ASU (School of Public Affairs)/Syracuse (Maxwell) Sloan Foundation Project on "Linking Engineering and Public Policy in the Curriculum and Beyond"

Don Siegel

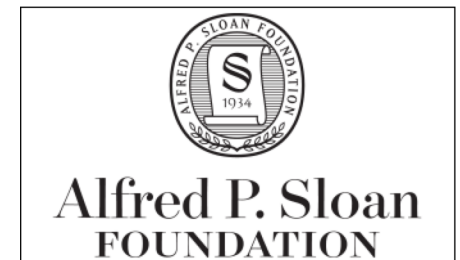Foundation Professor of Public Policy and Management and Director-School of Public Affairs

Arizona State University

Laura J. Steinberg

Professor, Civil and Environmental Engineering and Professor-Maxwell School (courtesy appointment)

Syracuse University

Background Information on Grant

❑ **Technological change and key trends (e.g., smart cities, cybersecurity, emergency management, PPPs, climate change) have changed the field of public administration and the nature of work**

⇒ **Need to modernize the curriculum**

⇒ **NASPAA Schools should partner with engineering schools to provide the curriculum and scholarship required to prepare graduates for the future of work in the public and nonprofit sectors.**

❑ **Sloan project dedicated to fostering stronger partnerships between policy and engineering schools and measuring the antecedents and consequences of such partnerships**

Goals/Objectives of Our Sloan Grant

❑ **Convene key public administration/public policy and engineering faculty and Deans/Directors of NASPAA schools at ASU and Maxwell workshops**

❑ **Design a survey to track, measure, and evaluate curricula innovations and partnerships (both educational and research) involving NASPAA schools and schools of engineering**

❑ **Consult with practitioners to better inform Deans and Directors of those linked activities that are most vital to incorporate into our teaching and scholarship**

Goals/Objectives of Our Sloan Grant (cont.)

❑ **Report to NASPAA (and NAPA) on an ongoing basis, in an effort to document and promote "best practices" and assess the antecedents and consequences of such partnerships**

❑ **Write several academic articles on the project**

❑ **Develop a network of NASPAA schools with an interest in the identification, dissemination, and sharing of best practices**

❑ **Possibly inform changes in NASPAA accreditation standards**

Engineering School Perspective

❑ **Raise student sensitivity to the social/ political/economic impacts of engineering and technology (E&T); provide methods and tools for analysis**

❑ **Interact with students who offer different perspectives**

❑ **New professional pathway for engineering grads**

❑ **Spur development of E&T solutions, which address policy questions**

❑ **Interdisciplinary research to tackle complex problems and meet funding agency interdisciplinary requirements**

❑ **Better informed public partners to work with on E&T projects**

❑ **4+1 programs for engineering + public policy/administration; infuse policy issues into engineering courses**

Key Outcomes from ASU Workshop (9/24-9/25, 2018)

❑ Reports from "exemplar" schools doing exciting things in this space (Georgia Tech, UT-Austin, CMU, Syracuse, & Ohio State

❑ Feedback from engineering colleagues on the importance of these collaborations, in terms of leading to greater knowledge of broader policy issues for engineers

❑ Suggested formation of a network to promote collaboration and widespread adoption at numerous NASPAA schools

❑ Suggestions to link this initiative (with NASPAA support) to Engineering Deans Council and ASEE

❑ Recommendations for conducting the survey

❑ Great feedback from Deans/Directors, Faculty in both fields, and students on 1) reasons for linked programs, 2) characteristics of successful linked programs, 3) obstacles to building linkages, and 4) survey questions. These include (see next slide):

Key Outcomes from ASU Workshop (cont.)
1. Importance of Linked Programs

❑ **Enables students and faculty to address complex practical and research issues, approaching problems from several different angles – can result in innovative solutions to complex problems**

❑ **Attractive to employers who want well-rounded employees**

❑ **Better reflects the intersectional nature of public policy and engineering in the world.**

❑ **Prepares students to deal with the sometimes competing agendas of policy makers and engineers**

❑ **Helps to create an interdisciplinary academic culture**

❑ **Adds new student skills and capabilities**

❑ **Helps all levels of government have a strong understanding of the limitations and potential of engineering**

Key Outcomes from ASU Workshop (cont.)
2. Characteristics of successful linked programs

❑ **Processes for students to help define the program i.e. understanding student motivation for participating in the curriculum**

❑ **Incorporating policy at all levels (local, state, federal, international)**

❑ **Programs that are adapted to current industry practices**

❑ **Faculty who are passionate about interdisciplinary projects**

❑ **Ability to maintain collaboration between disciplines and departments over time; resisting the temptation to default back into silos**

❑ **Cross pollination between curriculum and interdisciplinary research**

❑ **Faculty culture that encourages students to take interdisciplinary courses and engage in interdisciplinary research**

❑ **Cooperative relationship between collaborating departments (MOUs may be useful)**

❑ **Budget for incentivizing faculty participation**

❑ **P&T requirements that encourage faculty to participate in interdisciplinary research and teaching**

❑ **With classes with students from mixed disciplines, faculty may need training in how to address different learning styles in the same classroom**

Key Outcomes from ASU Workshop (cont.)
3. Obstacles to Linkages

❑ **Modes of teaching that emphasize the theoretical rather than the practical**

❑ **Promotion and tenure requirements**

❑ **Avoiding unnecessary competition between cross-listed departments for student enrollment**

❑ **Perception that Interdisciplinary programs "steal" students from traditional programs**

❑ **Asymmetrical patterns of faculty salaries and departmental resources between disciplines**

❑ **Lack of examples of how linkages can made**

❑ **Define what is meant by engineering and data analytics course content**

❑ **List specific engineering courses that should or should not be counted on the survey**

❑ **Recognize that questions about curriculum and research may best be answered by different people**

❑ **Use NASPAA to send out the survey**

❑ **Pilot the survey**

❑ **Don't make the survey too burdensome to complete. Should not take more than 1.5 hours to complete**

❑ **Distinguish between core courses and required courses**

❑ **Enumerate obstacles to integration and use Likert scale**

Schedule for the Workshop