

**BUILDING LEADERSHIP FOR THE
NANOTECHNOLOGY WORKFORCE OF TOMORROW:
THE NANOTECHNOLOGY PH.D. PROGRAM AT THE
UNIVERSITY OF WASHINGTON, SEATTLE**

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ABSTRACT

Persons with expertise at the forefront of nanoscale science and technology will be in high demand as nanotechnology's impact expands from today's electronics, catalysis, and bioanalytical chemistry into photonics, disease diagnostics, medical treatments, environmental cleanup, and beyond. This future workforce must be diverse in many ways - in *discipline*, because science, engineering and/or medicine combine in most projects; in *venue*, because nanotechnologists work in academia, national labs, industries, entrepreneurial enterprises, and public service; and in *culture*, because emerging nanoscale science and technology will impact lives globally in ways not yet imagined, and this will require input from and sensitivity to many backgrounds and beliefs.

Traditional Ph.D. training in a single discipline with emphasis on academic research careers does not adequately prepare students for careers in nanotechnology. Our educational programs must be redesigned to expose students to diversity in discipline, venue and culture while still providing thorough grounding in a specific discipline. To train tomorrow's leaders and practitioners of nanoscale science and technology, University of Washington created America's first Ph.D. Program in Nanotechnology in 2001 as a Dual Degree program.[§] To re-

[§] *Education in nanotechnology: Launching the First Ph.D. Program*, Viola Vogel and Charles T. Campbell, Int.

ceive a Ph.D. in "Home Department and Nanotechnology," students must meet all Ph.D. requirements in any of 10 participating departments in Science, Engineering and Medicine (for depth in a discipline) and fulfill additional course work and research rotation requirements that expose them to the frontiers of nanotechnology from multiple viewpoints. Additional options available to our students include participation in our fellowship program, student association, user facility, outreach programs, annual workshop (jointly sponsored by Pacific Northwest National Laboratory), mentorship program, and research rotations in industry, national laboratories or abroad.