Fall 2019 EMS Faculty and Staff Meeting

Agenda

3:00-3:05  Welcome (Kump)
3:05-3:10  Introductions of New Faculty and Staff (Kump)
3:10-3:30  Export Compliance Update (Wayne Mowery)
3:30-3:50  EMS Museum Vision (Jane Cook)
3:50-4:10  Update on GEMS Activities for the College (Colleen Swetland and John Lease)
4:10-4:30  ALLWE, Sustainability, and Strategic Goals for the College (Kump)
4:30-5:30  Reception to follow- Deike Ground Floor
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Associate Dean for Graduate Education and Research

Melissa Brannen, Proposal and Award Generalist

Myava Thibault-Cuhel, Proposal and Award Generalist
Associate Dean for Undergraduate Education

Karen Marosi, Director of Student Engagement

Heather Moore, Administrative Support Assistant
Dean’s Office

Andy Arnold, Director of Major Gifts
Maggie Bryan, IT Support Specialist
Jonathan Inhoof, Administrative Support Assistant
Emily Morrison, Development Assistant
Nick Turner, IT Support Specialist
Department of Energy and Mineral Engineering

Abbey Rickert, Administrative Support Assistant
Robert Rousseau, Records Specialist
Feifei Shi, Assistant Professor of Energy Engineering
Hilal Ezgi Toraman, Assistant Professor of Energy Engineering
Department of Geography

Trevor Birkenholtz, Associate Professor of Geography
Panagiotis Giannakis, Assistant Teaching Professor of Geography
Helen Greatrex, Assistant Professor of Geography and Statistics
Emily Rosenman, Assistant Professor of Geography
Mandy Thompson, Administrative Support Coordinator
Luke Trusel, Assistant Professor of Geography
Manzhu Yu, Assistant Professor of Geography
Department of Geosciences

Heike Betz, Research Technologist

Julia Krogh, Research Technologist

Jesse Reimink, Assistant Professor of Geosciences
Department of Materials Science and Engineering

Heather Dehnel, Marketing Communications Specialist
Min-Gyu Kang, Assistant Research Professor of Materials Science and Engineering
Ziguang Ma, Assistant Research Professor of Materials Science and Engineering
Christina Potter, Financial Coordinator
Sadie Spicer, Administrative Support Coordinator
Corynn Taylor, Financial Assistant
Shana Wagner, Engineering Support Specialist
Department of Meteorology and Atmospheric Science

Daniel Brouillette, Researcher
Tobias Gerken, Assistant Research Professor of Meteorology and Atmospheric Science
Muriel Go-Maro, Administrative Support Assistant
Kelly Lombardo, Associate Professor of Meteorology and Atmospheric Science
Christy Wellar, Financial Coordinator
Colin Zarzycki, Assistant Professor of Meteorology and Climate Dynamics
Earth and Environmental Systems Institute

Pamela Braff, Researcher
Cindy Etchison, Researcher
Matthew Lisk, Research Data Management Specialist
Caitlin Teti, Education Program Assistant
Francisco Tutella, Public Relations Specialist
John A Dutton e-Education Institute

Nick Thompson, Instructional Production Specialist
EMS Museum and Art Gallery
Glass Shop

Briana Bennett, Research Technologist

Jane Cook, Director, EMS Museum and Art Gallery and Research Professor, Materials Science and Engineering
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Export Compliance Basic Awareness

Wayne L. Mowery, Jr., Esq., ECoP®, LPEC®

Senior Director of Compliance
University Export Compliance Officer
Empowered Official
Office of Ethics and Compliance
Office of Sponsored Programs
The Pennsylvania State University
227 West Beaver Ave., Suite 212
Phone: 814.867.2379
Fax: 814.863.2174
Email: wlmowery@psu.edu
http://export.psu.edu
Export Compliance Basics

What are Export Controls?

1. Laws, regulations, and guidelines
2. Governing the export – visual, oral, physical, or experiential
3. Of controlled or sensitive items or information
4. To foreign locations or to foreign persons/nationals

Key Questions – Who, What, Where & Why?
# U.S Government Primary Export Control Regulations

<table>
<thead>
<tr>
<th>U.S. Agency</th>
<th>Regulates</th>
<th>Regulation</th>
<th>Type of Controls</th>
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<tr>
<td>State</td>
<td>Military Critical Technologies</td>
<td>ITAR (International Traffic in Arms Regulations)</td>
<td>Content Based NARROW (U.S. Munitions List)</td>
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<tr>
<td>Commerce</td>
<td>Dual Use Technologies</td>
<td>EAR (Export Administration Regulations)</td>
<td>Content Based BROAD (Commerce Control List)</td>
</tr>
<tr>
<td>Treasury</td>
<td>Sanctioned Countries &amp; Individuals</td>
<td>OFAC (Office of Foreign Asset Controls)</td>
<td>Mix Based Content, Destination, End-User</td>
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10 CFR Part 810 (Part 810) requires U.S. persons to have authorization from the Secretary of Energy before transferring non-public civil nuclear technology and assistance (e.g., nuclear reactor blueprints or consulting services) to foreign nationals or entities.

Certain exports are subject to existing “general authorizations” from the Secretary, while other exports require “specific authorization” in advance.

For more information, consult with your organization’s export control officer or contact Part810@nnsa.doe.gov.
Export Compliance Basics - WHO

Who are Foreign Persons/Nationals?

Foreign Person/Foreign National: A term of exclusion –
Anyone who is not...

1. A U.S. Citizen;
   1. Natural, or
   2. Naturalized

2. A permanent resident alien (Green Card)

3. Political Refuge or Asylee

Foreign Person/Foreign National also includes foreign
governments, foreign government agents, and foreign
corporations or entities.
Export Compliance Basics - WHO

• Foreign Persons/Nationals:
  – Students
  – Employees
  – Visiting Scientists
  – Collaborators
  – End-users
  – Sponsors
  – Suppliers
Approximately 45% of the graduate students in the Penn State College of Earth and Mineral Sciences (UP) are international students.

Export Compliance Basics - WHAT

What is Controlled?

U.S. Export Controls apply to various items:

1. All U.S. origin items/hardware/materials (at base controlled as EAR99)
2. All specifically designated items/hardware/materials – Either under the USML, the CCL, or other designate control lists
3. All technical data about controlled items as defined in the relevant control lists
   - Under the ITAR, very broad TD controls (use of the word “or” in definition)
   - Under the EAR, very limited Technology controls (use of the word “and” in most TD controls)
4. Defense services or support under specific regulatory controls (ex. ITAR services and/or OFAC embargoes)
Export Compliance Basics - WHAT

What is not Controlled?

Export Controls expressly exclude a few items:

1. Non-U.S. origin items not in the U.S. (and not incorporating a significant amount of U.S. origin components).

2. Publicly available information
   - Published
   - Released at open conference/workshops
   - Patent information (published portions of patent)

3. Information or services provide as part of catalogue course instructional activities

4. Releases of technology/technical data in the U.S. by Universities to their bona fide full-time employees
Controlled Destinations

The term “export” is defined in the relevant regulations but generally includes the following:

1. Any physical transfer of controlled items outside of the U.S.
   - Physical items – controlled per regulatory requirements
   - Technology/Technical Data – may be controlled by mere possession internationally unless encryption/access restrictions requirements met

2. Any release of technology/technical data to a foreign person regardless of place of release (a “deemed export”)

3. Transfers related to restricted destinations – OFAC/NRC Regulations
Export Compliance Basics - WHY

**Controlled Uses**

The actual end-use of an item may result in specific controls which would not otherwise be applicable to that item under the regulations. Examples:

1. Military end-uses of dual use (EAR) items;
2. Restricted end-uses under the EAR (Part 744), including nuclear, missile, chemical/biological weapon, and propulsion applications
3. Other nuclear end-use restrictions under the DOE or NRC regulations
4. End-uses and applications of technology/services in comprehensively embargoed locations and targeted sanctions programs
Impact of Export Compliance at PSU

- Foreign Travel - TSN
- Foreign Collaborations – Funded/Unfunded
- Sponsored Research
- Visiting Scholars
- Foreign Shipments
- Procurement Issues
What to do about U.S./China relations and how they impact Chinese involvement and interests in U.S. higher education?
US Export Controls, China & Academic Institutions

What’s the problem?
Chinese military-industrial complex (MIC) is expressing its interest in spreading military technology to foreign countries. Since 2017, China has started to build 1230 military-industrial and research centers abroad in over 60 countries, which is significantly raising concerns across the globe. This collaboration happens in the Five Eyes countries, Germany and France, where it is often perceived as a threat to national security. The collaborative activities include military engagements, industrial collaboration, and research and academic exchanges, which raises concerns in the West about China’s military capabilities.

US Export Controls, China & Academic Institutions

Alex Joske

What’s the solution?
Understanding the extent and potential of this collaborative effort is critical in determining future actions. This report aims to provide a comprehensive analysis of the extent and potential of this collaboration. It discusses the implications of this collaboration and provides recommendations on how to address these concerns.
Chinese Companies Seek to Buy U.S. Campuses

When a Chinese company seeks to buy an American music college, opponents of the sale raise academic freedom concerns. Over the last several years, Chinese buyers have purchased a number of campuses in the U.S.

CHINA-UNITED STATES

When trade war spills over into academic cooperation

Gerard A Postiglione and Denis Simon 05 December 2018

As the United States and China were engaged in normalising relations in the late 1970s, Chinese leader Deng Xiaoping became adamant that China should have “a thousand talented scientists” who would be recognised around the world. Deng wanted quick approval to send several hundred Chinese to study at top American universities.

Over the past 40 years, diplomatic relations between the United States and China have steadily grown, even considering periodic strains over economic, political and military issues. Expanded economic and financial interdependence, along with finely tuned statecraft, have ensured that cool heads prevailed in times of stress, and thus cooperation across a wide array of domains has seemingly kept expanding over the last several decades.

US Export Controls, China & Academic Institutions
FBI Director Wray – “I think the level of naivete on the part of the academic sector about this creates its own issues.”

February 12, 2019 – Testimony to the Senate Intelligence Committee
FBI Director Wray – “I said what I meant, and I meant what I said!”

October 10, 2019 – FBI Academia Summit
US Export Controls, China & Academic Institutions

• USG Economic Concerns
  – Communism vs. Capitalism
  – Economic security and commercial exploitation
  – Intellectual Property and talent exfiltration

• USG Security Concerns
  – IT exploits and intrusion concerns
  – Defense exploits and espionage efforts
  – Infiltration efforts: current political view of Chinese students and immigrant employees
Potential Triggers:

- Talent Programs:
  - Viewed as “recruitment” and technology exfiltration tools.
  - Government regulations on disclosure of participation in foreign talent programs.

- Gifts:
  - Gifts can be entry point to establish “relationship” for future exploitation
  - Evaluation of risk and confirmation of unrestricted nature of the gift/related activities
US Export Controls, China & Academic Institutions

• Potential Triggers:
  – Limited Access/Invitation Only Conference:
    • Sponsorship and field of technology focus should be reviewed (TSN)
  – Dual-use Sponsored Research Activities
    • Awareness of military/security related alternative applications of research efforts
  – Publicity/Goodwill Efforts
    • Requests/requirements for senior leadership access
    • Engagement in publicity centric events
How to Find Out More

- **Internal Resources:**
  - Penn State Export Compliance Website
    [export.psu.edu](http://export.psu.edu)
  - Office of Sponsored Programs Website
    [www.research.psu.edu/osp/manage-awards/export-compliance](http://www.research.psu.edu/osp/manage-awards/export-compliance)
  - Email helpdesk – [export@psu.edu](mailto:export@psu.edu)
Export Compliance Basic Awareness

Wayne L. Mowery, Jr., Esq., ECoP®, LPEC®
Senior Director of Compliance
University Export Compliance Officer
Empowered Official
Office of Ethics and Compliance
Office of Sponsored Programs
The Pennsylvania State University
227 West Beaver Ave., Suite 212
Phone: 814.867.2379
Fax: 814.863.2174
Email: wlmowery@psu.edu
http://export.psu.edu
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The EMS Museum & Art Gallery

Dr. Jane Cook
Director, EMSM&AG
Research Professor, MatSE
What IS a museum?
Mission

Earth and Mineral Sciences

The mission of the Earth and Mineral Sciences Museum & Art Gallery is to serve the college, university, and broader community as an informed educational and technical resource for science, art, and history of the earth and mineral sciences through the preservation, utilization, and promotion of our diverse collections.
Vision

Earth and Mineral Sciences

We engage and unite the College and community as storytellers of the Earth–Human–Atom system —the heart of EMS

- Collections
  - Community
  - Education
  - Exhibits
  - Research

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What’s Coming

• A single continuous gallery space along the First Floor Hallway of Deike
  • An integrated gallery with art, science, and history side-by-side, telling the whole story of the college: yesterday, today, and tomorrow

• Refreshed older exhibits with new content:
  • “Blue and White” case with more than minerals...
  • “Seismometer” interactive that tells HOW it works

• New Exhibits that tell cross-disciplinary stories
  • Silicon
  • Explosions
  • The Polylith Obelisk
“PLEASE, Call us BEFORE you call for the dumpsters!
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Development and Alumni Relations
GEMS (GRADUATES OF EARTH AND MINERAL SCIENCES)

ERIK PYTLAK, PRESIDENT
JOEL REED, PAST-PRESIDENT
DAVE ARCHACKI, PRESIDENT-ELECT
SCOTT BILLINGSLEY, SECRETARY
SUSAN LECHTANSKI, COMMUNICATIONS SPECIALIST

JOHN LEASE, EVENTS COMMITTEE CHAIR & PRESENTER
COLLEEN SWETLAND, STAFF LIAISON & PRESENTER
EMS Office of the Dean
Lee R. Kump, John Leone Dean in the College of Earth and Mineral Sciences

Penn State Alumni Association
Paul Clifford, Chief Executive Officer

Academic Department, Institute Heads
Susan Sinnott, MatSE
Sanjay Srinivasan, EME
Andy Nyblade, Geosc
David Stensrud, Meteo
Cynthia Brewer, Geog
Susan Brantley, EESI
Chunshan Song, Energy Institute
Ann Taylor, Dutton Institute
Jane Cook, Museum

Office of Development and Alumni Relations
Sue Powell, Director of Development and Alumni Relations
Colleen Swetland, Assistant Director of Alumni Relations *

Development Council
Jim Bryja, Steering Committee Chair

Graduates of Earth and Mineral Sciences (GEMS) Board *
Erik Pytlak, President

External Advisory Boards (EAB’s)
Ryan Dirkx, MatSE President
Jerry Berkebile, EME President
Erica Howat, Geosc President
Andrea Bleistein, Meteo President
(No Geog EAB)

Affiliate Program Groups (APG’s) (4): *
Jodi Vendor, Geography Chair
Rob Lydick, Irvin Hall Chair
Ryan Breton, Meteorology (MAPS) Chair
Jeff Schmidt, Weather Risk

* Affiliated with EMS AND Alumni Association (to varying degrees); also have access to some Alumni Association programs/materials/benefits
- **GEMS Alumni Achievement Awards**
- **Social Events**
  - Professional Society Receptions
  - Regional Receptions
  - EMS Blue/White GOLD Tailgate
  - EMS Fall Tailgate
- **Student Interaction**
  - Showcase/Industry Forum Series
  - Diamond Award
  - TOTEMS
  - EMEX
  - Letter Writing Campaign
  - Professional Development Seminars
  - EMS Mentoring Program
EMS MENTORING PROGRAM: PENN STATE LION LINK

HISTORY:

• 2015-16: Program built by cross-functional team (DAR, GEMS, StuCo, Dev Council, Educational Equity)
• Fall 2017: Kicked off with 30 student-alumni pairs
• Fall 2018: Transitioned to LionLink -- 53 pairs
• Fall 2019: 94 student-alumni pairs

• Ultimate Goal – encompass 10% of EMS undergraduate student population (junior/senior)

*Program does not supplant critical relationship between the student and faculty advisor. The program is intended to build closer bonds between students, faculty and alumni and a collaborative approach to achieve student’s career goals.*
OVERARCHING THEMES

- **For Students:**
  - A formalized, structured mentoring program to facilitate:
    - Career decisions
    - Internship/job opportunities
    - Advice on curriculum and coursework
    - Contribute to a more successful transition from student to professional life

- **For Alumni:**
  - Organized, direct way to reconnect to the College and Penn State
  - Connect with early- and mid-career professionals to tap into time and talent
  - Facilitate increase in alumni engagement, both in volunteer and philanthropic support
Collaborate with Office of Undergraduate Education/Engaged Scholarship to better serve the undergraduate population and partner with EMSAGE programming.

Increase alumni mentor pool to match and/or surpass the growth of the undergraduates (currently at 95 alumni mentors).
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Survey Results:

https://www.ems.psu.edu/allwe

Make a recommendation:

Sustainability
Strategic Planning

University Plan: minor revisions

College Plan: Due July 31, 2020

Department/Institute Plans: Due May 31, 2020
Strategic planning: aspirations

We aspire for a faculty, student body, and staff that reflects or exceeds the diversity of our Commonwealth and broader constituency, and will institute policies and procedures to achieve that goal in the coming decade.

Recognizing that the affordability of an undergraduate degree is reduced dramatically with every semester enrolled beyond the conventional 8-semester degree, we will strive through our curricular review and advising to ensure that students have every opportunity to graduate on time.
Strategic planning: education

Beyond our traditional and current expectations, we need to ensure through our curricula, course offerings and student engagement opportunities, that every student who graduates from EMS has basic competency in

- data analysis, and familiarity with machine learning and artificial intelligence
- systems thinking, life-cycle assessment and sustainability principles
- the science and societal implications of climate change
- business acumen and entrepreneurship
- risk management
- online education for lifelong learning

and an appreciation for the valuable perspectives of a disciplinarily, culturally, ethnically, racially and gender- and sexual-orientation-diverse community.
We will embrace the concept of the “living laboratory,” collaborating with other units including the Office of Physical Plant to ensure energy and environmental literacy through active learning.

Every student who graduates from EMS will have completed at least one engaged scholarship activity.
In our research, we will

• maintain our focus on advancing understanding through basic research, while
• demonstrating that we are addressing important problems facing society, for example by
• increasing our emphasis on interdisciplinary research, integrated systems approach, legal and policy implications, stakeholder engagement, and industrial partnerships in, among other research areas,
Strategic planning: research

- renewable energy and net-zero emissions energy systems
- energy storage
- carbon and climate risk management
- carbon capture, utilization, storage and mineralization
- water resources and the energy-water-landscape nexus
- natural hazards
- quantum materials
- biomaterials and biomineralization
- data assimilation and predictive science
- planetary system science
- critical minerals, and
- environment (natural and built), food security and human health.
Strategic planning: outreach

In our outreach, we will offer EMS as a neutral forum for addressing pressing societal problems, especially in the energy and natural resources/environment/materials space.
What is the College of Earth and Mineral Sciences?
We are
Earth and Mineral Sciences
We are Energy and Materials for Society
We are

Environmental Modeling and Sensing
We are

Ethics, Management and Solutions
We are

Exploration and Mining for Sustainability
We are

Engineering Merged with Science
We are EMS Science and Engineering for Global Challenges
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Centre County United Way

• November kickoff: Penn State Goal is to raise $750,000
• Ways EMS can support the 28 United Way partner agencies
  • Payroll deduction pledge
  • Support fundraising activities organized by the EMS United Way Committee