

INTERNSHIPS AND NETWORKING AS AVENUES TO BRIDGE THE GAP BETWEEN EDUCATION AND EMPLOYMENT

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Autonomy and choice are key components in training graduate students for the diversity of careers outside of academia. Ph.D.-granting programs must be dynamic enough to allow students to choose the classes they think will be most useful, to take part in a breadth of study outside their dissertation research, and to interface with professionals in environments beyond the ivory tower.

The University of Wisconsin – Madison's (UW) Neuroscience and Public Policy Program (N&PP) is emblematic of this approach, and may serve as a model for larger initiatives in graduate education. An interdisciplinary and dual-degree program, N&PP bridges neuroscience, law, policy, and bioethics; students earn a Ph.D. in neuroscience concurrently with either a Masters Degree in Domestic or International Public Policy, or a J.D. in Law. Throughout this process, students are trained to be successful in careers in academia as well as the private sector, government, and nonprofit organizations.

N&PP is built on several core ideas: that progress in science, technology, and public policy is essential for the well-being of societies, and that in order to enact sensible policy we must train scientists to participate meaningfully in the craft of policymaking and law. These ideals encourage the continuation of valuable scientific inquiry, while also translating acquired knowledge to society in efficient and equitable ways.

Two components of the N&PP program stand out as integral to its success and to the versatility of its students. Primarily, these initiatives are focused on bringing students outside the university, and bringing outside perspectives in.

The first is the N&PP Seminar Series, in which renowned individuals visit UW to meet with students and present on emerging topics in science and technology policy. The student meetings, which are intended to be informal, candid, and for the benefit of trainees, are an opportunity for those hoping to establish a niche at the intersection of science and policy to learn how their predecessors have done so. These meetings take place solely between the students and the guest speaker, usually over a meal. This engenders a communal feel, in which students can feel open and honest in conversation, standing as colleagues rather than subordinates. This is different in kind from more formal networking sessions in which students may feel that they lack the expertise to contribute to conversation. In sum, the N&PP model allows students to obtain direct and sincere advice from leaders in the field of science and policy, as well as to learn about training or employment opportunities.

Programs that provide financial and institutional support at a larger level for these trainee-professional meetings would open up graduate students to productive, lucrative and ultimately socially-beneficial career paths. Critically, these guest seminar speakers are not unilaterally research scientists; bioethicists, advocates, science policy administrators, economists, medical professionals, and educators have all presented in this seminar. Not every graduate student will be successful as a research scientist. Therefore, providing multiple avenues for students to explore careers outside the traditional academic research track and giving them opportunities

for open discussions with stakeholders from industry and other non-academic sectors will be critical for their personal and career growth.

The second key feature of N&PP that bridges the gap between academia and other sectors is a requirement that students take part in a non-academic internship while completing their degrees. This internship is of the student's choosing in consultation with their Ph.D. advisor, and previous internships have taken place at the National Academy of Sciences, the Wisconsin Medical Society, the Wisconsin Legislature, Policy Matters Ohio, and the MacArthur Foundation.

This brings students outside the laboratory, and perhaps outside their immediate field of study as well. As such, internships provide perspective on how the institution of science is governed, how various stakeholders view science policy, and how scientific research can be improved. Moreover, employers in government, nonprofits, or the private sector will value this first-hand internship experience, given that the knowledge gained will enable students to be thoughtful and creative employees.

If such programs and opportunities are few and far between now, it must be acknowledged that there are significant roadblocks to achieving this degree of student flexibility. As an example: An internship that lasts several months will (necessarily and by design) delay the dissertation research of the graduate student, potentially hampering their ability to publish in as timely a manner as their mentor might prefer. Thus, students must have monetary and institutional backing for internships, but perhaps more importantly a culture of support among the faculty who train them. Indeed, to the extent that N&PP students see success bridging the gap between science and policy, it is through the reassurance and flexibility of their Ph.D. advisors. To encourage this culture of support, graduate education programs may consider instituting policies that incentivize advisors to grant their students greater autonomy, perhaps by including internship experiences as evidence of successful mentorship in tenure portfolios. This would stand in stark contrast to the more direct record of publications that is the standard currency in many tenure reviews now.

These examples of non-traditional graduate education strategies are forward-thinking. Not all graduate students have the desire or motivation to be academic researchers, and therefore allowing increased flexibility in educational opportunities and exposure to other sectors will ultimately produce a Ph.D. workforce more suited for the multitude of careers available in science. N&PP can serve as a model for other programs seeking to harness the human capital of doctoral students and to increase permeability of information and expertise between different sectors.