Graduate Council Curriculum Report

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

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

April 29, 2015

1. **Program Change**: Aerospace Engineering—Eliminate scholarly paper and replace with capstone course, drop seminar for Master of Engineering (College of Engineering) page 2

2. **Program Change**: Environmental Engineering Program — Reconfigure the MEng degree such that students can complete the degree within 12 months (College of Engineering) page 23

3. **Program Change**: Homeland Security—discontinuation of the Computer and Network Security (CNS) option and change in the requirements for the Master of Professional Studies (M.P.S.) degree program (Penn State Harrisburg) page 4--0--

Note: Graduate course proposals approved through the Graduate Council curricular review process, as well as information about postbaccalaureate/graduate credit certificates approved by college/school administrators for graduate education, are published in the Senate Curriculum Report.
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: Engineering
Department or Instructional Area: Aerospace Engineering

New Graduate Program, Option, or Minor: □ Add

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

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

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

Current designation of graduate program: Master of Engineering in Aerospace Engineering
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): eliminate "scholarly paper", replace with capstone course; drop seminar;

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

Submitted by Graduate Program Head

Michael M. Milei  Signature  Date: 2/26/15

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

Lee Corwin  Signature  Date: 2/27/15

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

Catherine M. Harmonosky  Signature  Date: 2/26/15
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of C. Andrew Cole

Printed name: C. Andrew Cole
Signature: [Signature]
Date: 4/23/15

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

On Behalf of Joan Redwing

Printed name: Joan Redwing
Signature: [Signature]
Date: 4/23/15

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilakis-Youcen

Printed name: Regina Vasilakis-Youcen
Signature: [Signature]
Date: 4/23/15

For use by Graduate Council only
PROPOSAL TO CHANGE THE CULMINATING EXPERIENCE FOR THE EXISTING MASTER OF ENGINEERING DEGREE (M.Eng.) IN AEROSPACE ENGINEERING

DEPARTMENT SUBMITTING THE PROPOSAL:
DEPARTMENT OF AEROSPACE ENGINEERING

CONTACT INFORMATION: PROFESSOR DAVID SPENCER

Email: dbs9@psu.edu
Telephone: 814-865-4537

COLLEGE AFFILIATION:
COLLEGE OF ENGINEERING
**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Justification for the proposed changes</td>
<td>3</td>
</tr>
<tr>
<td>b. Proposed changes in program</td>
<td>3</td>
</tr>
<tr>
<td>i. Revision of program with old and new requirements</td>
<td>3</td>
</tr>
<tr>
<td>ii. Admission requirements</td>
<td>5</td>
</tr>
<tr>
<td>iii. Graduate Bulletin with marked changes</td>
<td>6</td>
</tr>
<tr>
<td>c. Consultations with Office for Research Protections (SARI)</td>
<td>10</td>
</tr>
<tr>
<td>d. Consultation with Other Departments</td>
<td>10</td>
</tr>
</tbody>
</table>
PROPOSAL TO CHANGE THE CULMINATING EXPERIENCE FOR THE MASTER OF ENGINEERING DEGREE IN AEROSPACE ENGINEERING

a. Justification for the proposed changes

The Department of Aerospace Engineering proposes to modify the description and offering of its existing M.Eng. program to make it possible to complete the degree in a single calendar year. The primary purpose of this proposal is to replace a “scholarly paper” with a “capstone course” as the culminating experience for this M.Eng. degree in Aerospace Engineering. This capstone course will still serve to demonstrate comprehensive and in-depth knowledge, but will require less intensive faculty oversight. In order to allow M.Eng. students more flexibility to choose from a larger number of courses, some changes to credit distribution requirements are also suggested.

The culminating experience of this course will involve acquisition and application of systems engineering and design principles to aerospace vehicle systems, or some other similarly complex system. Key topics will include: role of the systems engineer, project management, communications skills, team development and leadership. Projects will include both individual and team activities. This capstone requirement can be satisfied by several courses; there are sufficient options to begin this program immediately. Currently, the course EDSGN 558, Systems Design will be used to provide this capstone experience. Graduate-level courses in aircraft and spacecraft design could be developed in the future. By changing the culminating experience to a spring semester capstone course, students will be able to complete an advanced degree in one year. Enrollment of M.Eng. students is expected to approach 30 to 40 per year.

b. Proposed changes in program

i. Revision of program with old and new requirements

The current M.Eng. degree requires a minimum of 30 credits (27 credits of coursework, 2 credits of independent study—culminating in a “scholarly paper,” and a 1-credit colloquium). Of these credits, 21 credits must be in Aerospace Engineering courses, at least 18 credits must be at the 500-level, and a student may count a maximum of 6 credits of 400-level coursework toward the degree. 12 credits of “core courses” must be selected from prescribed lists. The “scholarly paper” is supervised, read and approved by the student’s academic advisor. The Graduate Council requires additional training in Scholarship and Research Integrity (SARI).

The modified M.Eng. degree will require a minimum of 30 credits of coursework. Of these 30 credits, 18 credits must be in Aerospace Engineering courses, 12 credits must be at the 500- or 800-level, and a student may count a maximum of 9 credits of 400-level coursework toward the degree. In addition to the existing core requirements, students will complete a course in experimental
methods and data analysis. The colloquium requirement will be dropped. SARI training will continue to be required. Table 1 compares the old and modified program requirements.

<table>
<thead>
<tr>
<th>Old</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 credits in Aerospace Engineering courses are required</td>
<td>18 credits in Aerospace Engineering courses are required</td>
</tr>
<tr>
<td>At least 18 Aerospace Engineering credits at the 500-level</td>
<td>At least 12 Aerospace Engineering credits at the 500-level or above</td>
</tr>
<tr>
<td>A student may count a maximum of 6 credits of 400-level course work toward the degree.</td>
<td>A student may count a maximum of 9 credits of 400-level course work toward the degree.</td>
</tr>
<tr>
<td>“…complete a scholarly paper (for 2 credits of AERSP 596)”</td>
<td>“…complete a capstone course or project (for 3 credits of AERSP 596 or another graduate capstone course)”</td>
</tr>
<tr>
<td>1 credit of AERSP 590 (Colloquium)</td>
<td>Drop AERSP 590 requirement</td>
</tr>
</tbody>
</table>

The M.Eng. degree is designed as a one-year program, and students are required to start their degrees in the summer or fall semesters. The preferred plan of study is for the student to start in the summer. Table 2 shows a nominal program plan, with course options listed by general topic. Table 3 shows the current and planned course offering schedule (note that we anticipate offering additional courses and students may also petition to substitute alternate courses).

Table 2: Nominal Schedule for this Revised Program

<table>
<thead>
<tr>
<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
</table>
| Choose one class from two of these three field areas:  
- Engineering Math  
- Aerospace Computing  
- Experimental Methods and Data Analysis | Choose two of these three options (400-level):  
- Fluids/Aerodynamics/Aerospace Propulsion  
- Aerospace Vehicle Dynamics and Controls  
- Aerospace Structures | Choose two of these three options (500-level or above):  
- Advanced Aerospace Vehicle Dynamics  
- Advanced Aerospace Propulsion/Advanced Aerodynamics  
- Advanced Aerospace Structures |
| Choose one course from the field area that was not satisfied during the summer:  
- Engineering Math  
- Aerospace Computing  
- Experimental Methods and Data Analysis | | Choose a capstone option:  
- Systems Design (EDSGN 558) |
| | | |
Table 3: Current and Planned Course Offerings Satisfying Degree Requirements

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Engineering Math</td>
<td>EMCH 524A</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Engineering Experimentation and Data Analysis</td>
<td>NEW¹</td>
<td>AERSP 405</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Engineering Computing</td>
<td>AERSP 424</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Fluid Mechanics, Aerodynamics, Aerospace Propulsion</td>
<td>AERSP 410</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aerospace Structures</td>
<td>AERSP 508</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aerospace Vehicle Dynamics and Controls</td>
<td>AERSP 470</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 473</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 413</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 450</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 460</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Advanced Aerospace Propulsion or Advanced Aerodynamics</td>
<td>AERSP 430</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 507</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 530</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced Aerospace Structures</td>
<td>AERSP 597F</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced Aerospace Vehicle Dynamics</td>
<td>AERSP 506</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 518</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AERSP 550</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Systems Engineering</td>
<td>EDSGN 558</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

ii. Admission requirements

Students seeking the current M.S. or Ph.D. degree will be admitted for the fall or spring semesters. Students seeking the M.Eng. degree will admitted for the summer or fall semesters.

The admission requirements for the modified M.Eng. degree will be the same as those for the existing M.Eng. degree. Candidates should possess a baccalaureate degree from a regionally accredited institution. Students in engineering, physical sciences, or mathematics with a 3.00 grade-point average (on a 4.00 scale) may be considered for admission. Students without a baccalaureate degree in engineering could be admitted on a provisional basis pending successful completion of entrance course requirements (completed concurrently with degree requirements). Students without a baccalaureate degree in engineering would not be able to complete the M.Eng. degree in one year.

All applicants will be required to submit scores from the general Graduate Record Examinations (GRE) Aptitude Test (verbal, quantitative, and analytical). For the modified M.Eng. degree, the GRE

¹ We anticipate adding a few new courses over the next year, but the program is currently robust enough to provide students with sufficient course selections.
requirement will be waived for students who have graduated with a degree from the College of Engineering at The Pennsylvania State University with a cumulative grade-point average greater than 3.00. This waiver will be granted as an incentive to Penn State B.S. graduates to pursue this one-year graduate degree.

International applicants whose native language is not English will be required to submit scores for the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System). The minimum acceptable score for the TOEFL is a total score of 80 with a 19 on the speaking section for the Internet-based test (iBT). The minimum composite score for the IELTS is 6.5 on all subjects. International applicants who have received a baccalaureate or Master’s degree from a college, university, or institution in any of the following countries are exempt from the TOEFL/IELTS requirement: 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, or Wales.

iii. Graduate Bulletin with marked changes

http://bulletins.psu.edu/graduate/programs/A/GRAD%20AERSP accessed 11/16/14

Aerospace Engineering (AERSP)

Program Home Page (Opens New Window)

GEORGE A. LESIEUTRE, Head of the Department
229 Hammond Building
814-865-2569; Fax: 814-865-7092; gradaero@ engr.psu.edu

Degrees Conferred:

Ph.D., M.S., M.Eng.

The Graduate Faculty

Opportunities for graduate study are available in the following areas: low-speed aerodynamics, airplane and helicopter aerodynamics; V/STOL aircraft, turbulence, astrodynamics, turbomachinery, air breathing propulsion, aeroacoustics, gas dynamics, stability and control of aerospace vehicles, aerospace structures, structural dynamics, aeroelasticity, rotorcraft engineering, computational fluid dynamics, experimental fluid dynamics, space propulsion, space vehicle dynamics, and high-performance computing.
Admission Requirements

Applicants must submit official scores from the Graduate Record Examinations (GRE) for admission to the graduate program and consideration for financial assistance. In addition to general Graduate School requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin, the department poses a number of specific requirements. The entering M.Eng. or M.S. student must hold a bachelor's degree in engineering, physical science, or mathematics, and may be required to complete (without degree credit) undergraduate course work in fluid and solid mechanics and intermediate mathematical analysis, if not already completed. The department will consider students with a 3.0 junior/senior grade-point average (GPA) on a 4.0 scale; students with special backgrounds, abilities, or interests may request a waiver to this GPA requirement. The best-qualified applicants will be accepted up to the number of spaces that are available. Admission to the Ph.D. program requires satisfactory completion of a master's program in engineering, physical science, or mathematics. Admission to the Ph.D. program prior to completion of a master's degree may be considered upon the student passing the Ph.D. candidacy exam. A student must have completed at least 18 course credits beyond the baccalaureate degree in order to take the Ph.D. candidacy exam, and is not granted official status as a doctoral candidate until the master's degree is complete and the candidacy exam has been passed. Application materials are available at: www.aero.psu.edu.

M.Eng., M.S., and Ph.D. Core Requirements

- Basic field theories. Complete two courses for 6 credits, one from a prescribed list in each of two of the following categories: fluid mechanics, solid mechanics, or system dynamics.
- Numerical/computational methods. Complete one 3-credit course that addresses the numerical analysis of differential equations, from a prescribed list.
- Applied mathematics. Complete one 3-credit, 500-level course from a prescribed list.
- Teaching assistants and teaching aides who have classroom or laboratory instructional responsibilities must satisfactorily complete ENGR 588. Those with responsibilities limited to grading, holding office hours, and offering problem sessions must take ENGR 588 or a grading seminar.

Master of Engineering Degree Requirements

[OLD] The M.Eng. degree is a nonthesis professional master's degree. A total of 30 credits is required, including courses in the core requirements. Twenty-one credits must be in Aerospace Engineering courses with at least 18 credits at the 500 level. A student may count a maximum of 6 credits of 400-level course work toward the degree. Each student must complete a scholarly paper (for 2 credits of AERSP 596), which includes a literature review and some additional experiment or analysis, and must complete the graduate colloquium (for 1 credit of AERSP 590).
The M.Eng. degree is a nonthesis professional master’s degree. A total of 30 credits are required, including courses in the core requirements. Eighteen credits must be in Aerospace Engineering courses with at least 12 credits at the 500- or 800-level. A student may count a maximum of 9 credits of 400-level course work toward the degree. Each student must complete a capstone course.

Master of Science Degree Requirements

A total of 30 credits is required, including courses in the core requirements. Twelve credits must be in Aerospace Engineering courses with at least 6 credits at the 500 level. A student may count a maximum of 6 credits of 400-level course work toward the degree. Six credits of thesis research are also required. A completed M.S. thesis and its public presentation are required for graduation.

Doctoral Degree Requirements

There is no foreign language requirement for the Ph.D. degree; however, students must demonstrate proficiency in reading, writing, and speaking English through an examination administered by the department. This must be completed to satisfy the Graduate School's requirement before taking the comprehensive exam. The candidate's doctoral committee decides which, if any, courses are required in addition to those specified in the core requirements; this typically involves 24 course credits beyond the M.S. degree. Ph.D. candidates must also demonstrate evidence of experimental experience.

Over the course of a Ph.D. program, the department and doctoral committee administer three examinations: The candidacy examination is given as a preliminary aptitude test before the end of the second semester following admission to the program. A comprehensive examination, which covers the major and minor fields of study, is administered after the candidate has substantially completed the required course work. The final oral examination, which is related mainly to the dissertation, is given after the candidate has satisfied all other degree requirements. All Ph.D. students must maintain continuous registration until the thesis is approved. A completed Ph.D. dissertation and its public defense are required for graduation.

Student Aid

Graduate assistantships and other forms of financial aid are described in the STUDENT AID section of the Graduate Bulletin.

Courses

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

**AEROSPACE ENGINEERING (AERSP) course list**

Faculty updated: 5/12/14
c. Consultation with Office for Research Protections

No consultation with the Office for Research Protections is necessary because no changes are proposed for the SARI training requirements.

d. Consultations with Other Departments

From: COE-DEPT-AERSP George Lesieutre <gal4@engr.psu.edu>
Date: Monday, November 24, 2014 at 10:12 PM
To: COE-DEPT-CEE Peggy Johnson <paj6@psu.edu>, Karen Thole <kthole@psu.edu>, COE-DEPT-SEDTAPP Svev Bilen <SBilen@engr.psu.edu>, Raj Acharya - Forward <acharya@cse.psu.edu>, COE-DEPT-AERSP George Lesieutre <gal4@engr.psu.edu>, Judy Todd <jat20@psu.edu>, COE-DEPT-AE Chimay Anumba <anumba@engr.psu.edu>, Paul Griffin <pmg14@psu.edu>, Paul Heinemann <hzh@psu.edu>, Cheng Dong <cxd23@psu.edu>, Kultegin Aydin <aqx@psu.edu>, COE-DEPT-ChE Phillip Savage <psavage@engr.psu.edu>
Cc: "David B. Spencer" <dbs9@psu.edu>, Deborah Mayes <dvm3@engr.psu.edu>
Subject: Program change proposal for one-year MEng in Aerospace Engineering

Dear COE Department Heads,

Aerospace Engineering is proposing to change our MEng degree program. This involves a change to the "culminating experience" as well as several changes to the distribution of credits.

In accordance with established procedures, we are seeking your input (consultation) with regard to the attached Program Change Proposal.

If you find this modified MEng program acceptable, please indicate your concurrence via email reply. If you have any comments or concerns, please reply and provide your comments.

To expedite the process, your prompt response will be appreciated.

Please note: If you do not respond by December 9th, it will be considered as acceptance of this proposal.

Thank you for your time and consideration -- and have a great Thanksgiving.

-George
PS -- We intend to use one ESM mathematics course and encourage one EDSGN systems design course; we have discussed this with Profs. Todd and Bilén. It is possible, even likely, that our students will take elective courses outside of aerospace engineering.

George A. Lesieutre
Professor and Head, Aerospace Engineering
Penn State University

From: Kultegin Aydin <aydin@engr.psu.edu>
To: "George A. Lesieutre" <gal4@engr.psu.edu>
Subject: RE: Program change proposal for one-year MEng in Aerospace Engineering
Date: December 2, 2014 at 1:37:13 PM EST

George,

The EE Department supports this proposal to change your MEng program.

Kultegin
George,

Per our discussions with you and Dr. Spencer, SEDTAPP is in concurrence with this proposal and the use of EDSGN 558.

Sven

Sven G. Bilén, Ph.D., P.E.
Head, School of Engineering Design, Technology, and Professional Programs
Associate Professor, Engineering Design, Electrical Engineering, and Aerospace Engineering
Chief Technologist, Center for Space Research Programs

The Pennsylvania State University

213B Hammond Building, University Park, PA 16802-1401
(814) 863-1526  FAX (814) 863-7229  sbilen@psu.edu
http://sedtapp.psu.edu/~sbilen  http://csrp.psu.edu
From: Karen Thole <kthole@engr.psu.edu>

To: "George A. Lesieutre" <gal4@engr.psu.edu>

Subject: FW: Program change proposal for one-year MEng in Aerospace Engineering

Date: November 26, 2014 at 8:40:30 AM EST

George,

MNE concurs with this proposed change. Good luck with the change.

Karen
From: Cheng Dong <cxdbio@engr.psu.edu>
To: "George A. Lesieutre" <gal4@engr.psu.edu>
Subject: Re: Program change proposal for one-year MEng in Aerospace Engineering
Date: November 25, 2014 at 7:57:00 PM EST

Dear George,

I concur.

Happy Thanksgiving.

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) 865-8091
Fax: (814) 863-0490
Email: cxd23@psu.edu
URL: http://bioeng.psu.edu/faculty/Dong.html
From: Paul Heinemann <hzh@engr.psu.edu>
To: "George A. Lesieutre" <gal4@engr.psu.edu>
Subject: Fwd: Program change proposal for one-year MEng in Aerospace Engineering
Date: November 25, 2014 at 9:48:32 AM EST

George,

Jeff is our Graduate Studies Committee chair, and I had passed the proposal on to him. He just has a couple of minor suggestions. We still support the changes and have no major concerns.

Paul

Begin forwarded message:

From: Jeff Catchmark <JCatchmark@engr.psu.edu>
Date: November 25, 2014 9:46:16 AM EST
To: Paul Heinemann <hzh@engr.psu.edu>
Subject: RE: Program change proposal for one-year MEng in Aerospace Engineering

Paul,

I read over this and I like the proposed changes but have 2 simple comments:

1) p.4 top - text description does not match table. A 'course in experimental methods and data analysis' is not necessarily the same as a capstone course.

2) On that point, no definition of what a capstone course is given. Should it be defined to be clear?

Thanks!
Jeff

Jeffrey Catchmark
Associate Professor
Agricultural and Biological Engineering

The Experimental Methods and Data Analysis course is not the capstone class. Tables 1 and 2 both show the delineation between the two topics (Experimental Methods and Data Analysis and the Capstone courses). In Table 2, there are two capstone courses identified.

From: Paul Heinemann
Sent: Tuesday, November 25, 2014 9:11 AM
To: Jeff Catchmark
Subject: Fwd: Program change proposal for one-year MEng in Aerospace Engineering

Jeff,

I don't see any issues regarding this change, but if you identify any, please let me know.

Thanks
Paul

___________________________________
Paul Heinemann, Professor and Head
Department of Agricultural and Biological Engineering
Penn State
814-865-2633

___________________________________
Paul Heinemann, Professor and Head
Department of Agricultural and Biological Engineering
Penn State
From: Paul Heinemann <hzh@engr.psu.edu>
To: "George A. Lesieutre" <gal4@engr.psu.edu>
Subject: Re: Program change proposal for one-year MEng in Aerospace Engineering
Date: November 25, 2014 at 9:12:11 AM EST

George,

The ABE department does not have any issues with the proposed change in the Aero MEng program.

Paul
George

I reviewed the document. I see no issues for the ChE department, so we have no objections.

Phil
From: Paul Griffin <pmg14@engr.psu.edu>

To: "George A. Lesieutre" <gal4@engr.psu.edu>

Subject: RE: Program change proposal for one-year MEng in Aerospace Engineering

Date: November 24, 2014 at 10:42:13 PM EST

IME supports your proposal.

paul
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 Engineering
Department or Instructional Area: Department of Civil and Environmental Engineering; Environmental Engineering Program

New Graduate Program, Option, or Minor: □ Add

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

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

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

Current designation of graduate program: Master of Engineering in Environmental Engineering
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): Reconfigure the MEng degree such that students can complete the degree within 12 months

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

Submitted by Graduate Program Head
Peggy Johnson
Printed name
Signature
Date: 2/26/15

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
Lett Corwin
Printed name
Signature
Date: 2/27/15

Approved by College/School Dean/Chancellor (or Designee):
Catherine M. Hamernik
Printed name
Signature
Date: 2/26/15
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of Andy Cole *Signature*
Printed name
Date: 4/23/15

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

On Behalf of Joan Redwing *Signature*
Printed name
Date: 4/23/15

Noted by Dean of the Graduate School:

On Behalf of Regina Vasileatos Yonken *Signature*
Printed name
Date: 4/23/15
PROPOSAL TO CHANGE THE CULMINATING EXPERIENCE
FOR THE EXISTING
MASTER OF ENGINEERING DEGREE (M.Eng.)
IN ENVIRONMENTAL ENGINEERING

DEPARTMENT SUBMITTING THE PROPOSAL:
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

CONTACT INFORMATION: WILLIAM BURGOS, GRADUATE OFFICER
Email: wdb3@psu.edu
Telephone: 814-863-0578

COLLEGE AFFILIATION:
COLLEGE OF ENGINEERING
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Justification for the proposed changes</td>
<td>3</td>
</tr>
<tr>
<td>b. Proposed changes in program</td>
<td>4</td>
</tr>
<tr>
<td>i. Revision of program with old and new requirements</td>
<td>4</td>
</tr>
<tr>
<td>ii. Admission requirements</td>
<td>5</td>
</tr>
<tr>
<td>iii. Graduate Bulletin with marked changes</td>
<td>6</td>
</tr>
<tr>
<td>c. Consultations</td>
<td>11</td>
</tr>
<tr>
<td>d. Consultation with Office for Research Protections (SARI)</td>
<td>16</td>
</tr>
</tbody>
</table>
PROPOSAL TO CHANGE THE CULMINATING EXPERIENCE FOR THE EXISTING MASTER OF ENGINEERING DEGREE IN ENVIRONMENTAL ENGINEERING

a. Justification for the proposed changes

The purpose of this proposal is to replace the writing portfolio with a capstone course as the culminating experience for the Master of Engineering (M.Eng.) degree in Environmental Engineering. The motivation for this proposal is to streamline degree requirements such that students can complete this degree in two semesters (Fall and Spring). Currently, most students seeking the M.Eng. degree complete their degree within three semesters (Fall, Spring and Fall semesters). By changing the culminating experience to a common, required capstone course, students will be able to complete an advanced degree in a shorter amount of time. There is a strong demand for this degree. Since 2010, the Environmental Engineering Graduate Program (separate from Civil Engineering) has received an average of 180 applicants per year. Of these 180 applicants, on average, 30 were admitted and 10 arrived to begin their in-residence degree programs. With the opportunity to complete the M.Eng. degree in two semesters, the Department of Civil and Environmental Engineering (CEE) expects the enrollment of M.Eng. students alone to approach 10 per year (i.e., this could double the Program’s graduate enrollment). In the near future, it is expected that demand for this degree will increase, as a graduate degree in Civil Engineering will be required in many states prior to taking the Professional Engineer (P.E.) exam.

The Environmental Engineering Graduate Program proposes to replace the writing portfolio with a required capstone course, the new CE 535 Integrated Project Management for Civil Engineers. The culminating experience of this course will utilize a project-based, team-based learning process to teach project management’s value, methodology, and application to civil and environmental engineering projects. Students will learn how to initiate, plan, organize, staff, direct, control, and closeout a project. Key topics will include: role of the project manager, civil engineering project procurement/proposal development, importance and skills of communications, project team development and leadership, team conflict resolution, design management, scope management, work breakdown structure, scheduling/time management, budgeting/cost management, risk management, resource management, earned value, project evaluation and control, and project closeout and termination. This will be a writing-intensive course where students will complete both individually-authored and team-authored reports. Teams will be assembled to facilitate cross-specialization (Infrastructure, Transportation Systems, Water Resources, and Environmental) learning.

This proposal would mirror a current proposal by CEE to change the culminating experience for the M.Eng. degree in Civil Engineering.
b. Proposed changes in program

i. Revision of program with old and new requirements

The current M.Eng. degree requires that each student complete a writing portfolio. The writing portfolio must be approved by the student’s academic advisor and the Department Head, and then submitted to the Graduate Academic Programs Office. The current M.Eng. degree requires a total of 30 credits of coursework and a one-credit colloquium that is not counted toward any credit requirement. The one-credit colloquium (CE 590) is used to satisfy a portion of the University’s Scholarship and Research Integrity (SARI) training requirements. Completion of the writing portfolio does not count towards any credit requirement.

The new M.Eng. degree will require a total of 31 credits consisting of 30 credits of coursework and a one-credit colloquium (CE 590) that will still be required as part of SARI training (Table 1). A minimum of 31 graduate credits (400-level and above) will be required, of which 20 must be earned at an established graduate campus of the University. At least 18 credits at the 500 level will be required. M.Eng. students will not take any 600 level credits. A minimum of 12 credits of course work (400 and 500 level) will be required in the major (courses prefixed C E). M.Eng. students will not be supported by any type of graduate assistantship and, therefore, not limited to a maximum course load policy of e.g. 12 credits per semester.

Table 1. Comparison of new and old program requirements.

<table>
<thead>
<tr>
<th></th>
<th>Proposed M.Eng. Degree</th>
<th>Current M.Eng. Degree</th>
<th>Current M.S. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Number of Total Credits</td>
<td>31</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Minimum Number of Course Credits (400 and 500 level)</td>
<td>30</td>
<td>30</td>
<td>24</td>
</tr>
<tr>
<td>Minimum Number of 500 level Course Credits</td>
<td>18</td>
<td>18</td>
<td>18*</td>
</tr>
<tr>
<td>*(includes 600 level)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Number of C E prefix Course Credits</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Minimum Number of 600 level Research Credits</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>

The M.Eng. degree is designed as a two-semester Master’s degree program and students are required to start their degree in the Fall semester. The preferred plan of study is as follows:

- Fall semester: Fifteen credits of course work plus one credit of CE 590
- Spring semester: Fifteen credits of course work, including CE 535
In addition to the new capstone course (CE 535) to replace the writing portfolio, the core course requirements for the new M.Eng. degree will be relaxed to more easily allow students to complete their degree within two semesters (Table 2).

Table 2. Comparison of new and old core course requirements.

<table>
<thead>
<tr>
<th>Current requirements – students must complete one course in each of the four areas</th>
<th>Proposed requirements – students must complete at least three of the following six courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIOLOGY</strong></td>
<td><strong>CHEMISTRY</strong></td>
</tr>
<tr>
<td>CE 479 Environmental Microbiology</td>
<td>CE 570 Environmental Aquatic Chemistry <em>or</em> CE 573 Environmental Organic Chemistry</td>
</tr>
<tr>
<td><strong>PROCESS ENGINEERING</strong></td>
<td><strong>CHEMICAL TRANSPORT</strong></td>
</tr>
<tr>
<td>CE 571 Physical-Chemical Treatment Processes <em>or</em> CE 572 Biological Treatment Processes</td>
<td>CE 576 Environmental Transport Processes</td>
</tr>
<tr>
<td>No “capstone” or colloquium courses were previously required</td>
<td>Proposed requirements – students must complete the following two courses</td>
</tr>
<tr>
<td></td>
<td>CE 535 Integrated Project Management for Civil Engineers</td>
</tr>
<tr>
<td></td>
<td>CE 590 Colloquium</td>
</tr>
</tbody>
</table>

ii. Admission requirements

Students seeking the current M.S. or Ph.D. degree will be admitted in the Fall or Spring semesters. Students seeking the modified M.Eng. degree will only be admitted in the Fall semester. The preferred plan of study for M.Eng. students will be to take the culminating capstone course (CE 535) in their second and final semester, and this course will only be offered in the Spring semester.

The admission requirements for the modified M.Eng. degree will be the same as those for the current M.S. degree. Candidates should possess a baccalaureate degree from a regionally accredited institution. Students in engineering, physical sciences, or mathematics with a 3.00 grade-point average (on a 4.00 scale) may be considered for admission. Students without a baccalaureate degree in engineering would be admitted on a provisional basis pending successful completion of entrance course requirements.
(completed concurrently with degree requirements). Students without a baccalaureate degree in engineering would not be able to complete the M.Eng. degree in two semesters.

All applicants will be required to submit scores from the General Graduate Record Examinations (GRE) Aptitude Test (verbal, quantitative, and analytical). For the M.Eng. degree, the GRE requirement will be waived for students who have graduated with a degree from the College of Engineering at The Pennsylvania State University with a cumulative grade-point average of greater than 3.30. This waiver will be granted as an incentive to recruit Penn State undergraduate students and alumni. This cutoff value was selected based on the statistical distribution of GPA values for B.S. C E graduates for the past five years and represents the median value. This cutoff value could be raised, e.g. to correspond to the top quartile, if enrollment exceeds expectations.

International applicants whose native language is not English will be required to submit scores for the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System). The minimum acceptable score for the TOEFL is a total score of 80 with a 19 on the speaking section for the Internet-based test (iBT). The minimum composite score for the IELTS is 6.5 on all subjects. International applicants who have received a baccalaureate or Master’s degree from a college, university, or institution in any of the following countries are exempt from the TOEFL/IELTS requirement: 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, or Wales.

iii. Graduate Bulletin with marked changes

http://bulletins.psu.edu/graduate/programs/E/GRAD%20ENV%20E accessed 10/15/14

Environmental Engineering (ENV E)

Program Home Page (Opens New Window)

PEGGY JOHNSON, Professor and Head of the Department of Civil and Environmental Engineering
212 Sackett Building
814-863-3085 814-863-3085

Degrees Conferred:

Ph.D., M.S., M.Eng.

The Graduate Faculty

This specialty prepares students for careers in the design of treatment facilities, environmental monitoring, process development for water quality control, industrial waste treatment,
management of hazardous and toxic substances, monitoring and management of environmental quality, air pollution control, and water resource systems.

Admission Requirements

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

Candidates should possess a baccalaureate degree from a regionally accredited institution. Students in engineering, physical sciences, or mathematics with a 3.00 grade-point average (on a 4.00 scale) may be considered for admission. Exceptions to the minimum 3.00 grade-point average may be made for students with special backgrounds, abilities, and interests. Students without a baccalaureate degree in engineering would be admitted on a provisional basis pending successful completion of entrance requirements (completed concurrently with degree requirements). Students with a 3.00 junior/senior grade-point average (on a 4.00 scale) and appropriate course backgrounds may be considered for admission. Exceptions to the minimum 3.00 grade-point average may be made for students with special backgrounds, abilities, and interests.

U.S. applicants will upload unofficial copies of their transcripts, a statement of objectives, and three references for letters of recommendation when applying to the program. If admitted, applicants will be required to provide the Graduate School with OFFICIAL COPIES of transcripts of all their previous course work (in duplicate). In addition, all applicants must submit scores from the General Graduate Record Examinations Aptitude Test (verbal, quantitative, and analytical). For the M.Eng. degree, the GRE requirement will be waived for students who have graduated with a degree from the College of Engineering at The Pennsylvania State University with a cumulative grade-point average of greater than 3.30.

International applicants will upload unofficial copies of their transcripts, a statement of objectives, and three references for letters of recommendation when applying to the program. If admitted, applicants will be required to provide the Graduate School with OFFICIAL transcripts (or attested copies), degree, and diploma certificates in both English and native language. Photocopies will NOT be accepted. All international applicants whose native language is not English must submit scores for the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System). 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 composite score for the IELTS is 6.5 on all subjects. International applicants who have received a baccalaureate or master’s degree from a college, university, or institution in any of the following countries are exempt from the TOEFL requirement: 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, or Wales.
International applicants must submit OFFICIAL transcripts, degree, and diploma certificates in both English and their native language. These documents must contain the “red stamp” or have the raised notary stamp. Photocopies will NOT be accepted. Applicants must provide the department with official transcripts of all of their previous course work (in duplicate), a statement of objectives, and three letters of recommendation AT THE TIME OF APPLICATION. Résumés are encouraged, but not required. In addition, all applicants must submit scores from the General Graduate Record Examination Aptitude Test (verbal, quantitative, and analytical).

The language of instruction at Penn State is English. 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, 213 for the computer-based test, or a total score of 80 with a 20 on the speaking section for the internet-based test. The minimum composite score for the IELTS is 6.5. International applicants are exempt from the TOEFL/IELTS requirement who have received a baccalaureate or a masters 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.

Applicants for fall admission who wish to be considered for financial aid should have COMPLETED applications on file by DECEMBER 1 of the preceding year.

**Application Deadlines**

**M.Eng.:** Complete applications including required supplementary materials (e.g., official transcripts, reference letters) should be submitted by March 15th of the calendar year for admission in Fall semester. International students are strongly encouraged to submit complete applications early to allow sufficient time for visa processing.

**M.S. and Ph.D.:** Complete applications including required supplementary materials (e.g., official transcripts, reference letters) should be submitted by September 15th for admission in Spring semester and by December 15th for admission in Fall semester. International students are strongly encouraged to submit complete applications early to allow sufficient time for visa processing.

**Degree Requirements**

Three degrees are offered: Master of Engineering (M.Eng.), Master of Science (M.S.), and the Doctor of Philosophy (Ph.D.).

The M.Eng. degree is a non-thesis professional master's degree. The program provides training for advanced professional practice. A minimum of 31 graduate credits (400 level and above) of course work are required. At least 18 credits must be earned in graduate courses (500 level). At
least 12 credits must be earned in courses with the CE prefix. At least 20 credits must be earned at an established graduate campus of the University. All students are required to take CE 535 Integrated Project Management for Civil Engineering to fulfill the requirement for a culminating experience. Specific core courses are also required. All students are required to take the 1-credit CE 590 Colloquium and complete all requirements for Scholarship and Research Integrity (SARI) training. The M.Eng. degree is designed as a two-semester master’s degree program and students are required to start their degree in the Fall semester. The preferred plan of study is as follows:

- Fall semester: Fifteen credits of course work plus one credit of CE 590
- Spring semester: Fifteen credits of course work, including CE 535

The M.Eng. degree is a nonthesis professional master's degree. The program provides training for advanced professional practice. A minimum of 30 graduate credits (400 level and above) of course work and a writing portfolio are required. It should be noted that 20 credits must be earned at an established graduate campus of the University. At least 15 credits must be earned in graduate courses (500 level). Students are not permitted to count audited credits toward the minimum credits required for the degree. The writing portfolio may consist of the following types of writing samples: a semester paper, a report that documents a semester design project, an applied research paper, or professional papers. The writing sample must demonstrate in-depth knowledge of an engineering topic presented in a format typical of professional practice.

The M.S. degree program is strongly oriented toward research. A thesis is required, and at least 6 credits of thesis research (CE 600 or 610) must be included in the candidate's academic course plan. A minimum of 31 graduate credits (400-level and above) are required, of which 20 must be earned at an established graduate campus of the University. A minimum of 24 credits of course work are required. A minimum of 12 credits of course work (400 and 500 level) must be completed in the major (courses prefixed CE). At least 18 credits in the 500 and 600 levels, combined, must be included in the program. Specific core courses are also required. All students are required to take the 1-credit CE 590 Colloquium and complete all requirements for Scholarship and Research Integrity (SARI) training. Students are not permitted to count audited credits toward the minimum credits required for the degree.

For the Ph.D. degree, a minimum of 21 credits of graduate course work (400 level and above) is required beyond the M.S. degree, or 15 credits beyond the M.S. in Environmental Engineering from Penn State. Specific core courses are also required. All students are required to take the 1-credit CE 590 Colloquium and complete all requirements for Scholarship and Research Integrity (SARI) training. Students are not permitted to count audited credits toward the minimum credits required for the degree. A candidate for the Ph.D. degree must pass the English proficiency and candidacy examinations, prepare and defend the thesis proposal as part of the oral comprehensive examination, and pass the final oral examination (thesis defense). Prior to completion of the Ph.D. program, the candidate must spend at least two consecutive semesters as a registered full-time student.

The M.S. degree program is strongly oriented toward research. A minimum of 30 graduate credits (400 level and above) is required, of which 20 must be earned at an established graduate
e campus of the University. At least 18 credits in the 500 and 600 series, combined, must be included in the program. A minimum of 12 credits of course work (400 and 500 level), as contrasted with research, must be completed in the major (courses prefixed C E). Students are not permitted to count audited credits toward the minimum credits required for the degree. A thesis is required, and at least 6 credits of thesis research (C E 600 or 610) must be included in the candidate's academic course plan.

A minimum of 24 credits of graduate course work (400 level and above) is required beyond the master's degree. A candidate for the Ph.D. degree must pass the English proficiency and candidacy examinations, prepare and defend the thesis proposal as part of the oral comprehensive examination, and pass the final oral examination (thesis defense). In addition, Ph.D. candidates must satisfy the University residency requirement by registering for two consecutive semesters as a full-time student.

Continuous registration is required for all M.S. and Ph.D. graduate students until the thesis (M.S.) or dissertation (Ph.D.) has been approved or course requirements have been satisfied (M.Eng.). See also Civil Engineering.

Continuous registration is required for all graduate students until the thesis or writing portfolio dissertation has been approved.

Biogeochemistry Dual-Title Degree Program

Graduate students with research and educational interests in biogeochemistry may apply to the Biogeochemistry Dual-Title Degree Program. Students in the Biogeochemistry Dual Title program are required to have two advisers from separate disciplines: one individual serving as a primary adviser in their major degree program and a secondary adviser in an area within a field covered by the dual-title program and a member of the Biogeochemistry faculty. Additional coursework from an approved list of courses is required. All students must pass a candidacy examination that includes an assessment of their potential in the field of biogeochemistry. A single candidacy examination that includes biogeochemistry will be administered for admission into the student's Ph.D. program, as well as the biogeochemistry dual-title. The structure and timing of this exam will be determined jointly by the dual-title and major program. The student's doctoral committee should include faculty from the major program of study and also faculty with expertise in biogeochemistry. The field of biogeochemistry should be integrated into the comprehensive examination. A Ph.D. dissertation that contributes fundamentally to the field of biogeochemistry is required.

Other Relevant Information

The following courses offered by the Department of Civil and Environmental Engineering are appropriate for students majoring in Environmental Engineering (course descriptions are given under Civil Engineering): C E 462, 465W, 472W, 475, 476, 479, 496, 497, 551, 555, 556, 561, 564, 566, 567, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 596, 597, and 598. Appropriate courses offered by other departments include, but are not limited to: B M B 401, 402; CHEM 406; GEOSC 452; M E 405, 470, 521; METEO 454; MICRB 400; NUC E 420.
**Student Aid**

Graduate assistantships and other forms of student aid are described in the STUDENT AID section of the Graduate Bulletin. International applicants who wish to be considered for a teaching assistantship must present an acceptable score (250-300 or 55-60) on the Test of Spoken English (TSE). The TSE can be taken in many countries, or at Penn State after arrival. The Department offers a number of graduate fellowships.

**CECIL M. PEPPERMAN MEMORIAL GRADUATE FELLOWSHIP**
Available to a graduate student in civil or environmental engineering specializing in one of the following fields, listed in order of priority: waste treatment and management, water pollution control, environmental engineering, or related fields.

---

**DATE LAST REVIEWED BY GRADUATE SCHOOL:** 5/3/04

Last Revised by the Department: Fall-Spring Semester 2008-2015

Blue Sheet Item #: 36-06-185C

Review Date: 4/15/08-01/12/15

UCA Revision #1: 8/4/06

Faculty updated: 6/9/14

---

**c. Consultations**

Dr. Peggy Johnson, Professor and Department Head of Civil and Environmental Engineering, sent out the following e-mail request for internal and external consultations on this proposal to change the culminating experience for the M.Eng. degree in Environmental Engineering. In November 2014, these same people were contacted to review a similar proposal to change the culminating experience for the M.Eng. degree in Civil Engineering, and the course proposal for the new capstone course culminating experience (CE 535 Integrated Project Management for Civil Engineers). Consultants will be given one week to reply, otherwise, no reply is reported as “no concerns raised.”

On Jan 12, 2015, at 7:44 AM, Peggy Johnson wrote:

---

**Good Morning,**

Our Civil and Environmental Engineering department is proposing to change the culminating experience of our MEng program in Environmental Engineering and we would appreciate your consultation on the proposed change. I have attached the program change proposal. The culminating experience is the same as it was for the prior proposal for the MEng in Civil Engineering. That course, CE 535 – Integrated Project Management for CEs, will be the same culminating experience for both MEng in CE and EnvE.
We have been asked to request consultation both within and beyond the College of Engineering before submission of the proposal to the appropriate COE committee. I would appreciate receiving any feedback on the proposal on or prior to January 19. A lack of reply will be reported as a “no concerns raised.”

Thank you for your time and consideration,

Peggy Johnson

Head and Professor
Civil and Environmental Engineering
212 Sackett Building
Penn State University
University Park, PA
814-863-3084
paj6@psu.edu
http://www.engr.psu.edu/ce/
http://www.personal.psu.edu/faculty/p/a/paj6/
<EnvE OneYr MEng_Change Culm Exper _01-12-15.pdf>

Requests for internal consultations were sent to:

<table>
<thead>
<tr>
<th>External Consultant</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karen Thole</td>
<td>No concerns raised</td>
</tr>
<tr>
<td>Professor of Mechanical Engineering</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td></td>
</tr>
<tr>
<td>Department of Mechanical and Nuclear Engineering</td>
<td></td>
</tr>
<tr>
<td>Penn State – University Park</td>
<td></td>
</tr>
<tr>
<td>Paul Griffin</td>
<td>No concerns raised</td>
</tr>
<tr>
<td>Professor of Industrial and Manufacturing Engineering</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td></td>
</tr>
<tr>
<td>Department of Industrial and Manufacturing Engineering</td>
<td></td>
</tr>
<tr>
<td>Penn State – University Park</td>
<td></td>
</tr>
<tr>
<td>Kultegin Aydin</td>
<td>No concerns raised</td>
</tr>
<tr>
<td>Professor of Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td></td>
</tr>
<tr>
<td>Department of Electrical Engineering</td>
<td></td>
</tr>
<tr>
<td>Penn State – University Park</td>
<td></td>
</tr>
<tr>
<td>George A. Lesieutre</td>
<td>No concerns raised</td>
</tr>
<tr>
<td>Professor of Aerospace Engineering</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td></td>
</tr>
<tr>
<td>Department of Aerospace Engineering</td>
<td></td>
</tr>
<tr>
<td>Penn State – University Park</td>
<td></td>
</tr>
<tr>
<td>Sven Bilen</td>
<td>No concerns raised</td>
</tr>
<tr>
<td>Professor of Petroleum and Natural Gas Engineering</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td></td>
</tr>
<tr>
<td>Department of Energy and Mineral Engineering</td>
<td></td>
</tr>
<tr>
<td>Penn State – University Park</td>
<td></td>
</tr>
<tr>
<td>Judith Todd</td>
<td>No concerns raised</td>
</tr>
</tbody>
</table>
| Professor of Engineering Science and Mechanics  
| Department Head  
| Department of Engineering Science and Mechanics  
| Penn State – University Park |  
| Phillip Savage  
| Professor of Chemical Engineering  
| Department Head  
| Department of Chemical Engineering  
| Penn State – University Park | No concerns raised |  
| Chimay J. Anumba  
| Professor of Architectural Engineering  
| Department Head  
| Department of Architectural Engineering  
| Penn State – University Park | No concerns raised |  
| Cheng Dong  
| Professor of Biomedical Engineering  
| Department Head  
| Department of Biomedical Engineering  
| Penn State – University Park | No concerns raised |  
| Raj Acharya  
| Professor of Computer Science and Biological Engineering  
| Department Head  
| Department of Computer Science and Biological Engineering  
| Penn State – University Park | No concerns raised |  

Requests for external consultations will be sent to:

| External Consultant  
| Comments |  
| Sedig Agili  
| Professor of Electrical Engineering  
| Department of Science, Engineering & Technology  
| Penn State – Harrisburg | No concerns raised |  
| Luis Ayala  
| Associate Professor of Petroleum and Natural Gas Engineering  
| Associate Department Head for Graduate Education  
| Department of Energy and Mineral Engineering  
| Penn State – University Park | No concerns raised, response included below |  
| Shirley Clark  
| Associate Professor of Environmental Engineering  
| Program Coordinator, Master in Environmental Pollution Control  
| Program Coordinator, Master of Science in Environmental Pollution Control  
| Program Coordinator, Juris Doctor and Environmental Pollution Control  
| Program Coordinator, Master of Engineering in Environmental Engineering  
| Department of Science, Engineering, and Technology  
| Penn State – Harrisburg | No concerns raised, response included below |  
| Jill Desiderio | No concerns raised |
Laurene Wisler  
Administration Staff Support  
Systems Engineering  
Penn State – Great Valley  
No concerns raised

Turgay Ertekin  
Professor of Petroleum and Natural Gas Engineering  
Department Head  
Department of Energy and Mineral Engineering  
Penn State – University Park  
No concerns raised

Paul Heinemann  
Professor of Agricultural and Biological Engineering  
Department Head  
Department of Agricultural and Biological Engineering  
Penn State – University Park  
One concern raised; Included below with our response

Comments from Dr. Paul Heinemann:

From: Paul Heinemann  
Sent: Tuesday, January 13, 2015 11:49 AM  
To: Peggy Johnson  
Subject: Re: MEng change proposal for Environmental Eng.

Hi Peggy,

I received some feedback from our graduate studies chair. He raised the question about the change in course selection. In the current program, students are required to get both chemical transport and process engineering, but in the proposed curriculum, they could choose a selection of courses that addresses neither of these topics (for example, they could take CE 479, 570, and 573). Does this still meet the outcomes desired by the program?

We see no other issues.

Thanks

Paul

Response to Dr. Paul Heinemann’s comment:

The Environmental Engineering faculty feel the proposed changes to the core requirements (Table 2 above) meet the desired outcome for this new professional Master’s degree. The new M.Eng. degree is designed to provide students with more flexibility in their course selections but also meet all the requirements of the Graduate School. The new M.Eng. degree is designed to appeal to practicing
engineers who hope to advance their career by investing a short time to further their education. Many of these returning students will have considerable professional experience, e.g. in process engineering or wastewater microbiology or environmental chemistry, such that they may need no further academic training in the subject. We reconfigured the new M.Eng. core requirements with this in mind. No changes to the proposal were made based on this comment.

Comments from Luis Ayala:

Dear Peggy: This is to confirm that the Energy and Mineral Engineering (EME) Department has no objections to your Department’s proposal to change the culminating experience for your Environmental Eng. program. Please let us know if you have any additional questions.

Luis

Dr. Luis F. Ayala H.
Associate Professor of Petroleum and Natural Gas Engineering & Associate Dept. Head for Graduate Education
John and Willie Leone Family Department of Energy and Mineral Engineering
The Pennsylvania State University

Address: 103A Hosler Building, University Park, PA 16802
Tel: 814-8654053; Fax: 814-8653248
Email: ayala@psu.edu

Comments from Shirley Clark:

Peggy and Bill:
We think that aligning the cumulating course in both of your M. Eng. degrees is an excellent idea. This will eliminate confusion for students in the similar degrees.

Shirley

Shirley E. Clark, Ph.D., P.E., D. WRE
Associate Professor of Environmental Engineering

Graduate Program Coordinator, Environmental Engineering and Environmental Pollution Control
Penn State Harrisburg
777 W. Harrisburg Pike TL-105
Middletown, PA 17057
(717) 948-6127 FAX (717) 948-6580 Email: seclark@psu.edu
www.personal.psu.edu/sec16/

Response to Dr. Shirley Clark’s comment:
Thank you. This raises an important point regarding the revised M.Eng. degree in Civil Engineering and this proposal for a revised M.Eng. degree in Environmental Engineering. Initially the Department had considered offering only one M.Eng. degree for the whole Department of Civil and Environmental Engineering. The Environmental Engineering Program is distinct from Civil Engineering at the graduate level. A declared specialization area in “Water and Environment” is available with the newly revised M.Eng. degree in Civil Engineering. The faculty in the Environmental Engineering Program feel strongly that the M.Eng. degree in Environmental Engineering be retained such that this specialization is included in the degree title. At the same time, all faculty in the Department feel strongly that all M.Eng. students should complete the same culminating experience.

d. Consultation with Office for Research Protections

No consultation with the Office for Research Protections will be necessary because no changes have been proposed for the SARI training requirements.
Graduate Council
Program, Option, or Minor Proposal Form

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

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

College/School: Penn State Harrisburg (as the Academic and Administrative Home of the IMPS-HLS Program)
Department or Instructional Area: School of Public Affairs

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

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

Existing Graduate Program Option, or Minor: □ Change □ Drop
Current designation of graduate program: Intercollege Master of Professional Studies in Homeland Security
Current designation of graduate option: Computer and Network Security (CNS) Option
Current designation of graduate minor: ______________________

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

Brief description of the change (if not noted above): CNS Option drop, addition of a non-credit Orientation Course to the Core Curriculum; 2 Option curriculum changes; misc.

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

Submitted by Graduate Program Head
Alexander Siedschlag
Printed name
Signature
Date: 12/16/14

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
Janet Duck
Printed name
Signature
Date: 1/23/15

Approved by College/School Dean/Chancellor (or Designee):
Peter Idowu
Printed name
Signature
Date: 1/24/15
<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair, Graduate Council Subcommittee</td>
<td>C. Andrew Cole</td>
<td>Volunteert</td>
<td>4/23/15</td>
</tr>
<tr>
<td>Chair, Graduate Council Committee on</td>
<td>Sean Redwing</td>
<td>Volunteert</td>
<td>4/23/15</td>
</tr>
<tr>
<td>Programs and Courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dean of the Graduate School</td>
<td>Regina Vasilatos-Younken</td>
<td>Volunteert</td>
<td>4/23/15</td>
</tr>
</tbody>
</table>
Proposal for Revising the Intercollege Master of Professional Studies Program in Homeland Security (iMPS-HLS)

Alexander Siedschlag, Ph.D.
Program Chair

December 16, 2014
## Table of Contents

A. Current Bulletin Copy  
  Bulletin Revision (track changes)  
  Side-by-Side Comparison  
  Clean Copy of the Revised Bulletin  

B. Justification  
  Option Drop  
  Common Core Curriculum Course Change  
  Geospatial Intelligence Option Prescribed Course Changes  
  Information Security and Forensics Option Required Course Changes  
  Option Director Change (informational listing*)  
  Graduate Faculty Changes (informational listing*)  
  Cross-listed Course Drop/Add (informational listing*)  
  Miscellaneous (correction of clerical/formal errors) (informational listing*)  

C. Consultation  

---

* "Informational listing" denotes changes where it is understood that no Graduate Council approval is needed. However, these changes have been included here in order to limit paperwork and submit a comprehensive document to Graduate School that includes all current changes.
A. Current Bulletin Copy

Homeland Security

Program Home Page

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

Degree Conferred

M.P.S.

Graduate Faculty

Homeland Security (Base Program)
Thomas Arminio (U.S. Naval War College) Instructor in Homeland Security
Kent Butts, Ph.D. (Washington) Senior Lecturer in Homeland Security
Alexander Siedschlag, Ph.D. (Munich) Chair and Professor of Homeland Security and Public
Health Preparedness
Paul Thompson, J.D. (Georgetown) Senior Lecturer in Homeland Security and Public Affairs

Agricultural Biosecurity and Food Defense Option
Walter R. McVey, Jr., M.S. (West Virginia) Senior Project Manager in VBSC
Catherine Cutter, Ph.D. (Clemson) Associate Professor of Food Science
Gretchen Kulda, Ph.D. (California) Associate Professor of Plant Pathology
Seogchan Kang, Ph.D. (Wisconsin) Professor of Plant Pathology

Computer and Network Security Option
Raj Acharya, Ph.D. (Minnesota/Mayo Grad School of Med) Professor of Computer Science and
Engineering
Piotr Berman, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
Guohong Cao Ph.D. (Ohio State) Professor of Computer Science and Engineering
Trent Jaeger, Ph.D. (Michigan) Associate Professor of Computer Science and Engineering
George Kesidis, Ph.D. (California, Berkeley) Professor of Computer Science and Engineering,
and Electrical Engineering
Thomas La Porta, Ph.D. (Columbia) Distinguished Professor of Computer Science and
Engineering
Yanxi Liu, Ph.D. (Massachusetts) Associate Professor of Computer Science and Engineering
John Metzner, Ph.D. (NYU) Professor of Computer Science and Engineering, and Electrical Engineering
David Miller, Ph.D. (California, Santa Barbara) Professor of Electrical Engineering
Patrick McDaniel, Ph.D. (Michigan) Professor of Computer Science and Engineering
Sofya Raskhodnikova, Ph.D. (MIT) Assistant Professor of Computer Science and Engineering
Anand Sivasubramaniyam, Ph.D. (Georgia Tech) Professor of Computer Science and Engineering
Adam Smith, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
Aylin Yener, Ph.D. (Rutgers) Professor of Electrical Engineering
Sencun Zhu, Ph.D. (George Mason) Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Geospatial Intelligence Option
Todd Bacaestow, Ph.D. (Penn State) Professor of Practice for Geospatial Intelligence
Mark Corson, Ph.D. (South Carolina) Associate Professor of Geography
Peter Guth, Ph.D. (Penn State) Visiting Professor of Geography

Information Security and Forensics Option
Guoray Cai, Ph.D. (Pittsburgh) Associate Professor of Information Sciences and Technology, Geography, and Computer Science and Engineering
Chao-Hsien Chu, Ph.D. (Penn State) Professor of Information Sciences and Technology, and Management Science
Peter Forster, Ph.D. (Penn State) Senior Lecturer in Information Sciences and Technology
Dongwon Lee, Ph.D. (UCLA) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Peng Liu, Ph.D. (George Mason) Professor of Information Sciences and Technology, and Computer Science and Engineering
Prasenjit Mitra, Ph.D. (Stanford) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Irene Petrick, Ph.D. (Penn State) Professor of Practice in Information Sciences and Technology
Gerald M. Santoro, Ph.D. (Penn State) Assistant Professor of Information Sciences and Technology, and Communication Arts and Sciences
Robin G. Qiu, Ph.D. (Penn State) Associate Professor of Information Science
Anna Squicciarini, Ph.D. (U Milan, Italy) Assistant Professor of Information Sciences and Technology
Heng Xu, Ph.D. (National Singapore) Assistant Professor of Information Sciences and Technology
Sencun Zhu, Ph.D. (George Mason) Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Public Health Preparedness Option
Vernon M. Chinchilli, Ph.D. (North Carolina) Distinguished Professor of Public Health Sciences
Eugene J. Lengerich, V.M.D., M.S. (Pennsylvania) Professor of Public Health Sciences
James F. McKenzie, Ph.D., MPH, MCHES (Ohio State) Professor of Public Health Sciences
Zhengmin Qian, M.D., Ph.D. (Rutgers) Assistant Professor of Public Health Sciences
Program Description

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

General Admission Requirements

Educational Background

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.

Core Application Packet

- Completed online Graduate School application and payment of nonrefundable application fee
- Statement of purpose
- Vita or résumé
- Three letters of recommendation
- Two official transcripts from each institution attended
- Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) score, if applicable
Statement of Purpose and Curriculum Vitae

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

Letters of Recommendation

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

GPA Requirements

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

GRE Requirements

The Graduate Record Examination may be required by some options.

TOEFL

The language of instruction at Penn State is English. 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. Applicants with iBT speaking scores between 15 and 18 may be considered for provisional admission, which requires an institutional test of English proficiency upon first enrollment and, if necessary, remedial course work. The minimum composite score for the IELTS is 6.5.

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.

Other Considerations

Special backgrounds, abilities, and interests related to homeland security are desirable.
Course Enrollment before Formal Acceptance

- If a student wishes to enroll in a course(s) while he/she completes the application process, the student can do so by contacting Adult Learner Enrollment Services at 800-252-3592.
- Students who have completed an application and have already been accepted to the program will be given preference for course enrollment.
- All other students will be enrolled in courses on a first-come, first-served basis depending on availability.

Financial Aid

World Campus students who are enrolled in a degree program and meet all other federal student aid eligibility requirements may be eligible for federal aid programs. Students must complete the Free Application for Federal Student Aid (FAFSA) to be considered for student aid.

Degree Requirements

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

Prescribed Courses

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

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

The Core Curriculum consists of the following three courses:

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

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

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

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

**Homeland Security (Base Program)**

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

**Core Curriculum**
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

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

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

Capstone Experience
P ADM 594: Research Topics (3)

Agricultural Biosecurity and Food Defense Option

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

Core Curriculum
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

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

Courses with an asterisk (*) found in other Options

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

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

Computer and Network Security Option

Director: Patrick McDaniel, Ph.D. (Michigan) Associate Professor of Computer Science and Engineering
360A Information Sciences and Technology Building; 814-863-3599; pdm12@psu.edu

Core Curriculum
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)
Prescribed Courses
CSE 514: Computer Networks (3)
CSE 543*: Introduction to Computer and Network Security (3)
CSE 546: Cryptography (3)
E E 561: Information Theory (3)

Courses with an asterisk (*) found in other Options

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

Capstone Experience
CSE 594: Research Topics (3)

Geospatial Intelligence Option

Director: Todd Bacastow, Ph.D. (Penn State) Professor of Practice for Geospatial Intelligence 2217 Earth and Engineering Sciences Building, University Park; 814-863-0049; bacastow@psu.edu

Core Curriculum
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
GEOG 882: Geographic Foundations of Geospatial Intelligence (3)
GEOG 883*: Remote Sensing for the Geospatial Intelligence Professional (3)
GEOG 884: Geographic Information Systems for the Geospatial Intelligence Professional (3)
GEOG 885: Advanced Analytic Methods for Geospatial Intelligence (3)

Courses with an asterisk (*) found in other Options

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

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

Information Security and Forensics Option

Director: Peter Forster, Ph.D. (Penn State) Senior Lecturer of Information Sciences and Technology, and Management Science
101N Information Sciences and Technology Building, University Park; 814-863-8304; pkf1@psu.edu

Core Curriculum
HLS 801/P ADM: Homeland Security Administration: Policies and Programs (3)
HLS 803/PHIL: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
IN SC 561: Web Security and Privacy (3)
IST 454: Computer and Cyber Forensics (3)
IST 515: Information Security and Assurance (3)
IST 554*: Network Management and Security (3)

Courses with an asterisk (*) found in other Options

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

Capstone Experience
IST 594: Research Topics (3)

Public Health Preparedness Option

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

Core Curriculum
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

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

Courses with an asterisk (*) found in other Options

Electives
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.
Capstone Experience
PHP 594: Research Topics (3)

Faculty updated: 8/20/14
Homeland Security

Program Home Page

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

Degree Conferred

M.P.S.

Graduate Faculty

Homeland Security (Base Program)
Thomas Arminio, M.A. (U.S. Naval War College) Instructor in Homeland Security
Kent Butts, Ph.D. (Washington) Senior Lecturer in Homeland Security
Alexander Siedschlag, Ph.D. (Munich) Chair and Professor of Homeland Security and Public Health Preparedness
Paul Thompson, J.D. (Georgetown) Senior Lecturer in Homeland Security and Public Affairs

Agricultural Biosecurity and Food Defense Option
Walter R. McVey, Jr., M.S. (West Virginia) Senior Project Manager in VBSC
Catherine Cutter, Ph.D. (Clemson) Associate Professor of Food Science
Gretchen Kulda, Ph.D. (California) Associate Professor of Plant Pathology
Seogchan Kang, Ph.D. (Wisconsin) Professor of Plant Pathology

Computer and Network Security Option
Raj Acharya, Ph.D. (Minnesota/Mayo Grad School of Med) Professor of Computer Science and Engineering
Piotr Berman, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
Guohong Cao, Ph.D. (Ohio State) Professor of Computer Science and Engineering
Trent Jaeger, Ph.D. (Michigan) Associate Professor of Computer Science and Engineering
George Kesidis, Ph.D. (California, Berkeley) Professor of Computer Science and Engineering, and Electrical Engineering
Thomas La Porta, Ph.D. (Columbia) - Distinguished Professor of Computer Science and Engineering
Yanxi Liu, Ph.D. (Massachusetts) - Associate Professor of Computer Science and Engineering
John Metzner, Ph.D. (NYU) - Professor of Computer Science and Engineering, and Electrical Engineering
David Miller, Ph.D. (California, Santa Barbara) - Professor of Electrical Engineering
Patrick McDaniel, Ph.D. (Michigan) - Professor of Computer Science and Engineering
Sofya Raskhodnikova, Ph.D. (MIT) - Assistant Professor of Computer Science and Engineering
Anand Sivasubramaniam, Ph.D. (Georgia Tech) - Professor of Computer Science and Engineering
Adam Smith, Ph.D. (MIT) - Associate Professor of Computer Science and Engineering
Aylin Yener, Ph.D. (Rutgers) - Professor of Electrical Engineering
Sencun Zhu, Ph.D. (George Mason) - Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Geospatial Intelligence Option
Todd Bacastow, Ph.D. (Penn State) - Professor of Practice for Geospatial Intelligence
Mark Corson, Ph.D. (South Carolina) - Associate Professor of Geography
Peter Guth, Ph.D. (MIT) - Visiting Professor of Geography
Gregory Thomas, Ph.D. (Indiana University of PA) - Professor of Practice for Geospatial Intelligence

Information Security and Forensics Option
Guoray Cai, Ph.D. (Pittsburgh) - Associate Professor of Information Sciences and Technology, Geography, and Computer Science and Engineering
Chao-Hsien Chu, Ph.D. (Penn State) - Professor of Information Sciences and Technology, and Management Science
Peter Forster, Ph.D. (Penn State) - Senior Lecturer in Information Sciences and Technology and Associate Dean
Edward Glantz, Ph.D. (Penn State) - Senior Lecturer in Information Sciences and Technology
Dongwon Lee, Ph.D. (UCLA) - Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Peng Liu, Ph.D. (George Mason) - Professor of Information Sciences and Technology, and Computer Science and Engineering
Prasenjit Mitra, Ph.D. (Stanford) - Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Irene Petrick, Ph.D. (Penn State) - Professor of Practice in Information Sciences and Technology
Gerald M. Santoro, Ph.D. (Penn State) - Assistant Professor of Information Sciences and Technology, and Communication Arts and Sciences
Robin G. Qiu, Ph.D. (Penn State) - Associate Professor of Information Science
Anna Squicciarini, Ph.D. (U Milan, Italy) - Assistant Professor of Information Sciences and Technology
Heng Xu, Ph.D. (National Singapore) - Assistant Professor of Information Sciences and Technology
Sencun Zhu, Ph.D. (George Mason) - Associate Professor of Computer Science and Engineering, and Information Sciences and Technology
Public Health Preparedness Option
Vernon M. Chinchilli, Ph.D. (North Carolina) Distinguished Professor of Public Health Sciences
Eugene J. Lengerich, V.M.D., M.S. (Pennsylvania) Professor of Public Health Sciences
James F. McKenzie, Ph.D., MPH, MCHES (Ohio State) Professor of Public Health Sciences
Zhengmin Qian, M.D., Ph.D. (Rutgers) Assistant Professor of Public Health Sciences

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

General Admission Requirements

Educational Background
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.

Core Application Packet
- Completed online Graduate School application and payment of nonrefundable application fee
- Statement of purpose
- Vita or résumé
- Three letters of recommendation
- Two official transcripts from each institution attended
• Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) score, if applicable

Statement of Purpose and Curriculum Vitae

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

Letters of Recommendation

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

GPA Requirements

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

GRE Requirements

The Graduate Record Examination may be required by some options.

TOEFL

The language of instruction at Penn State is English. 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. Applicants with iBT speaking scores between 15 and 18 may be considered for provisional admission, which requires an institutional test of English proficiency upon first enrollment and, if necessary, remedial course work. The minimum composite score for the IELTS is 6.5.

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.
Other Considerations

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

Course Enrollment before Formal Acceptance

- If a student wishes to enroll in a course (s) while he/she completes the application process, the student can do so by contacting Adult Learner Enrollment Services at 800-252-3592.
- Students who have completed an application and have already been accepted to the program will be given preference for course enrollment.
- All other students will be enrolled in courses on a first-come, first-served basis depending on availability.

Financial Aid

World Campus students who are enrolled in a degree program and meet all other federal student aid eligibility requirements may be eligible for federal aid programs. Students must complete the Free Application for Federal Student Aid (FAFSA) to be considered for student aid.

Degree Requirements

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

Prescribed Courses

Homeland security refers to the unifying core for the vast global network of organizations and institutions that are involved in the efforts to secure society. Regardless of field of specialization, or chosen discipline for graduate study, all professionals in the program will participate in a Unifying Core Curriculum with the following educational goals and objectives:
- Understand major policies and legislation that shapes homeland security in a globalized society.
- Become familiar with organizations that play a key role in the implementation of homeland security policies and administration, and recognize the interactions among them.
- Understand the way in which a person or group responds to a set of conditions so as to prevent and respond to incidents and catastrophic events when needed.
- Recognize the impact that catastrophic events, both natural and man-made, have on society and the domestic and global economy.
- Identify and assess potential threats, vulnerabilities, and consequences.
- Apply leadership skills and principles that are necessary for producing and acting on information of value within a collaborative setting.
- Communicate effectively in the context of particular institutional cultures.
- Use, conduct, and interpret research and data effectively in decision-making.
- Practice ethics and integrity as a foundation for analytical debate and conclusion.
- Develop an appreciation of the cultural, social, psychological, political, and legal aspects of terrorism and counterterrorism.

The Core Curriculum consists of the following four three courses:

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

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

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

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

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

**Homeland Security (Base Program)**

Director: Dr. Alexander Siedschlag, Ph.D. (Univ Munich, Germany) Professor of Homeland Security and Public Health Preparedness, School of Public Affairs; Program Chair, jMPS-Homeland Security, W160 Olmsted Building, Penn State Harrisburg; 717-948-4326; aus50@psu.edu
Core Curriculum
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM PL SC 805: Violence, Threats, Terror, and Insurgency (3)

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

Courses with an asterisk (*) found in other Options

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

Capstone Experience
P ADM 594: Research Topics (3)

Agricultural Biosecurity and Food Defense Option

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

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

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

Courses with an asterisk (*) found in other Options

Electives
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.
Capstone Experience
AGBIO 594: Agricultural Biosecurity and Food Defense - Capstone Experience (3)

Computer-and-Network Security-Option

Director: Patrick McDaniel, Ph.D. (Michigan) - Associate Professor of Computer Science and Engineering
360A Information Sciences and Technology Building; 814-863-3599; pdm12@psu.edu

Core Curriculum
HLS/P-ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
CSE 514: Computer Networks (3)
CSE 543*: Introduction to Computer and Network Security (3)
CSE 546: Cryptography (3)
E E 561*: Information Theory (3)

Courses with an asterisk (*) found in other Options

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

Capstone Experience
CSE 594: Research Topics (3)

Geospatial Intelligence Option

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

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

Prescribed Courses
GEOG 882: Geographic Foundations of Geospatial Intelligence (3)
GEOG 883*: Remote Sensing for the Geospatial Intelligence Professional (3)
GEOG 884: Geographic Information Systems for the Geospatial Intelligence Professional (3)
GEOG 483: Problem Solving with GIS (3)
GEOG 480: Exploring Imagery and Elevation Data in GIS Applications (3)
GEOG 885: Advanced Analytic Methods for Geospatial Intelligence (3)

Courses with an asterisk (*) found in other Options

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

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

Information Security and Forensics Option

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

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

Prescribed Courses
IN SC-561: Web Security and Privacy (3)
IST 454: Computer and Cyber Forensics (3)
IST 456: Information Security Management (3)
IST 815: Information Security and Assurance (3)
IST 554*: Network Management and Security (3)

Courses with an asterisk (*) found in other Option

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

Capstone Experience
IST 594: Research Topics (3)
Public Health Preparedness Option

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

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

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

Courses with an asterisk (*) found in other Option

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

Capstone Experience
PHP 594: Research Topics (3)

Faculty updated: 8/20/14
### Side-by-Side Comparison

<table>
<thead>
<tr>
<th>Current</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALEXANDER SIEDSCHLAG, Chair, Homeland Security Graduate Programs Professor of Homeland Security and Public Health Preparedness</td>
<td>ALEXANDER SIEDSCHLAG, Ph.D., Chair, Homeland Security Graduate Programs Professor of Homeland Security and Public Health Preparedness</td>
</tr>
</tbody>
</table>

## Graduate Faculty

### Homeland Security (Base Program)
Thomas Arminio (U.S. Naval War College) Instructor in Homeland Security

### Computer and Network Security Option
- Raj Acharya, Ph.D. (Minnesota/Mayo Grad School of Med) Professor of Computer Science and Engineering
- Piotr Berman, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
- Guohong Cao Ph.D. (Ohio State) Professor of Computer Science and Engineering
- Trent Jaeger, Ph.D. (Michigan) Associate Professor of Computer Science and Engineering
- George Kesidis, Ph.D. (California, Berkeley) Professor of Computer Science and Engineering, and Electrical Engineering
- Thomas La Porta, Ph.D. (Columbia) Distinguished Professor of Computer Science and Engineering
- Yanxi Liu, Ph.D. (Massachusetts) Associate Professor of Computer Science and Engineering
- John Metzner. (NYU) Professor of Computer Science and Engineering, and Electrical Engineering
- David Miller, Ph.D. (California, Santa Barbara) Professor of Electrical Engineering
- Patrick McDaniel, Ph.D. (Michigan) Professor of Computer Science and Engineering
- Sofya Raskhodnikova, Ph.D. (MIT) Assistant Professor of Computer Science and Engineering
- Anand Sivasubramaniyam Ph.D. (Georgia

### Homeland Security (Base Program)
Thomas Arminio, M.A. (U.S. Naval War College) Instructor in Homeland Security

### Computer and Network Security Option
- Raj Acharya, Ph.D. (Minnesota/Mayo Grad School of Med) Professor of Computer Science and Engineering
- Piotr Berman, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
- Guohong Cao Ph.D. (Ohio State) Professor of Computer Science and Engineering
- Trent Jaeger, Ph.D. (Michigan) Associate Professor of Computer Science and Engineering
- George Kesidis, Ph.D. (California, Berkeley) Professor of Computer Science and Engineering, and Electrical Engineering
- Thomas La Porta, Ph.D. (Columbia) Distinguished Professor of Computer Science and Engineering
- Yanxi Liu, Ph.D. (Massachusetts) Associate Professor of Computer Science and Engineering
- John Metzner, (NYU) Professor of Computer Science and Engineering, and Electrical Engineering
- David Miller, Ph.D. (California, Santa Barbara) Professor of Electrical Engineering
- Patrick McDaniel, Ph.D. (Michigan) Professor of Computer Science and Engineering
- Sofya Raskhodnikova, Ph.D. (MIT) Assistant Professor of Computer Science and Engineering
- Anand Sivasubramaniyam Ph.D. (Georgia
Tech) Professor of Computer Science and Engineering
Adam Smith, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
Aylin Yener, Ph.D. (Rutgers) Professor of Electrical Engineering
Seneun Zhu, Ph.D. (George Mason) Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Geospatial Intelligence Option
Todd Bacastow, Ph.D. (Penn State) Professor of Practice for Geospatial Intelligence
Mark Corson, Ph.D. (South Carolina) Associate Professor of Geography
Peter Guth, Ph.D. (Penn State) Visiting Professor of Geography

Information Security and Forensics Option
Guoray Cai, Ph.D. (Pittsburgh) Associate Professor of Information Sciences and Technology, Geography, and Computer Science and Engineering
Chao-Hsien Chu, Ph.D. (Penn State) Professor of Information Sciences and Technology, and Management Science
Peter Forster, Ph.D. (Penn State) Senior Lecturer in Information Sciences and Technology
Dongwon Lee, Ph.D. (UCLA) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Peng Liu, Ph.D. (George Mason) Professor of Information Sciences and Technology, and Computer Science and Engineering
Prasenjit Mitra, Ph.D. (Stanford) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Irene Petrick, Ph.D. (Penn State) Professor of Practice in Information Sciences and Technology

Tech) Professor of Computer Science and Engineering
Adam Smith, Ph.D. (MIT) Associate Professor of Computer Science and Engineering
Aylin Yener, Ph.D. (Rutgers) Professor of Electrical Engineering
Seneun Zhu, Ph.D. (George Mason) Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Geospatial Intelligence Option
Todd Bacastow, Ph.D. (Penn State) Professor of Practice for Geospatial Intelligence
Mark Corson, Ph.D. (South Carolina) Associate Professor of Geography
Peter Guth, Ph.D. (Penn State MIT) Visiting Professor of Geography
Gregory Thomas, Ph.D. (Indiana University of PA) Professor of Practice for Geospatial Intelligence

Information Security and Forensics Option
Guoray Cai, Ph.D. (Pittsburgh) Associate Professor of Information Sciences and Technology, Geography, and Computer Science and Engineering
Chao-Hsien Chu, Ph.D. (Penn State) Professor of Information Sciences and Technology, and Management Science
Peter Forster, Ph.D. (Penn State) Senior Lecturer in Information Sciences and Technology
Dongwon Lee, Ph.D. (UCLA) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Peng Liu, Ph.D. (George Mason) Professor of Information Sciences and Technology, and Computer Science and Engineering
Prasenjit Mitra, Ph.D. (Stanford) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Irene Petrick, Ph.D. (Penn State) Professor of Practice in Information Sciences and Technology
Program Description

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

Other Considerations

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

Course Enrollment before Formal Acceptance

- If a student wishes to enroll in a course (s) while he/she completes the application process, the student can do so by contacting Adult Learner Enrollment Services at 800-252-3592.
- Students who have completed an application and have already been accepted to the program will be given preference for course enrollment.
- All other students will be enrolled in courses on a first-come, first-served basis depending on availability.

Degree Requirements

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

The Core Curriculum consists of the following three courses:

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

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

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

The Core Curriculum consists of the following three courses:

**HLS ORIENTATION:** Orientation course (non credit) Overview of program expectations, parts, academic specialization areas, and mechanics; as well as an essential overview of the field of homeland security and its community of practice. The Options may add content to aspects of homeland security that are specific to their academic specialization area.
**HLS/CRIM 805:** Violence, Threats, Terror, and Insurgency (3) Provides an overview of the domestic and global issues related to homeland security.

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

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

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

---

**Homeland Security (Base Program)**

**Core Curriculum**

HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**

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

**Courses with an asterisk (*) found in other Options**

---

**HLS ORIENTATION:** Orientation course (non-credit)

HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**

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

**Courses with an asterisk (*) found in other Options**
### Agricultural Biosecurity and Food Defense Option

**Core Curriculum**
- HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
- HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
- HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

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

**Courses with an asterisk (*) found in other Options**

### Computer and Network Security Option

**Core Curriculum**
- HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
- HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
- HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**

---

### Agricultural Biosecurity and Food Defense Option

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

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

**Courses with an asterisk (*) found in other Options**

### Computer and Network Security Option

**Core Curriculum**
- HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
- HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
- HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)
CSE 514: Computer Networks (3)
CSE 543*: Introduction to Computer and Network Security (3)
CSE 546: Cryptography (3)
E E 561: Information Theory (3)

Courses with an asterisk (*) found in other Options

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

Capstone Experience
CSE 594: Research Topics (3)

Geospatial Intelligence Option

Director: Todd Bacastow, Ph.D. (Penn State)
Professor of Practice for Geospatial Intelligence
2217 Earth and Engineering Sciences Building, University Park; 814-863-0049;
bacastow@psu.edu

Core Curriculum
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
GEOG 882: Geographic Foundations of Geospatial Intelligence (3)
GEOG 883*: Remote Sensing for the Geospatial Intelligence Professional (3)

Prescribed Courses
CSE-514: Computer Networks (3)
CSE-543*: Introduction to Computer and Network Security (3)
CSE-546: Cryptography (3)
E E-561: Information Theory (3)

Courses with an asterisk (*) found in other Options

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

Capstone Experience
CSE-594: Research Topics (3)

Geospatial Intelligence Option

Director: Gregory Thomas, Ph.D. (Indiana University of PA), Professor of Practice for Geospatial Intelligence
2217 Earth and Engineering Sciences Building, University Park; (814) 863-1590;
gat5@psu.edu

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

Prescribed Courses
GEOG 882: Geographic Foundations of Geospatial Intelligence (3)
GEOG 883*: Remote Sensing for the Geospatial Intelligence Professional (3)
<table>
<thead>
<tr>
<th>GEOG 884: Geographic Information Systems for the Geospatial Intelligence Professional (3)</th>
<th>GEOG 483: Problem Solving with GIS (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 885: Advanced Analytic Methods for Geospatial Intelligence (3)</td>
<td>GEOG 884: Geographic Information Systems for the Geospatial Intelligence Professional (3)</td>
</tr>
<tr>
<td></td>
<td>GEOG 480: Exploring Imagery and Elevation Data in GIS Applications</td>
</tr>
</tbody>
</table>

**Courses with an asterisk (*) found in other Options**

### Information Security and Forensics Option

Director: Peter Forster, Ph.D. (Penn State)  
Senior Lecturer of Information Sciences and Technology (Penn State)  
Senior Lecturer of Information Sciences and Technology, 101N Information Sciences and Technology Building, University Park; 814-863-8304; pkf1@psu.edu

#### Core Curriculum

<table>
<thead>
<tr>
<th>HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)</td>
</tr>
<tr>
<td>HLS/CRIM 805: Violence, Threats, Terror, and Insurgency (3)</td>
</tr>
</tbody>
</table>

#### Prescribed Courses

<table>
<thead>
<tr>
<th>IN SC 561: Web Security and Privacy (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 454: Computer and Cyber Forensics (3)</td>
</tr>
<tr>
<td>IST 515: Information Security and Assurance (3)</td>
</tr>
<tr>
<td>IST 554*: Network Management and Security (3)</td>
</tr>
</tbody>
</table>

**Courses with an asterisk (*) found in other Options**

### Information Security and Forensics Option

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

#### Core Curriculum

<table>
<thead>
<tr>
<th>HLS ORIENTATION: Orientation course (non-credit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)</td>
</tr>
<tr>
<td>HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)</td>
</tr>
<tr>
<td>HLS/CRIM PL SC 805: Violence, Threats, Terror, and Insurgency (3)</td>
</tr>
</tbody>
</table>

#### Prescribed Courses

<table>
<thead>
<tr>
<th>IN SC 561: Web Security and Privacy (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 454: Computer and Cyber Forensics (3)</td>
</tr>
<tr>
<td>IST 456: Information Security Management (3)</td>
</tr>
<tr>
<td>IST 815: Information Security and Assurance (3)</td>
</tr>
<tr>
<td>IST 554*: Network Management and Security (3)</td>
</tr>
</tbody>
</table>

**Courses with an asterisk (*) found in other Options**
### Public Health Preparedness Option

**Director:** Eugene J. Lengerich, VMD., MS  
Professor, Public Health Sciences  
Penn State College of Medicine, MC H070; 500  
University Drive; Hershey, Pennsylvania; 717-531-0003, ext. 285655;  
PHP_Programs@psu.edu

### Core Curriculum

- HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)  
- HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)  
- HLS/Crim 805: Violence, Threats, Terror, and Insurgency (3)

### Prescribed Courses

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

Courses with an asterisk (*) found in other Option

### Core Curriculum

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

### Prescribed Courses

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

Courses with an asterisk (*) found in other Option
Homeland Security

Program Home Page

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

Degree Conferred

M.P.S.

Graduate Faculty

Homeland Security (Base Program)
Thomas Arminio, M.A. (U.S. Naval War College) Instructor in Homeland Security
Kent Butts, Ph.D. (Washington) Senior Lecturer in Homeland Security
Alexander Siedschlag, Ph.D. (Munich) Chair and Professor of Homeland Security and Public Health Preparedness
Paul Thompson, J.D. (Georgetown) Senior Lecturer in Homeland Security and Public Affairs

Agricultural Biosecurity and Food Defense Option
Walter R. McVey, Jr., M.S. (West Virginia) Senior Project Manager in VBSC
Catherine Cutter, Ph.D. (Clemson) Associate Professor of Food Science
Gretchen Kulda, Ph.D. (California) Associate Professor of Plant Pathology
Seogchan Kang, Ph.D. (Wisconsin) Professor of Plant Pathology

Geospatial Intelligence Option
Todd Bacastow, Ph.D. (Penn State) Professor of Practice for Geospatial Intelligence
Mark Corson, Ph.D. (South Carolina) Associate Professor of Geography
Peter Guth, Ph.D. (MIT) Visiting Professor of Geography
Gregory Thomas, Ph.D. (Indiana University of PA) Professor of Practice for Geospatial Intelligence
Information Security and Forensics Option
Guoray Cai, Ph.D. (Pittsburgh) Associate Professor of Information Sciences and Technology, Geography, and Computer Science and Engineering
Chao-Hsien Chu, Ph.D. (Penn State) Professor of Information Sciences and Technology, and Management Science
Peter Forster, Ph.D. (Penn State) Senior Lecturer in Information Sciences and Technology and Associate Dean
Edward Glantz, Ph.D. (Penn State) Senior Lecturer in Information Sciences and Technology
Dongwon Lee, Ph.D. (UCLA) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Peng Liu, Ph.D. (George Mason) Professor of Information Sciences and Technology, and Computer Science and Engineering
Prasenjit Mitra, Ph.D. (Stanford) Associate Professor of Information Sciences and Technology, and Computer Science and Engineering
Irene Petrick, Ph.D. (Penn State) Professor of Practice in Information Sciences and Technology
Robin G. Qiu, Ph.D. (Penn State) Associate Professor of Information Science
Gerald M. Santoro, Ph.D. (Penn State) Assistant Professor of Information Sciences and Technology, and Communication Arts and Sciences
Anna Squicciarini, Ph.D. (U Milan, Italy) Assistant Professor of Information Sciences and Technology
Heng Xu, Ph.D. (National Singapore) Assistant Professor of Information Sciences and Technology
Sencun Zhu, Ph.D. (George Mason) Associate Professor of Computer Science and Engineering, and Information Sciences and Technology

Public Health Preparedness Option
Vernon M. Chinchilli, Ph.D. (North Carolina) Distinguished Professor of Public Health Sciences
Eugene J. Lengerich, V.M.D., M.S. (Pennsylvania) Professor of Public Health Sciences
James F. McKenzie, Ph.D., MPH, MCHES (Ohio State) Professor of Public Health Sciences
Zhengmin Qian, M.D., Ph.D. (Rutgers) Assistant Professor of Public Health Sciences

Program Description

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

General Admission Requirements

Educational Background

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.

Core Application Packet

- Completed online Graduate School application and payment of nonrefundable application fee
- Statement of purpose
- Vita or résumé
- Three letters of recommendation
- Two official transcripts from each institution attended
- Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) score, if applicable

Statement of Purpose and Curriculum Vitae

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

Letters of Recommendation

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

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

GRE Requirements

The Graduate Record Examination may be required by some options.

TOEFL

The language of instruction at Penn State is English. 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. Applicants with iBT speaking scores between 15 and 18 may be considered for provisional admission, which requires an institutional test of English proficiency upon first enrollment and, if necessary, remedial course work. The minimum composite score for the IELTS is 6.5.

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.

Other Considerations

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

Financial Aid

World Campus students who are enrolled in a degree program and meet all other federal student aid eligibility requirements may be eligible for federal aid programs. Students must complete the Free Application for Federal Student Aid (FAFSA) to be considered for student aid.

Degree Requirements

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

Prescribed Courses

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

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

The Core Curriculum consists of the following three-four courses:

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

**HLS/P ADM 801**: Homeland Security Administration: Policies and Programs (3) Foundation for understanding homeland security history, the development of homeland security policies and organizations, and current management approaches.
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3) This course examines the social, political, legal, and ethical issues that arise in the context of homeland security.

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

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

**Homeland Security (Base Program)**

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

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

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

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

**Capstone Experience**
P ADM 594: Research Topics (3)

**Agricultural Biosecurity and Food Defense Option**

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

**Core Curriculum**
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)
Prescribed Courses
AGBIO 520: Agricultural Biosecurity: Protecting a Key Infrastructure (3)
AGBIO 521: Food Defense: Prevention Planning For Food Processors (3)
AGBIO 801: Veterinary Infectious Disease Diagnostic and Surveillance Systems (3)
AGBIO 802: Plant Protection: Responding to Introductions of Threatening Pest and Pathogens (3)

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

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

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

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

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

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

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

Information Security and Forensics Option
Director: Peter Forster, Ph.D. (Penn State) Senior Lecturer of Information Sciences and Technology, and Management Science and Associate Dean
332P Information Sciences and Technology Building, University Park; 814-863-8304; pkf1@psu.edu
Core Curriculum
HLS ORIENTATION: Orientation course (non-credit)
HLS 801/P ADM: Homeland Security Administration: Policies and Programs (3)
HLS 803/PHIL: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

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

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

Capstone Experience
IST 594: Research Topics (3)

Public Health Preparedness Option

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

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

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

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

Capstone Experience
PHP 594: Research Topics (3)

Faculty updated: 12/16/14
B. Justification

Option Drop

The dropping of the Computer and Network Security (CNS) Option follows the memorandum received by the Program Chair on March 21, 2014 from Renata S. Engel, Associate Dean of the College of Engineering:

---

**Memorandum**

**DATE:** March 21, 2014  
**TO:** Alexander Siedschlag  
*aus50@psu.edu*  
Penn State Harrisburg

**FROM:** Renata S. Engel  
rse1@psu.edu

**CC:** Regina Vasilatos-YouKen  
rxv@psu.edu

**RE:** Homeland Security Option

---

At this time, the College of Engineering is dropping the Homeland Security Computer and Network Security Option in the Intercollege Masters in Professional Studies. We hope to be able to resume the program sometime in the future.
Since the CNS Option issues has been known for a long time and that particular Option in fact has never become operational, the iMPS-HLS Academic Steering Committee in its meeting of February 6, 2014 recommended to the Administrative Committee and to the Executive Committee to drop the CNS Option. In joint session on March 18, 2014, this recommendation was accepted by the Administrative and the Executive Committee, provided that the College in charge of that Option issued a confirming memorandum, which was done on March 21, 2014.

**Common Core Curriculum Course Change**

Following a proposal from the iMPS-HLS faculty group that has been endorsed by the Academic Steering Committee and the Advisory Council, a Homeland Security Orientation Course will be added to the common core curriculum to provide new students with an overview of: program expectations, parts, academic specialization areas, and mechanics; as well as an essential overview of the field of homeland security and its community of practice. Given their particular introductory and discipline-related needs, the course is structured is such a way that Options may substitute or add their specific required introductory content.

The course will be non-credit, but all new students in the program will be required to take it during their first semester in the program. There will be no tuition costs or fee associated with this course. A quiz-based pass-fail assessment to confirm participation in this required orientation will be used.

As mentioned, the Orientation Course was a faculty-driven proposal, brought forward at the faculty retreat on August 23, 2013 and reflecting actual teaching experience in the program, and common lacks of student knowledge or awareness to address early on in the program. The proposal was reviewed and supported by the Chair and the Academic Steering Committee. It was endorsed by the program’s Homeland Security Advisory Council in its session on December 12, 2013.

In Spring 2014, Base Program and Options worked together to develop the following course outline:

- Module 1 - Feet on the Ground
- Module 2 - Homeland Security - Worldwide
- Module 3 - iMPS-HLS Academic Structure
- Module 4 - Academic Expectations
- Module 5 - Life as an iMPS-HLS Student
- Module 6 - Ethical and Legal Issues in Homeland Security and Homeland Security Studies
- Module 7 - the Homeland Security Community of Practice
- Module 8 - Summary of Your Survival Kit
The non-credit Orientation Course will be multi-media based and for example include short videos with Program Chair, Program Office Staff, and Option Coordinators. It will be a fully online ANGEL course with an automated final quiz.

**Geospatial Intelligence Option Prescribed Course Changes**

<table>
<thead>
<tr>
<th>Current</th>
<th>Proposed</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prescribed Courses (12 credits)</strong>&lt;br&gt;GEOG 882 Geographic Foundations of Geospatial Intelligence&lt;br&gt;GEOG 883 Remote Sensing for the Geospatial Intelligence Professional&lt;br&gt;GEOG 884 Geographic Information Systems for the Geospatial Intelligence Professional&lt;br&gt;GEOG 885 Advanced Analytic Methods for Geospatial Intelligence</td>
<td><strong>Prescribed Courses (12 credits)</strong>&lt;br&gt;GEOG 882 Geographic Foundations of Geospatial Intelligence&lt;br&gt;GEOG 483 Problem Solving with GIS&lt;br&gt;GEOG 480 Exploring Imagery and Elevation Data in GIS Applications&lt;br&gt;GEOG 885 Advanced Analytic Methods for Geospatial Intelligence</td>
<td>Add GEOG 483 and GEOG 480, currently electives, as prescribed courses. Remove GEOG 883 and GEOG 884</td>
</tr>
</tbody>
</table>

Recognizing the diverse backgrounds of students entering the Homeland Security program and the geospatial intelligence option, GEOG 483 and GEOG 480 are more suitable to students without prior experience in geospatial concepts or geography. Foundational knowledge of geographic information systems and remote sensing provided by these courses is an important component of geospatial intelligence. GEOG 483 addresses how geographic information systems facilitate data analysis and communication to address common geographic problems. GEOG 480 is an introductory-level course focusing on the use of remotely sensed imagery and elevation data in GIS applications. These courses provide the requisite material for homeland security students in the geospatial intelligence option. Advanced courses in these topics are available as electives.

This change is further justified by providing better service to students as GEOG 483 and GEOG 480 are offered more frequently than GEOG 883 and GEOG 884.
Information Security and Forensics Option Prescribed Course Changes

<table>
<thead>
<tr>
<th>Current</th>
<th>Proposed</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prescribed Courses (12 credits)</strong></td>
<td><strong>Prescribed Courses (12 credits)</strong></td>
<td>Prescribed Course Change</td>
</tr>
<tr>
<td>IST 454 Computer and Cyber Forensics</td>
<td>IST 454 Computer and Cyber Forensics</td>
<td>Add IST 456 currently an elective as a prescribed course, INSC 561 becomes an elective</td>
</tr>
<tr>
<td>IST 554 Network Management and Security</td>
<td>IST 554 Network Management and Security</td>
<td></td>
</tr>
<tr>
<td>IST 815 Information Security and Assurance</td>
<td>IST 815 Information Security and Assurance</td>
<td></td>
</tr>
<tr>
<td>INSC 561 Web Security and Privacy</td>
<td>IST 456 Information Security Management</td>
<td></td>
</tr>
</tbody>
</table>

Cybersecurity has emerged as a topic for discussion and policy formulation among government agencies, non-governmental organizations and the private sector. Information Sciences and Technology (IST) 456 Information Security Management focuses on security and risk management including improving threat awareness, planning, implementation, and evaluation. It provides a very comprehensive view of how information security is structured in an organization. Recognizing the security environment and how security is managed is an important part of the forensic process. It also provides a foundation for understanding important topics which are further developed in IST 564, an elective in the program, and reinforces topics discussed in IST 554. This course fills this void and strengthens the overall option and program.

While security is a critical attribute, privacy also is an important consideration in the forensic process. The topics of privacy are covered in prescribed course IST 554, 815, and 451 (an elective). Students who are interested in delving even more deep into privacy issues may still take advantage of Web Security and Privacy (INSC561) as an elective. However, another course devoted to privacy does not provide sufficient new material (e.g. material not presented in the aforementioned courses) for the majority of students in this option.

This change is further justified is providing better service to students. INSC 561 is only available to students during spring semester. Having a prescribed course that constrains student flexibility should be avoided.
Option Director Change (informational listing)

Geospatial Intelligence Option: Dr. Bacastow has been replaced with Dr. Thomas following internal reassignment of responsibilities.

Graduate Faculty Changes (informational listing)

Additions to graduate faculty have been listed, as well as updates of faculty ranks and titles.

Cross-listed Course Drop/Add (informational listing)

Based on an approved graduate course proposal by the College of the Liberal Arts, the cross-listing for HLS 805 (Violence, Threats, Terror, and Insurgency) is changed as follows:

HLS 805/CRIM 805 is changed to HLS 805/PL SC 805
(drop CRIM 805 as a cross-listed course and add PL SC 805 as a cross-listed course).

Miscellaneous (correction of clerical/formal errors – informational listing)

1. A spelling mistake in the name of the Option Director, Dr. Lengerich, has been corrected; the “i” in iMPS-HLS has been consistently italicized; and academic titles were added where missing.

2. The degree-granting institution for Dr. Guth has been corrected: His Ph.D. is not from Penn State but from MIT.

3. A clerical error in the degree requirement formulation (“elective credits of elective”) is corrected and the correct term (“academic adviser”) is applied.

4. The information in the current copy of the Bulletin reading “Courses with an asterisk (*) found in other Option” is not meaningful because:
   - The so marked courses in fact are not part of the required courses of other Options.
   - There is no definite listing of cross-listed courses or confirmed electives in the Bulletin.

Therefore, the information seems to be a clerical/formal error and was removed to avoid confusion.

5. The option to register for classes before formal acceptance is removed because it seems to be a clerical/formal error.
World Campus provided the comment below on the following section in the University Bulletin listing for iMPS-HLS:

"Other Considerations"

[...]

Course Enrollment before Formal Acceptance

- If a student wishes to enroll in a course (s) while he/she completes the application process, the student can do so by contacting Adult Learner Enrollment Services at 800-252-3592.
- Students who have completed an application and have already been accepted to the program will be given preference for course enrollment.
- All other students will be enrolled in courses on a first-come, first-served basis depending on availability."

World Campus comment: We suggest removing the Course Enrollment before Formal Acceptance section and bullets on page 7. Regarding the 1st bullet, students need to complete the non-degree application before they can register in a course. The second bullet is only true for the 3 core courses. At this point we are not opening option and elective courses to degree students prior to non-degree students.
C. Consultation

iMPS-HLS Academic Steering Committee (includes Option Directors):

Peter Forster, College of Information and Security Technology

Gretchen Kuldau, College of Agricultural Sciences

Avis Kunz, College of Liberal Arts

Eugene J. Lengerich, V.M.D., M.S., Professor, Public Health Sciences, Penn State College of Medicine

Alison Shuler, Program Coordinator, Office of the Program Chair

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

Gregory Thomas, College of Earth and Mineral Sciences

Additional Consultants:

Peter Forster, Associate Dean, College of Information and Security Technology

Sonya Leitzell, Program Manager, The World Campus

Steven Peterson, Director, School of Public Affairs, Penn State Harrisburg

Michael Verderame, Associate Dean for Graduate Studies, College of Medicine
iMPS-HLS Program Change Consultation Record

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]  
Sent: Monday, October 20, 2014 9:24 PM  
Subject: Penn State ANGEL: iMPS-HLS Program change document draft -- Please review and respond by Friday

You received the following message in your Penn State ANGEL account. This mail message originated from iMPS-HLS Academic Steering Committee. If you wish to respond, please do so using the ANGEL mail utility.

From: SIEDSCHLAG, ALEXANDER  
Subject: iMPS-HLS Program change document draft -- Please review and respond by Friday  
To: FORSTER, PETER, KULDAU, GRETCHEN, LEITZELL, SONYA, Lengerich, Eugene, Meenan Kunz, Avis, Sylvia, David, THOMAS, GREGORY  
Cc: Shuler, Alison, STANFORD, LESA IRENE

Dear Colleagues,

The draft file for the iMPS-HLS Program Change, noting it includes all we have been discussing over the past year, is available on the ASC ANGEL Group:

(https://cms.psu.edu/section/content/default.asp?WCID=UP&WCUC=CRSCNT&ENTRY_ID=095D5E670A454F9995801EF4CCF0BAFB)

Please review the draft by Friday, October 24, and let me know any comments, changes, or additions.

Best regards,

Alexander
From: STEVEN AMES PETERSON [mailto:sap12@psu.edu]
Sent: Thursday, October 23, 2014 4:29 PM
To: ALEXANDER SIEDSCHLAG
Cc: Mukund S. Kulkarni
Subject: Re: iMPS-HLS Program Change

Providing that the options are in agreement with the proposed changes, I am supportive. It updates the actual program structure as practiced.

Steven A. Peterson
Director, School of Public Affairs
Penn State Harrisburg
777 W. Harrisburg Pike
Middletown, PA 17057

Phone: 717-948-6154
E-mail: sap12@psu.edu

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Wednesday, October 22, 2014 5:58 PM
To: Pete Forster
Subject: RE: Info for program change

No!

Alexander
Thank you. Is there a fee?

Sent from my iPhone

On Oct 21, 2014, at 9:33 PM, "ALEXANDER SIEDSCHLAG" <aus50@psu.edu> wrote:

Pete,

It has always been discussed and ASC been in favor of making this a mandatory course for all students in the program due to commonly perceived shortcomings and recommendation from the Advisory Council. It will not keep students long and they can complete it at their pace. I assume it will be able to be completed within a week, but the draft course will be reviewed by all Options so that all are fine with it while the intention for the course is still met. It will not be taught by an instructor, but run automated, and involve no assignments other than a final essential comprehension quiz. That’s what has been discussed if I am not wrong. Do you want me to retrieve the relevant ASC meeting protocol(s)?

Best regards,

Alexander

From: Pete Forster [mailto:pforster@ist.psu.edu]
Sent: Tuesday, October 21, 2014 9:29 PM
To: ALEXANDER SIEDSCHLAG
Subject: RE: Info for program change
Alexander,

Help me understand, is this for all options or just base program students? My concern is that adult learners are very concerned about time to degree and anything outside of curriculum needs to be seen as a benefit. Failing to be perceived as such is that it is barrier to degree completion and thus a decision point for students entering the program.

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Tuesday, October 21, 2014 5:32 PM
To: Pete Forster
Cc: ALISON J SHULER; Lesa I Stanford
Subject: RE: Info for program change

Pete,

Thank you and I believe yes it should be included since it will be non-credit but mandatory (all students will need to take it before or in their first semester), so it will be an addition to the common core curriculum.

Alexander

From: Pete Forster [mailto:pforster@ist.psu.edu]
Sent: Tuesday, October 21, 2014 5:29 PM
To: ALEXANDER SIEDSCHLAG
Cc: ALISON J SHULER; Lesa I Stanford
Subject: Re: Info for program change

Yes, only question is grad schools position on orientation. Since it is a non-credit & non-mandatory recent should it be included in the proposal? This is a question for Elizabeth but my
sense is the committee will ask. Thx p

Sent from my iPhone

On Oct 21, 2014, at 5:05 PM, "ALEXANDER SIEDSCHLAG" <aus50@psu.edu> wrote:

Pete,

Thank you. I will integrate all your changes. Other than that, do you agree with the rest of the proposal?

Thank you,

Alexander

From: Pete Forster [mailto:pforster@ist.psu.edu]
Sent: Tuesday, October 21, 2014 4:31 PM
To: ALEXANDER SIEDSCHLAG
Cc: ALISON J SHULER; 'Lesa I Stanford'
Subject: RE: Info for program change

Alexander,

I have made the appropriate changes on the attached via track change. Thank you, Pete

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Monday, October 20, 2014 6:55 PM
To: Pete Forster
Cc: ALISON J SHULER; 'Lesa I Stanford'
Subject: Info for program change

Hi Pete,

For inclusion in the program change (final draft to follow asap), please update your information as the continuing IST director. I currently have the following, where I believe your title may be outdated given your promotions:

Director: Peter Forster, Ph.D. (Penn State) Senior Lecturer of Information Sciences and Technology, and Management Science
101N Information Sciences and Technology Building, University Park; <image001.png>814-863-8304; pkfl@psu.edu

As for new courses that are not required courses (such as electives, …), they will not part of the change since they do not require approval and will not impact the University Bulleting listing. So if you do not see this information in the change proposal, it has not been forgotten but is not required.

Thank you!

Alexander

From: Gretchen Kuldau [mailto:gak10@psu.edu]
Sent: Thursday, October 30, 2014 11:55 PM
To: ALEXANDER SIEDSCHLAG
Subject: Re: iMPS-HLS program change proposal -- your feedback needed

I am officially sending my OK. I concur with the program changes described below.

Gretchen Kuldau

On 10/30/14, 10:59 PM, ALEXANDER SIEDSCHLAG wrote:

Gretchen,
We still seem not to have received your feedback ("okay" would be enough) on the iMPS-HLS Program change proposal. I am attaching the latest version. The only change relevant for the AGBFD Option is the addition of the non-credit orientation course to the common core curriculum. We need to prove consultation for procession of the proposal.

Thank you!

Best regards,

Alexander

---

From: Avis Kunz [mailto:alm2@psu.edu]
Sent: Friday, October 31, 2014 10:21 AM
To: ALEXANDER SIEDSCHLAG
Cc: ALISON J SHULER
Subject: Re: iMPS-HLS program change -- your feedback needed

Alexander:

I accept the changes.

Best,
From: "ALEXANDER SIEDSCHLAG" <aus50@psu.edu>
To: "AVIS LYNN KUNZ" <alm2@psu.edu>
Cc: "ALISON J SHULER" <ajs28@psu.edu>
Sent: Thursday, October 30, 2014 11:02:10 PM
Subject: iMPS-HLS program change -- your feedback needed

Hello Avis,

We still seem not to have received your feedback ("okay" would be enough) on the iMPS-HLS Program change proposal. I am attaching the latest version. The only change relevant for curriculum is the non-credit orientation course to the common core curriculum. We need to prove consultation for procession of the proposal. Please also indicate that your Administrative Committee Member (if that is not yourself – it is too late in the evening for me to look up…) is aware of and in agreement with the proposal.

Thank you!

Best regards,

Alexander

Eugene J. Lengerich, V.M.D., M.S., Professor, Public Health Sciences, Penn State College of Medicine

Affirmative response was received from Dr. Veradame, Associate Dean for Graduate Studies, see e-mail further below. Dr. Lengerich made no comments.
Hi Alexander,

The changes look good.

Best,

Sonya

---

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Friday, October 31, 2014 7:14 PM
To: DAVID M SYLVIA
Cc: Sonya Leitzell
Subject: RE: Penn State ANGEL: iMPS-HLS Program change document draft -- Please review and respond by Friday

David and Sonya,

Thank you for your review.
Please see my comments below – and are you still (except the Orientation Course framing) spotting anything in the attached new version?

Don’t let them get you!

Alexander

From: DAVID M SYLVIA [mailto:dms39@psu.edu]
Sent: Friday, October 31, 2014 2:16 PM
To: Alexander Siedschlag
Cc: Sonya Leitzell
Subject: FW: Penn State ANGEL: iMPS-HLS Program change document draft -- Please review and respond by Friday

Alexander,

Sonya and I have reviewed the proposal and concur with most of the proposed changes. However, we do have a concern with the proposed orientation course. We don’t believe you can have a non-credit course as part of the core curriculum. Therefore, we recommend that you not call this a “course” and list in every option, but rather add participation in an online orientation to the Degree Requirements Section.

* The original idea was to add this course to the Common Core Curriculum, since it relates to/supports the unifying educational objectives of iMPS-HLS. The Faculty Group proposed for this, the Advisory Council endorsed, and the Academic Steering Committee concurred. I am working with Graduate School to clarify.

Additional editorial comments for your consideration include:

- Greg Thomas should now be added to the Geospatial Intelligence Option faculty list, correct?
* No, since he is not Member of Graduate School. I am still working with Graduate School to determine if his role as Option Director requires prior appointment as Graduate School member.

☐ In the Program Description on page 5 there is still reference to 5 options and Computer and Network Security. This should be changed to 4 options and “Computer and Network Security” should be dropped.

* Corrected. Thank you for pointing out this inconsistency.

☐ We suggest removing the Course Enrollment before Formal Acceptance section and bullets on page 7. Regarding the 1st bullet, students need to complete the non-degree application before they can register in a course. The second bullet is only true for the 3 core courses. At this point we are not opening option and elective courses to degree students prior to non-degree students.

* Corrected. Thank you for pointing out this logical error.

☐ On page 11, you did not strikethrough the ISF option curriculum changes. You did add the new course in blue text on page 19. It would make sense to include and strikethrough IN SC 561 on the right column to show that it is being removed, but this may be less of an issue than on page 11.

* Corrected. Thank you for pointing out this inconsistency.

☐ The current bulletin lists the prescribed courses for all options and the base. The chart on from pages 17 – 20 should include the prescribed courses for each option. You only list for CNS and ISF. They should be included on both sides of the chart for each option.

* The part of the change proposal you are referring to here is the side-by-side comparison, only listing those sections where changes occur.

☐ CNS option is still noted on the revised bulletin copy (page 22) as well as saying there are 5 options.

* Corrected. Thank you for pointing out this inconsistency.

☐ We suggest removing the Course Enrollment before Formal Acceptance section on page 24 as noted above.

* Done, see my comment above.

☐ On page 16 and 25, we suggest revising this sentence - There are 9 elective credits of elective that are chosen from an approved list in consultation with the student’s adviser.

* Corrected. Thank you for pointing out this putatively clerical error.

☐ On page 31 we suggest describing the orientation as required orientation program rather than core curriculum as noted above.

* See my first comment.

☐ Don’t believe you need to call out changes in option directors as program changes? They are already noted in the curriculum sections.

* This is correct but I am listing these changes as informational changes so to avoid two different submissions to Graduate School (one for the changes that require approval and one for those that do not require).

☐ Sonya’s name is misspelled on page 34.

* Corrected. Thank you for pointing this out.

Best regards,

David
David M. Sylvia, Professor  
Director of Academic Affairs for Graduate Programs  
Penn State Online, The World Campus  
222G Outreach Building  
University Park, PA 16802-7012  
Office: 814-863-6726, Fax: 814-863-7042  
e-mail: dmsylvia@psu.edu  

For students: www.worldcampus.psu.edu  
For faculty: weblearning.psu.edu/world-campus  

Confidentiality Notice: This message is intended for the person or entity to which it is addressed and may contain information that is confidential or privileged. If you are not the intended recipient or the person responsible for delivering it to the intended recipient, please notify the sender and delete this communication immediately. Thank you!

---

Von: ALISON J SHULER [mailto:ajs28@psu.edu]  
An: ALEXANDER SIEDSCHLAG  
Betreff: iMPS-HLS Program Change

Alexander,

This email is to confirm that we discussed the changes to the iMPS-HLS program. I've reviewed the proposed draft document and find it consistent with those updates/corrections/edits.

Alison J Shuler
Penn State Harrisburg
Program Coordinator
iMPS - Homeland Security
School of Public Affairs
Phone: 717-948-6388
ajs28@psu.edu

http://harrisburg.psu.edu/public-affairs/homeland-security/master-homeland-security

From: GREGORY ALLEN THOMAS [mailto:gat5@psu.edu]
Sent: Friday, October 24, 2014 5:36 PM
To: ALEXANDER SIEDSCHLAG
Subject: Re: GSI Option Director Change

Alexander,

Yes, this makes sense. Thanks.

Greg

Gregory A. Thomas, PhD
Assistant Director for Geospatial Intelligence Programs
Dutton e-Education Institute
College of Earth and Mineral Sciences
The Pennsylvania State University
2217 Earth-Engineering Sciences Building
University Park, PA 16802-6813
Phone: 717.991.2277
Fax: 814.863.1564
E-mail: gat5@psu.edu

----- Reply message -----  
From: "ALEXANDER SIEDSCHLAG" <aus50@psu.edu>
To: "GREGORY ALLEN THOMAS" <gat5@psu.edu>
Subject: GSI Option Director Change
Date: Fri, Oct 24, 2014 5:27 PM

Greg,

Thank you for your comments and pointing out a clerical error:

The College of Engineering is not involved in the iMPS-HLS program, so it is removed from the program description on p. 5. Leaving it there was an error.

The Orientation Course (complete outline attached) deals with mechanics in the first place, but the faculty group (the initiative for such a course is now over a year old, so I am glad we are able to move ahead) and Advisory Council suggested we also addressed some overarching aspects. Originally, a whole civics and how the HSE works section was discussed, and this was then scaled down two the two aspects you were mentioning. Since HLS beyond the U.S. is not addressed generically anywhere in the core curriculum except a part of a session in HLS 801 on comparative U.S.-Israeli HLS, it was thought it would be good to mention in the orientation, as well as general ethics and legal issues in practice. If HLS 803 revision goes well, than I would hope the letter were addressed in the revised HLS 803 and could be taken out of the orientation.

Would that make sense to you?

Best regards,

Alexander
From: GREGORY ALLEN THOMAS [mailto:gart5@psu.edu]
Sent: Friday, October 24, 2014 11:30 AM
To: ALEXANDER SIEDSCHLAG
Subject: Re: GSI Option Director Change

Alexander:

Just a few comments about the program change:

Since the CNS option is being dropped, is the College of Engineering still involved in the iMPS program? The program description (p. 5, 19) includes the College of Engineering.

I don't see a problem with an orientation course but am curious about the content. While I was not involved in the implementation of the proposed orientation course, it seems as though at least some of this material should be covered in the core curriculum (Module 2 - homeland security worldwide, Module 6 - ethical and legal issues). At the faculty retreat in September 2014 there was discussion about revising several core courses (HLS 801, HLS 803). Maybe these components can be added in the core courses and keep the orientation geared to introductory material, expectations, structure and content of the program.

Best,

Greg

From: Verderame, Michael [mailto:mverderame@hmc.psu.edu]
Sent: Friday, October 31, 2014 8:39 AM
To: ALEXANDER SIEDSCHLAG
Cc: Lengerich, Eugene; Reager, Rachel; ALISON J SHULER
Subject: Re: iMPS-HLS Program Change -- your feedback needed
Importance: High

Alexander,

I have reviewed the Program Change Proposal for the iMPS-HLS, in particular the addition of the the non-credit orientation course to the common core curriculum, including for students in the Public Health Preparedness Option. I agree that such a general introduction would be a valuable addition, especially the opportunity to learn about the structure and expectations of the program (Modules 3 and 4) in an formal manner. I expect this will reduce some of the problems we have seen in this area.

Best wishes,

Michael

Michael F. Verderame, Ph.D.
Associate Dean for Graduate Studies
Professor of Medicine
Penn State College of Medicine
Office 717-531-8892

@DrVatPSUCoM

http://bit.ly/In-MFVatPSU