersection of psychology and neuroscience. In part, expectations have grown about the depth of foundational neuroscience knowledge needed for such research. In addition, the substantive literature in social and behavioral neuroscience has greatly increased, as have options for methods and analyses. A more in-depth training option is called for. Moreover, there is a market for students with training in both neuroscience and psychology (or related disciplines), as documented in Appendix D of the SBN program proposal.

In short, a clear need exists for enhanced training in neuroscience for interested graduate students in Psychology at Penn State. At the same time, we do not wish simply to create a new neuroscience-related training area within the department. We remain committed to the idea that interested students should receive doctoral level training in, for example, developmental or social psychology, while also having the option for in-depth training in neuroscience. Affiliation with the proposed dual-title program in SBN will provide this needed training. Being a part of the dual-title program will also enable Psychology students to benefit formally from the neuroscience expertise of faculty and colleagues in other units and to participate in a community of social and behavioral neuroscientists across campus.
Based on interest in SCAN among current students and applicants, we estimate that 4-5 Psychology students annually will apply to SBN. With the more intensive set of courses, however, it is possible that fewer Psychology students will enroll. Given that Psychology plans to offer several courses per year that will fulfill the additional SBN course requirements, and given that multiple such courses are expected in other departments, enrollment increases are expected to be minimal for SBN courses in other units.

**Comparison of changes to the existing requirements**

The minimum course work requirements for the dual-title Ph.D. degree in Psychology and SBN are as follows:

- Course work and other requirements for Psychology, the primary program
- Core SBN Coursework
  - NEURO 520 (3 credits)
  - NEURO 521 (3 credits)
- Participation in SBN proseminar series (SBN 590, 1 credit, taken twice)
- 12 or more credits from NEURO 511 (3 credits) or NEURO 512 (4 credits), SBN 505, 508, and 511 (each 3 credits, repeatable up to 12) or other courses from a list maintained by the SBN Dual-title Committee.
- Neuroscience-related Comprehensive Exam and Dissertation
- SARI requirements as specified by the home department

In terms of Psychology Department requirements, all students must complete an orientation seminar, in which they must also satisfactorily complete the department's English proficiency requirement (PSY 501). Students must complete (within their first 60 graduate credits for students without previous graduate credit) 6 departmentally approved graduate credits in statistics with a grade of B or better. Students must complete 18 credits in a suitably selected major area; majors usually are defined in terms of one of the five program areas noted above. In addition to the major area credits, students must complete a minimum of 12 credits outside the major area. Three options exist for completing these 12 credits: (1) completing four courses in APA-recommended breadth areas, (2) completing course work in all four of the other areas outside the major area, and (3) completing course work and doing a project in a particular area of expertise (a “minor”) outside the major. Some areas may have additional recommended or required courses beyond the departmental requirements. All students must be involved with research supervised by at least two different faculty members. Students must take the Ph.D. comprehensive examination by the time they have earned 70 graduate credits, or prior to their fourth year in the program, whichever comes first. Finally, the doctoral dissertation should be proposed and defended by the end of the fifth year, or in the case of students needing to meet accreditation or dual-title Ph.D. requirements, by the end of the sixth year. The department has no foreign language requirement.

Table 1 offers a side-by-side comparison of the requirements for a Psychology student who is not participating in a dual-title degree program (left column) and for a Psychology student who is participating in the SBN dual-title Ph.D (right column). Table 2 illustrates a path through course work and other milestone requirements for a Psychology student completing the SBN dual-title Ph.D.
<table>
<thead>
<tr>
<th><strong>Ph.D. in Psychology</strong></th>
<th><strong>Ph.D. in Psychology &amp; SBN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PSY Orientation Seminar</strong>&lt;br&gt;• PSY 501 (1 credit)</td>
<td><strong>PSY Orientation Seminar</strong>&lt;br&gt;• PSY 501 (1 credit)</td>
</tr>
<tr>
<td><strong>Major area credits (PSY)</strong>&lt;br&gt;A minimum of 18 credits in major area</td>
<td><strong>Major area credits (PSY)</strong>&lt;br&gt;A minimum of 18 credits in major area. Courses in the “additional courses” requirement of SBN may count toward this requirement with approval of major area coordinator and Psychology Director of Graduate Studies (DGS)</td>
</tr>
<tr>
<td><strong>Breadth requirement (PSY)</strong>&lt;br&gt;A minimum of 12 credits outside of major area (breadth).</td>
<td><strong>Breadth requirement (PSY)</strong>&lt;br&gt;A minimum of 12 credits outside of major area (breadth). The required courses of the SBN degree may count toward this requirement, as may additional SBN requirements that do not count toward PSY major area credits</td>
</tr>
<tr>
<td><strong>Statistics Requirements (PSY)</strong>&lt;br&gt;• PSY 507 (3 credits)&lt;br&gt;• PSY 508 (3 credits)</td>
<td><strong>Statistics Requirements (PSY)</strong>&lt;br&gt;• PSY 507 (3 credits)&lt;br&gt;• PSY 508 (3 credits)</td>
</tr>
<tr>
<td><strong>Required Neuroscience core seminar</strong>&lt;br&gt;• NEURO 520 (3 credits)&lt;br&gt;• NEURO 521 (3 credits)&lt;br&gt;• SBN 590 (Neuroscience proseminar) (1 credit, minimum 2 semesters)&lt;br&gt;Again, these credits may count toward the PSY breadth requirement</td>
<td><strong>Neuroscience-approved electives</strong>&lt;br&gt;12 or more elective credits from a list of courses maintained by the Neuroscience Dual-title Committee.&lt;br&gt;As noted above, PSY courses applied to the SBN degree may also count toward major area credits on PSY. Other courses toward this SBN requirement may apply to the PSY breadth requirement</td>
</tr>
<tr>
<td><strong>Scholarship and Research Integrity</strong>&lt;br&gt;SARI@PSU requirement is fulfilled through 5 hours of discussion-based ethics training (in part in PSY 501), and certification of CITI course completion.</td>
<td><strong>Scholarship and Research Integrity</strong>&lt;br&gt;SARI@PSU requirement is fulfilled through 5 hours of discussion-based ethics training (in part in PSY 501), and certification of CITI course completion.</td>
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<tr>
<td>Course</td>
<td>Credits</td>
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<tr>
<td><strong>Year 1 Fall (Semester 1)</strong></td>
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<tr>
<td>PSY 501: Seminar in General Psychology</td>
<td>1</td>
</tr>
<tr>
<td>PSY 549: Developmental Theory</td>
<td>3</td>
</tr>
<tr>
<td>PSY 507: Analysis of Psych. Data I</td>
<td>3</td>
</tr>
<tr>
<td>PSY 529: Seminar in Child Dev. (Dev. Proseminar)</td>
<td>1</td>
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<tr>
<td>PSY 600: Thesis Research</td>
<td>1</td>
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<tr>
<td><strong>Year 1 Spring (Semester 2)</strong></td>
<td></td>
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<tr>
<td>PSY 548: Fundamentals of Cognitive Development</td>
<td>3</td>
</tr>
<tr>
<td>PSY 508: Analysis of Psych. Data II</td>
<td>3</td>
</tr>
<tr>
<td>PSY 529: Seminar in Child Dev. (Dev. Proseminar)</td>
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<tr>
<td>PSY 600: Thesis Research</td>
<td>1</td>
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<tr>
<td><strong>Year 2 Fall (Semester 3)</strong></td>
<td></td>
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<tr>
<td>PSY 547: Fundamentals of Social Development</td>
<td>3</td>
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<tr>
<td>NEURO 520: Social and Behavioral Neuroscience I</td>
<td>3</td>
</tr>
<tr>
<td>SBN 590</td>
<td>1</td>
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<tr>
<td>PSY 529: Seminar in Child Dev. (Dev. Proseminar)</td>
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<tr>
<td>PSY 600: Thesis Research</td>
<td>2</td>
</tr>
<tr>
<td><strong>Year 2 Spring (Semester 4)</strong></td>
<td></td>
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<tr>
<td>PSY 529: Seminar in Child Dev. (Dev. Proseminar)</td>
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</tr>
<tr>
<td>NEURO 521: Social and Behavioral Neuroscience II</td>
<td>3</td>
</tr>
<tr>
<td>SBN 506: Seminar in SBN (developmental section)</td>
<td>3</td>
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<tr>
<td>SBN 590</td>
<td>1</td>
</tr>
<tr>
<td>PSY 600: M.S. Thesis or Alternative Project defense</td>
<td>2</td>
</tr>
<tr>
<td><strong>Year 3</strong></td>
<td></td>
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<tr>
<td>SBN 511: Translational Applications of SBN</td>
<td>3</td>
</tr>
<tr>
<td>SBN 506: Seminar in SBN (another dev. section)</td>
<td>3</td>
</tr>
<tr>
<td>SBN 508: Seminar in SBN Methods</td>
<td>3</td>
</tr>
<tr>
<td><strong>Advancement to Candidacy if not before</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Year 4</strong></td>
<td></td>
</tr>
<tr>
<td>PSY 601: Ph.D. Dissertation</td>
<td>9/sem</td>
</tr>
<tr>
<td><strong>Comprehensive Exam</strong></td>
<td></td>
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<tr>
<td><strong>Year 5</strong></td>
<td></td>
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<tr>
<td>PSY 601: Ph.D. Dissertation</td>
<td>9/sem</td>
</tr>
<tr>
<td><strong>Dissertation defense</strong></td>
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<tr>
<td>Total credits required by program (excluding 600/601)</td>
<td>43</td>
</tr>
<tr>
<td>Unique credits required by program (does not double count)</td>
<td>25</td>
</tr>
<tr>
<td>Total course credits completed by student (not including thesis)</td>
<td>45</td>
</tr>
</tbody>
</table>

- **Core** = course required of all students to complete the degree
- **REQ** = credit requirement toward degree, with flexibility in specific course
- **AREA** = PSY, 15 credit requirement in program area
- **BREADTH** = PSY, 12 credit breadth requirement
Existing and Revised Graduate Bulletin Material

NOTE: In addition to the changes associated with the proposed dual-title program, this revision to the Bulletin material includes a more general revision and update. Because of a forthcoming conversion to a new academic catalog management system, the Graduate School requested updates to Bulletin material, independent of any program revision proposal. The additional changes here represent an update to our Bulletin material in keeping with that request. The changes associated with the current proposal highlighted.

Comparison of Old and New Bulletin material

Psychology (PSY)

Program Home Page

MELVIN M. MARK, Head of the Department
Department office: 111140 Moore Building
814-865-95149515

Program Email: uppsygrad@psu.edu

Degrees Conferred:

Ph.D., M.S.
Dual-Title Doctoral Degree in Psychology and Language Science

Dual-Title Doctoral Degree in Psychology and Social and Behavioral Neuroscience
Dual-Title M.S. and Doctoral Degree in Psychology and Women’s Studies

The Graduate Faculty
The Program Description

The graduate program in Psychology is characterized by highly individualized study leading to the Ph.D. degree. Emphasis is placed on research, teaching, and professional career development. Each student is associated with one of the six program areas offered in the department: Clinical (including Child Clinical and Adult tracks); Cognitive; Developmental; Psychobiology; Industrial/Organizational; and Social. Each student's particular pattern of interests dictates in part the course of study followed. Within all areas, research is an integral part of graduate study; usually, the research is empirical in focus, but it may be applied or basic, depending on the problem of interest.

The department has excellent resources, including well-equipped laboratories, computer facilities, darkroom, and shop, and students have access to the large resources of the University, which include excellent computation facilities and a large open-stack library. Opportunities exist for practice; experience are available, e.g., For example, clinical students find practice in local supervised therapy in a departmentally based community mental health center, while industrial students find placement in appropriate business or industrial settings. Organizational students participate in a practicum on projects for various organizations. Additional resources are available across the university, including an imaging center, high speed computing, and various training opportunities.

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.

Scores from the Graduate Record Examinations (GRE) general test (verbal and quantitative portions and analytical) are required; scores from the Miller Analogies Test (MAT) are optional. All applicants who were. The GRE subject test in psychology majors as undergraduates should provide scores from the advanced psychology (subject) GRE test is recommended but not required. Applicants with superior undergraduate (particularly junior and senior years) or graduate grade-point averages will be considered for admission. Although a major in psychology is not required, it is common and other applicants should typically have a broad undergraduate background that includes 12 credits in psychology. Undergraduate study in psychology should include a course in statistics and a psychological methodology course. Previous research experience is important in most program areas. Students must write a statement of purpose, identify up to three departmental faculty members of interest, and provide a writing sample and a current CV in the application materials. Requirements listed above are in addition to general Graduate School requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin.

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

The psychology department does not admit have a graduate program designed for students seeking only the terminal master's degree. A minimum of 30 credits at the 400, 500, 600, or 800 level is required, with at least 18 credits at the 500 and 600 level, combined. Core courses that must be completed are PSY 501 (1 credit), PSY 507 (3 credits), and PSY 508 (3 credits), and PSY 600 (6 credits). A master's thesis, or the department's departmentally approved satisfactory scholarly paper/credit equivalent (an acceptable published journal article), is required to determine advancement to candidacy for the Ph.D. degree in Psychology. Usually, but not always, the master's thesis centers on an original empirical research topic. The typical thesis involves a literature review, data collection, analysis, and discussion. Students who choose to complete a thesis must take a minimum of 6 credits of thesis research (600 or 610). Students who choose to complete a scholarly paper must enroll in PSY 596. A master's degree is not awarded unless a thesis is submitted to the Graduate School. Students must successfully propose a thesis study/master's thesis or scholarly paper by the end of the second year and have successfully defended a thesis/paper by the end of the third year in the program, in order to be advanced to doctoral candidacy. For students who choose to complete a thesis, the thesis must be accepted by the advisers and committee members, the head of the graduate program, and the Graduate School.

Doctoral Degree Requirements

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

All students in their first year of residency must satisfactorily complete the department's English proficiency requirement (PSY 501 as demonstrated by oral and written products in a section of PSY 501 (First-Year Orientation)).

Students must complete, in the (within their first 60 graduate credits they accrue in the program for students without previous graduate credit) 6 departmentally approved graduate credits in PSY 507 (3 credits) and PSY 508 (3 credits) with a grade of B or better. Students must complete 18 credits in a suitably selected major area; majors usually are defined by one of the six program areas noted above. The courses that satisfy the major area requirement can be chosen from a list of approved courses maintained by the graduate program office. In addition to the major area credits, students must complete a minimum of 12 credits outside the major area. Two options exist for completing these 12 credits: (1) completing four courses in APA-recommended breadth areas, or (2) completing course work in all four of the other areas outside the major area, or (3) completing course work and doing a project in a particular area of expertise (a “minor”) outside the major. Some areas may have additional recommended or required courses as well. All students must be involved with research supervised by at least two different faculty members. Students must pass the Ph.D. comprehensive examination must be taken by the time they have earned 70 graduate credits are earned, or prior to the student's
fourth year in residency, whichever comes first. Finally, the doctoral dissertation should be proposed and defended by the end of the fifth year, or in the case of students needing to meet accreditation or dual-title Ph.D. requirements, by the end of the sixth year. The department has no foreign language requirement. The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).

**Dual-Title Ph.D. Graduate Degree in Psychology and Language Science**

Graduate students with research and educational interests in Psychology and Language Science may apply to the Psychology and Language Science dual-title Ph.D. program. The goal of the dual-title degree in Psychology and Language Science graduate program is to enable graduate students from Psychology to acquire the knowledge and skills of their major area of specialization in Psychology, while at the same time gaining the perspective and methods of the Language Sciences.

**Admission Requirements**

To pursue a dual-title degree under this program, the student must first apply to the Graduate School and be admitted through the Psychology Department (see below for admission requirements for the Graduate Program in Psychology). Students must apply and be admitted to the graduate program in Psychology and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Language Science dual-title program. Refer to the Admission Requirements section of the Language Science Bulletin page. Doctoral students must be admitted into the dual-title degree program in Language Science prior to taking the candidacy examination in their primary graduate program. Upon admission to the Psychology Program and with a recommendation from a Language Science program faculty member in the Department of Psychology, the student’s application will be forwarded to a committee that will include the Director of the Linguistics Program, one of the Co-Directors of the Center for Language Science, and a third elected faculty member within the Center for Language Science. All three committee members will be affiliated with the Program in Linguistics. Upon the recommendation of this committee, the student will be admitted to the dual-title degree program in Language Science.

**Admission Requirements for Incoming Graduate Students in Psychology**

Most incoming graduate students have earned an undergraduate degree in psychology. In some cases, students from other majors are also admitted, but it is expected that applicants will have a background in psychology before applying. Graduate Record Exam (GRE) is required; however, the subject exam is not required. The TOEFL exam is required for international students except for those applicants who have received a baccalaureate or a master's degree from a
college/university/institution in any of the following: Australia, Belize, British Caribbean and British West Indies, Canada (except Quebec), England, Guyana, Republic of Ireland, Liberia, New Zealand, Northern Ireland, Scotland, the United States and Wales. All international students will be required to take the English Proficiency Exam upon arrival at the Penn State campus. Students are asked to complete a departmental application form, write a statement of purpose, and include a writing sample in the application materials.

**Degree Requirements for the Dual-Title Ph.D. Degree in Psychology and Language Science**

Two Language Science proseminar courses (Ling 521 and Ling 522; 6 credits). One 3 credit research internship with a Language Science faculty mentor from an outside area. The 3 credit internship required by the Psychology program may satisfy both the Psychology requirement and the Language Science requirement (for 6 total credits of internship to be completed with two faculty members from the Language Science program). Students will choose one course among the following: CSD 596, GER 596, LING 596, PSY 596, SPAN 596.

Final course selection is determined by the student in consultation with their dual-title program advisors and their major program advisors. Students who already hold a master’s degree from another institution may petition to have equivalent course credits accepted.

To qualify for the dual-title degree, students must satisfy the degree requirements for the Ph.D. degree in Psychology, listed above. In addition, students must complete the degree requirements for the dual-title in Language Science, listed on the Language Science Bulletin page.

The candidacy examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Psychology and must include at least one Graduate Faculty member from the Language Science program. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both Psychology and Language Science. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a Psychology and Language Science dual-title Ph.D. student must include at least one member of the Language Science 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 Language Science, the member of the committee representing Language Science must be appointed as co-chair. The Language Science representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

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 Psychology and Language Science. 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.

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**Dual-Title Ph.D. in Psychology and Social and Behavioral Neuroscience**

Psychology doctoral students who wish to engage in training and research that combines their interests in psychology with social and behavioral neuroscience may apply to pursue a dual-title Ph.D. in Psychology and Social and Behavioral Neuroscience (SBN). This dual-title program enables Psychology graduate students to obtain foundational graduate-level training in neuroscience as well as expertise in social and behavioral neuroscience theory, research, and methods.

**Admission Requirements**

To pursue a dual-title degree under this program, the student must first apply and be admitted to the graduate program in Psychology and the Graduate School. Applicants interested in the dual-title degree program may note their interest in their applications to Psychology. Students may apply for enrollment in the dual-title degree program in Social and Behavioral Neuroscience during their first year (second semester) or second year in their home department. To apply, a student must submit a letter of application, graduate and undergraduate transcripts, and a letter of recommendation from their graduate adviser. Applications will be reviewed by the Social and Behavioral Neuroscience Admissions Committee. The composition of the admissions committee will be determined by the program Steering Committee. At a minimum applicants must be in good standing in their home program and be recommended for admission by their graduate adviser. Doctoral students must be admitted into the dual-title degree program in Social and Behavioral Neuroscience prior to taking the candidacy examination in primary graduate program.

**Degree Requirements**

To qualify for the dual-title degree, students must satisfy the requirements of the Ph.D in Psychology, listed above. In addition, students must complete the degree requirements for the

Selection of specific courses is made by the student in consultation with an advisor from the home department and an advisor from the Social and Behavioral Neuroscience program. SBN 505, 508, and 511 can each be taken more than once, if this involves sections with different topics. Psychology will determine whether a given section of the SBN courses will fulfill departmental requirements. Students or faculty may request that the SBN Steering Committee or its designate consider approval of other courses, including one-time approval for an experimental or variable-title course.

The candidacy committee must conform to all requirements of Psychology and the Graduate Council. In accordance with Graduate Council, the candidacy committee must include at least one member of the SBN Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role.

The dual-title degree will be guided by the Candidacy Exam procedure of Psychology and the Graduate Council. In accordance with Graduate Council, there will be a single candidacy examination, assessing candidacy for both Psychology and the SBN dual-title program. Because students must first be admitted to Psychology before they may apply to and be considered for admission into the SBN 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.

The doctoral committee must conform to all requirements of Psychology and the Graduate Council. In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a Social and Behavioral Neuroscience dual-title doctoral degree student must include at least one member of the Social and Behavioral Neuroscience 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 Social and Behavioral Neuroscience, the member of the committee representing Social and Behavioral Neuroscience must be appointed as co-chair.

The Comprehensive Exam procedure of Psychology will be followed. The SBN representative on the student's doctoral committee will participate in the writing and evaluation of the exam.

The dissertation must involve the integration of social and behavioral neuroscience and a research question of interest within the home department. The dissertation must be accepted by the doctoral committee, the heads of both graduate programs, and the Graduate School, and the student must pass a final oral examination (the dissertation defense).
Dual-Title Graduate Degree in Psychology and Women’s Studies

Penn State Psychology is one of only two programs in the U.S. to offer a dual-title degree Ph.D. in Women’s Studies and Psychology. Graduate students also have the option of a graduate minor in Women’s Studies.

Admission Requirements

Students must apply and be admitted to the graduate program in Psychology and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Women’s Studies dual-title program. Refer to the Admission Requirements section of the Women’s Studies Bulletin page. Doctoral students must be admitted into the dual-title degree program in Women’s Studies prior to taking the candidacy examination in their primary graduate program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in Psychology, listed above. In addition, students must complete the degree requirements for the dual-title in Women’s Studies, listed on the Women’s Studies Bulletin page. Note that this Women’s Studies coursework counts as the Psychology Breadth requirements (12 credits toward minor specialization) and can also fulfill the requirement to work with two different faculty advisors.

For the dual-title M.S. degree in Psychology and Women’s Studies, the thesis or scholarly paper must reflect the student’s education and interest in both Psychology and Women’s Studies. Of the three members of the M.S. thesis or scholarly paper committee, at least one member must be a member of the Women’s Studies Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the master’s committee is not also a member of the Graduate Faculty in Women’s Studies, the member of the committee representing Women’s Studies must be appointed as co-chair.

The candidacy examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Psychology and must include at least one Graduate Faculty member from the Women’s Studies program. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. There will be a single candidacy examination, containing elements of both Psychology and Women’s Studies. 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.

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a Psychology and Women’s Studies dual-title Ph.D. student must include at least one member of the Women’s Studies 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 Women’s Studies, the member of the committee representing Women’s Studies must be appointed as co-chair. The Women’s Studies representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination.

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 Psychology and Women’s Studies. 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**

Fellowships, traineeships, graduate assistantships, and other forms of financial 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 admissions 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.

**Consultation**

Consultation with the Graduate School indicated that only consultation with the Director of the proposed SBN dual-title program was needed for this proposal to affiliate with the program. A letter from Lisa Gotzke-Kopp follows. Additional consultation is documented in the SBN program proposal.
January 17, 2018

Drs. Teti and Mark,

I writing to convey my enthusiastic endorsement for the proposal to establish a dual-title in Social Behavioral Neuroscience. I believe the establishment of this type of integrated training opportunity is vital for students seeking research careers that approach the study of behavioral health from a neuroscience perspective. I am delighted by your request to serve as the inaugural director of this dual title program pending its approval by the Faculty Senate. I am a member of the graduate faculty in both HDFS and Neuroscience, and have mentored doctoral students through the completion of their degree in both disciplines. I also currently serve as the Professor in Charge of the graduate program in HDFS, where I oversee the progress of approximately 60 graduate students at any given time. The combination of my experiences in individual mentoring and administrative program oversight will contribute to my ability to guide the ongoing development of the program and the students seeking the dual-title.

I believe that the departments of Human Development and Family Studies, Psychology, and Biobehavioral Health are ideal units to form the initial foundation for this program given the strong programs of research faculty in each unit have with regard to social behavioral neuroscience research. The complimentary nature of work in each department is evident in the faculty collaborations across departments, and will certainly generate a synergy of courses and research opportunities that will benefit these students. I look forward to continuing to work with the Department Heads and Graduate Professors in Charge of each unit in bringing this program to fruition.

Sincerely,

Lisa Gatzke-Kopp, Ph.D.
Associate Professor
Professor in Charge, Graduate Program
Human Development and Family Studies
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