

Invited Insights Toward a New Generation of Political Scientists

John J. Ohab, Ph.D.
*National Defense and Global Security Fellow
American Association for the Advancement of Science*

Issue

From climate change to food safety, the domestic and international challenges that we face as a nation increasingly converge at the science-public policy interface. To overcome these challenges, it is essential that scientists engage policymakers in a transparent, collaborative dialogue and unite these often disconnected worlds. This will require a new generation of scientists who can communicate and understand the language of public policy.

Action

Recent doctorate recipients represent an enormous resource for the development of individuals who can evaluate the merits of both scientific and public policy endeavors. However, young scientists are not typically rewarded for pursuing careers outside of the traditional academic career trajectory. Universities, government agencies, and the scientific community must work together to provide awareness of science policy careers and fellowship opportunities and encourage our young scientists to pursue leadership positions in the federal government.

Benefit

Science and technology policy fellowships such as those offered by the American Association for the Advancement of Science provide young scientists an opportunity to experience first-hand the many conduits through which science impacts society. Ultimately, these fellowships will empower a new generation of policy-savvy scientists to contribute their scientific expertise, influence the policymaking process, and more effectively communicate science to the general public.

The science-policy divide

Recent doctorate recipients in science and engineering enter a world in which the most promising scientific advances are inseparably linked to our nation's most pressing public policy challenges. Frontier areas of basic research and technology development — such as renewable energy, nanotechnology, and stem cell therapy — have given rise to an array of new political, economic, social and moral questions, each posed within a scientific environment that is increasingly interdisciplinary and global in nature. Meanwhile, scientists and policymakers together face a declining public trust that has resulted from highly publicized cases of scientific misconduct, the perception that political figures manipulate science issues for their own gain, and the privatization of research and its applications. Despite the complex issues that intersect the

science-policy interface, these two worlds remain disconnected. Just as policymakers are not familiar with laboratory procedure, grant-writing, and technical jargon, scientists receive limited training in the legislative process, communicating their work to non-academic audiences, and navigating the government employment system. The result is a scientific community that does not fully engage federal decision-makers and that is often relegated to an advisory or advocacy role rather than a position of leadership within government where it could most benefit society.

To bridge this divide, it is critical that we begin developing skilled scientists who can communicate and understand the language of public policy. With an eye toward empowering a future generation of policy-savvy scientists, this effort must not forget the tens of thousands of science, engineering, and health (SEH) doctorates awarded in this country each year. By encouraging young scientists to pursue a career in public policy, we can ensure a collaborative, reciprocally beneficial dialogue between the science and policy worlds, one that informs and is informed by science and that leads to a more dynamic policymaking mechanism that is responsive to scientific discovery and changing public attitudes.

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The “alternative career” myth

Presently, when doctorate recipients consider their professional future, public policy is often lumped together with other “alternative careers” reserved for rogue scientists who choose not to pursue the traditional academic journey through the professoriate. A simple lack of awareness may partly account for this general misconception about science policy careers. For instance, doctoral training programs that are not located near the nation’s primary policymaking centers may not expose doctoral students to science and technology issues of federal concern, and administrative staff may not have established relationships with science policy fellowship programs and government agencies. Many universities do offer public policy degrees programs, along with a variety of science policy electives. However, these courses are not well integrated into science and engineering curriculums, and doctoral students may view these courses as extraneous when balancing a schedule that includes grant proposals, dissertation research, and manuscript preparation. Above all, doctorate recipients seeking a career in public policy must overcome the traditional paradigm of academic success, which measures achievement within focused specialties and does not typically reward those who look beyond their specific discipline. For young scientists who have spent years entrenched in the rigors of benchwork, the notion of leaving the established career trajectory is itself an intimidating prospect. The transition is further complicated when supervisors and colleagues, whom trainees rely on for letters of reference and professional networking, embrace the myth that a career in science policy is not a career in science.

The untapped resource

In 2006, only 8% of new SEH doctorate recipients had definite plans for government employment, while 84% of SEH doctorate recipients either took an academic post-doctoral appointment or opted for increasingly popular positions in private industry [1]. Over the last 30 years, SEH doctorate recipients have actually become more likely to pursue a post-doctoral research appointment [1], despite the myriad of challenges they face during the search for an available tenure-track faculty position. In the biomedical sciences, for example, these challenges include a decrease in the percentage of grants awarded to young researchers and a higher average age for first-time grant awardees [2]. Interestingly, 11% of post-doctoral research fellows cite a lack of other available employment as the main reason for accepting their position [1]. Within this pool of doctorate recipients, there is likely a cohort in search of non-academic careers who are unwilling or unable to make this transition due to a lack of awareness, opportunity, or support at their training institution. The task for

universities and government agencies will be to work collaboratively, through course and seminar offerings, informed graduate career centers, and increased opportunities for science positions within the government, to eliminate the longstanding dogma that equates graduate school success with a quality post-doctoral appointment.

Table 1

Science Policy Fellowship	Duration	Eligibility
<u>AAAS Science and Technology Policy Fellowship</u> (Application Date: December; Start Date: September)	1 year	All career levels
<u>Emerging Leaders Program</u> (Application Date: March; Start Date: July)	2 years	All career levels
<u>FDA Commissioner's Fellowship</u> (Application Date: August; Start Date: October)	2 years	All career levels
<u>National Academies Science & Technology Policy Fellowship</u> (Application Date: Nov., March, June; Start Date: Jan., June, Sept.)	10 weeks	Recent doctorate
<u>National Academies Jefferson Science Fellowship</u> (Application Date: January; Start Date: August)	1 year	Tenured faculty
<u>Presidential Management Fellowship</u> (Application Date: December; Start Date: Negotiable)	2 years	Dissertation year
<u>The Robert Wood Johnson Health Policy Fellowship</u> (Application Date: November; Start Date: September)	1 year	Mid-career

Science policy fellowships in the federal government: Fellowship programs vary in timetable, hosting offices and agencies, stipend level, and applicant career stage.

The AAAS Science and Technology Policy Fellowship

A number of competitive fellowship programs offer scientists an opportunity to explore a policy career in the federal government (Table 1). The oldest and largest of these fellowships is offered by the American Association for the Advancement of Science (AAAS), which since 1975 has partnered with over 35 scientific societies to place scientists in congressional offices and executive branch agencies for assignments that span the domestic and international policy spectrum. These AAAS Science and Technology Policy Fellowships are available to scientists from all research backgrounds and career stages, and each of the nearly 2,000 current and former Fellows travel to Washington, D.C. with their own unique purpose. In general, science policy fellowships take place over a substantial enough period of time for scientists to set meaningful and tangible goals but are also short enough that Fellows do not forfeit a return to their previous line of work.

For recent doctorate recipients or scientists looking for a career change, the fellowship may simply act to broaden their knowledge of non-academic science careers. By experiencing first-hand the complex relationship between government, private industry, the general public, non-profit organizations, lobbyist groups, and other stakeholders, Fellows are exposed to the many careers in which science can impact society. For senior scientists, the fellowship may come as part of a sabbatical, during which they can develop a more policy-relevant research portfolio, better understand the funding process that drives their research capabilities, and ultimately bring a science policy perspective back to their university department. Others may use the fellowship as a stepping stone for their own political endeavors at the federal, state, or local level. Fellows looking to match their specific fellowship goals with a particular government agency can take advantage of *The Best Places to Work in the Government 2007* [3], a comprehensive ranking of 283 federal agencies based on workplace environment and employee engagement ratings from over 220,000 civil servants.

AAAS Fellows complete their fellowship in a Congressional office or committee of the Legislative branch or in one of 20

Executive branch agencies. In some cases, an office may host a Fellow to fill a position of need (e.g., an expert on water safety, a geneticist), while other offices look to Fellows more generally for their analytical and problem-solving skills, independent of research background. Fellowship experiences and the nature of work activities vary broadly depending on the particular office, and success depends largely on a Fellow's initiative, the scope and urgency of selected projects, and the relationship between a Fellow and his or her supervisor. Consistent among all fellowships is the opportunity to observe how federal decision-makers incorporate scientific information when setting priorities, how leaders interact with one another when delegating responsibility, and which aspects of the policymaking mechanism could benefit from the input of scientists. To supplement a Fellow's work in his or her host agency, AAAS offers an assortment of professional development workshops, seminars, and networking events throughout the year. These events provide project management skills, diversity training, resume-building tools, strategies for interacting with the media, and other valuable resources for thriving in the policy environment. Importantly, these events foster relationships with government, industry, and non-profit professionals who can offer important insight as Fellows pursue a career beyond the fellowship.

The bottom line

To overcome the science policy challenges of today and the future, it is essential that scientists engage federal decision-makers in a transparent, collaborative dialog and unite their often disconnected worlds. This will require a new generation of scientists that can evaluate the merits of both scientific and public policy endeavors. Recent doctorate recipients and young scientists represent an enormous pool of candidates for this role. However, they face their own challenges in overcoming the norms of the science community, which historically has not encouraged or rewarded scientists who pursue a professional life outside of academic research. For over 30 years, the AAAS has battled against this longstanding tradition by placing skilled scientists in positions throughout the federal government, where they can contribute their expertise, influence the policymaking process, and more effectively communicate science to the general public. The AAAS Fellowship and other science policy fellowships provide promise that scientists can bridge the divide between the scientific and policy worlds and more effectively translate scientific discovery at the bench into responsible federal action.

References

1. Hoffer TB et al. Doctorate Recipients from United States Universities: Summary Report 2006. <http://www.norc.org/SED.htm>.
2. American Academy of Arts and Sciences. Advancing Research in Science and Engineering: Investing in Early-Career Scientists and High-Risk, High-Reward Research. 2008 <http://www.amacad.org>.
3. The Partnership for Public Service and the Institute for the Study of Public Policy Implementation at American University. The Best Places to Work in the Federal Government 2007. 2007 <http://bestplacestowork.org>.