

George Washington University

School of Engineering and Applied Science, and
George Washington Institute of Public Policy

NIST Standards Education Workshop
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Objectives to achieve with Grant

The ***GW Standards Education Initiative*** has three objectives:

- ***To develop a graduate-level foundational course on a) the role of standards and conformity assessment in promoting safety, interoperability, sustainability and prosperity in the modern world, and b) the structures and processes for creating and using documentary consensus standards***
- (To establish the first such course sequence, a six-course certificate program in GW – SEAS)
- (To encourage and assist professors in other GW schools – business, law, public policy, public health, etc. – to plan similar course sequences in their schools)



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EMSE 6992-80 - *Global Connections: Standards in Technology, Business & Public Policy*

- Historical perspective on standards
- Types of standards (e.g., products, systems quality, safety, social)
- The U.S. national standards system
- The international standards system
- The use of standards
- The standards making process
- Conformity assessment
- Issues related to standards (e.g., they are not free)
- Standards and public policy
- First offering in the spring of 2016



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Graduate Certificate in Environmental and Energy Management (SEAS)

- Existing course (EMSE 6220) Environmental Management
- Existing course (EMSE 6260) Energy Management
- Existing course (EMSE 6245) Analytical Tools in Env'l Management
- Existing course (EMSE 6285) Analytical Tools for Energy Mng't
- New course (EMSE 6992-14) Beyond Compliance – Next Generation Environmental Self-Governance
- New course (EMSE 6992-80) Global Connections: Standards in Technology, Business & Public Policy



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EMSE 6992-14 - Beyond Compliance – Next Generation Environmental Self-Governance

- Focused on implementation of E&E systems based on standards: ISO 14001, 14004, 14031, 14063, 50001, 50004, 50002, 19011
- Students with environmental and energy fundamentals, will have sufficient knowledge to implement systems that conform to the ISO standards
- Graduate level course: EMSE Department (SEAS)
- First offering in the fall of 2016



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Candidate Guest Lecturers (1)

Gordon Gillerman: Chief, Standards Services Division, NIST

Mary Saunders: Associate Director for Management Resources, NIST

Mary McKiel: President and CEO, The McKiel Group

Gary W. Kushnier: Consultant and lecturer on standards

Chris Pyke: Chief Operating Officer, USGBC; Adjunct Professor, GWU

Dorothy Bowers: Environmental Policy Consultant

Frederick W. Allen: Office of Policy, U.S. EPA

Alan D. Hecht: Director for Sustainable Development, Office of Research and Development, U.S. Environmental Protection Agency.

Daniele Gerundino: Strategic Adviser, ISO



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Candidate Guest Lecturers (2)

Roy Swift: Executive Director, Workcred (an affiliate of ANSI)

Scott Cooper: VP, Govt. Relations & Public Policy, ANSI

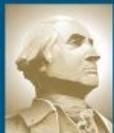
Mike Schmidt: Principal Con't, Strategic Device Compliance Services

Brian Kahin: Fellow, *MIT* Sloan School Center for Digital Business

Robert Sheets: Research Professor, GW Institute of Public Policy

Ken Krechmer: Senior Member, IEEE; Instructor, U. of Colorado

Dorothy Garcia: Faculty Member, Georgetown University



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Pedagogical Approach

- This course is premised on the belief – one backed by much evidence -- that learning is most effective when it is active. Therefore, lectures will be brief, discussion and group projects will be serious endeavors, and the professors will act more as guides than “sages on a stage.”
- The case study *International Standards for Environmental Management* unfolds with each session to exemplify and cement the points in each session. (Based on the actual unfolding of the ISO 14000 series between 1991 and 2000.)



Case Study: *International Standards for Environmental Management*

- Do we need (want?) international env'l management standards?
- What types of standards should they be?
- Selecting the U.S. SDO Administrator and the TC Secretariat
- Roles of interested parties (e.g., Government, NGO, Industry)
- Deciding on the TC/SCs scope of work
- Potential use of standards (by industry; by regulators; in gov't)
- Conformity assessment (uses, integrity, operation)
- Factors in next generation use of env'l management standards



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Syllabus and Case Study: Session 1

Historical perspective and value of standards:

- Illustrate with a sampling of standards from antiquity through industrialization, World War II, the post-war decades and the last few decades' revolution in information and communications technology
- Discuss the influence of military specifications to other standards
- Discuss the genesis and advantages of standards for the industrial era
- Present anecdotes on the contributions of Deming, Juran and other leaders in standardization
- Discuss how quality standards led to a proliferation of *management system standards* (MSS), many of which treat areas that are “normally” in the province of public authorities

Introduce the case study: *International Standards for Environmental Management*



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Syllabus and Case Study: Session 1

ISO has notified its member bodies and will soon convene the first meeting of its newly appointed Strategic Advisory Group on Environment (SAGE) in Geneva, Switzerland, to begin looking at feasibility and desirability of standards for EM. You have been volunteered by your company to participate in the preparatory ANSI meeting and perhaps will be chosen to be a part of the delegation to the upcoming Geneva meeting.

Exercise: In preparation for the ANSI meeting, you ask yourself: Do we want international environmental management standards, and why do we? Your answers?



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Challenges in the Academic World

- Cross-listing issues of revenue flow, instructors payment, competition
- Selling value to other schools/departments
- Advertising the course
- Getting approvals for a certificate program from all faculty in the department
- Getting approval for course from faculty in the department
- Meeting minimum student enrollment for doing the class



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Backup Slides



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Environmental and Energy Management Institute (EEMI) Mission

The mission of the GWU Environmental and Energy Management Institute (EEMI) is to conduct state-of-the-art and highly relevant research, promote graduate studies and other learning opportunities, and undertake service and policy-inducing activities pertinent to the application and implementation of national and international standards for the management of environmental, energy and sustainability challenges facing organizations and communities throughout the nation and the world.



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Next Generation Environmental Self-Governance

- As a complement to the command and control approach
- Budget limitations may dispose EPA to consider additional strategies to its arsenal of command and control regulations
- Industry seeks to improve its image, incentives, market benefits from better performance, the achievement of efficiencies, and public recognition
- Will compare approaches and explore a sustainability model to supplement command and control
- Sample standards from ISO, ASTM, ANSI, USGBC, EPA, DOE, GSA (e.g., Energy Star, Water Sense, Superior Energy Performance)



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EEMI Focal Areas

Focal area candidates for research, education and service activities include:

1. Environmental management systems
2. Energy management systems
3. Greenhouse gas management
4. Green cities
5. Green buildings
6. Environmentally preferable products
7. Data center energy efficiency
8. Water
9. Next generation environmental self-governance



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Relevant Standards

1. ISO 14000 series of Environmental management standards
2. ISO 50000 series of Energy management standards
3. ISO 14060 series of Greenhouse gas management standards
4. Green cities: ISO/TC268; ITU; IEC; JTC#1; EPA; GCIF
5. Green buildings: LEED; Energy Star; ANSI/ASHRAE/IES; ASTM
6. EPP: 14020,30,40 series; USDA, FDA, Energy Star; EPEAT
7. Data centers: Energy Star; Green Grid; Use metrics/guidelines
8. Water: DOE(FEMP); EPA; AWWA; Water Alliance; ASME; ITU
9. Next generation: Greater reliance on voluntary standards



George Washington Institute of Public Policy (GWIPP) Mission

GWIPP conducts externally funded studies on important policy issues. The institute serves as a focal point of public policy research, facilitating and coordinating externally funded projects throughout the university. GWIPP seeks to contribute, through research, to the understanding of a wide range of public policy issues and to inform the public debate on these issues. Located within GWIPP is the Center for Washington Area Studies (CWAS). CWAS produces research focusing on the District of Columbia and the surrounding Washington metropolitan area.



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