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Impact of Professional Development Programs on Future STEM Faculty: A Longitudinal Mixed-Methods Study

TFPD Programs at Participating Institutions (Effective 2006 through spring 2010)

<i>Arizona State University</i>		
<i>Program and Provider</i>	<i>Program Features</i>	<i>Events & Offerings</i>
Pandisciplinary Programs		
Preparing Future Faculty (Graduate College)		Consists of two year-long for-credit courses (one credit per semester). The first year is called the Exploratory Phase. The second year, called the Participatory Phase, is optional, but highly encouraged and very beneficial. 
Resources for Graduate and Teaching Assistants & Associates (Center for Learning and Teaching Excellence)	ta	<ul style="list-style-type: none"> Teaching Toolbox (short online modules and sites on topics of interest) Streaming videos (TeachingTube) Workshops & Webinars
Strategies for Success series (Graduate College)		<ul style="list-style-type: none"> Podcasts & topical websites Workshops Courses (e.g., PFF courses below)
Teaching Assistant Development program (Graduate College)	ta 	<ul style="list-style-type: none"> Pre-orientation modules via Blackboard Face-to-face Orientation (half-day) Three “developmental experiences” For International TAs, podcasts on teaching
Department/College-Based Programs		
Down to Earth Science (GK-12 project) (Ira A. Fulton Schools of Engineering)		<ul style="list-style-type: none"> Week-long workshop in summer 3-credit course in fall 1-hour weekly learning community in spring 3 enrichment activities for fellows and teachers in summer GK-12 symposium (annual)

ICON KEY:  Program Includes a Formal Course (i.e., appears on transcript)

ta Program Intended for Teaching Assistants

 Program is (or may be) a Requirement (e.g., required for TAs)

<i>Arizona State University Cont.</i>		
Graduate Partners in Science Education (School of Life Sciences)		Between October and April, graduate students mentor primary and secondary students. During exploratory phase (Oct-Dec), graduate students spend one hour each week; during participatory phase, 2.5 hours each week. Culminates in poster presentations at Arizona Science and Engineering Fair.
Preparing Future Math Faculty (Department of Mathematics)	 	One-year program whose focus is to prepare graduate students pursuing careers in mathematics instruction in postsecondary settings. First semester is exploratory (campus visits and discussions); second semester is participatory.

<i>University of Washington</i>		
<i>Program and Provider</i>	<i>Program Features</i>	<i>Events & Offerings</i>
Pandisciplinary Programs		
Courses on Teaching and Learning (Graduate School)	 	<ul style="list-style-type: none"> • Special Topics in University Teaching • Teaching Mentorship
Huckabay Teaching Fellows (Graduate School)		Fellowships are one-quarter awards that support graduate students who work on a specific project focused on teaching and learning at the college and university level. Projects are to be proposed by Fellows, who will find faculty Teaching Mentors, either from UW or from a nearby community college, college, or university to collaborate with them in their projects. Fellows must also enroll in a teaching mentorship seminar. 
International Teaching Assistant Program (Center for Instructional Development and Research)	   Required	<ul style="list-style-type: none"> • Sessions at Teaching Assistant Conference on Teaching and Learning • Individual Consultations throughout first 2 quarters
Practical Pedagogy (Student Activities Office)		<ul style="list-style-type: none"> • Roundtable discussions • Practical Pedagogy Research (PPR) • Reading Group

<i>University of Washington Cont.</i>		
Professional Development Series for Graduate Students (Graduate School)		<ul style="list-style-type: none"> Workshop series that includes teaching and learning topics
Resources for Teaching Assistants (Center for Instructional Development and Research)		<ul style="list-style-type: none"> Individual consultations and classroom observations Workshops (e.g., to support departmental Lead TAs) Teaching Assistant Conference on Teaching and Learning (one-day)
Teaching Academy (Undergraduate Academic Affairs)		<ul style="list-style-type: none"> Workshops
College/Department-based Programs		
Center for Engineering Learning and Teaching (CELT) (College of Engineering)		CELT provides a number of instructional services that are available to faculty and graduate students, including one-to-one consultations, formative classroom assessments, faculty workshops, classroom presentations, and access to their education resources and expertise.
Departmental Teaching Courses		<ul style="list-style-type: none"> Anthropology 569: Teaching Anthropology Astronomy 500: Preparation of astronomy lectures, evaluating student progress in the classroom Biology 505: Problems in Biology Instruction Built Environment 550: Colloquium-Practicum on Research-Practice and Teaching-Learning Earth and Space Science 590: Special Topics - Geology Teaching Seminar Economics 602: Teaching Introductory Economics Geography 599: Effective Teaching of Geography Neurobiology & Behavior 515: Teaching internship - provides mentoring for undergrad course instruction Political Science 595: College Teaching of Political Science Psychology 537: Teaching of Psychology Psychology 596: Advanced Teaching Practicum - allows students to work with faculty in developing new courses Sociology 502: Seminar on Teaching Sociology

<i>University of Washington Cont.</i>		
<p>Ocean and Coastal Integrated Science GK-20 Program (OACIS)</p>		<ul style="list-style-type: none"> • Project fellowship
<p>Science Education Partnership (SEP) (Fred Hutchinson Cancer Research Center)</p>		<p>The SEP is an innovative education program which gives secondary school science teachers hands-on research experience through one-on-one pairing with a scientist-mentor. Seeking alternative teaching training for its students beyond the conventional TA-quarter experience, the department of Molecular and Cellular Biology (MCB) has become a virtual “partner site” with the SEP. All MCB graduate students who TA with the SEP undertake three main activities while in the program:</p> <ul style="list-style-type: none"> • education workshops • mentoring • science education activities
<p>Tutorials in Teaching Physics (Department of Physics)</p>		<p>TTP is a course that forms the foundation of a program to help prepare graduate students and junior faculty for their role as physics instructors. The primary goals are to help participants: refresh their understanding of basic physics; become aware of difficulties that students encounter in their study of physics; and become familiar with instructional strategies that have been shown to be effective in helping students learn physics. At the same time, Physics 501-2-3 is part of a program that helps undergraduate students improve their understanding of physics.</p> <p>Participants attend a meeting each Monday of the academic quarter as well as teach in the tutorials associated with the introductory calculus-based physics course.</p>
<p>Vertical Integration of Research and Education in the Mathematical Sciences (VIGRE) (Department of Applied Mathematics)</p>		<p>Fellows from the three participating departments are funded for two quarters and summer to mentor undergraduate students, participate in cross-departmental committees, have TA training and mentored teaching experiences.</p>

<i>University of Wisconsin-Madison</i>		
<i>Program and Provider</i>	<i>Program Features</i>	<i>Events & Offerings</i>
Pandisciplinary Programs		
Center for the First-Year Experience (Office of the Dean of Students)	ta	<ul style="list-style-type: none"> • First-Year Conference • Brown Bag Series • Departmental TA Training
Pre-College Enrichment Opportunity Program for Learning Excellence (PEOPLE Program) (School of Education)		<ul style="list-style-type: none"> • Teacher • Middle School Liaison • High School Internship Liaison
Teaching Academy (Office of the Provost)		<ul style="list-style-type: none"> • Summer Institute
Teaching and Learning Symposium		The annual Teaching & Learning Symposium provides an opportunity for faculty, staff, post-docs, and grad students to share best practices, celebrate accomplishments, discuss new pedagogy, and explore themes of mutual interest in a community dedicated to enriching the learning experience on campus. Each year's symposium includes plenary sessions, interactive breakout sessions, and post-symposium workshops.
Writing Center (College of Letters and Science)	ta	<ul style="list-style-type: none"> • Classes • Classroom Visits and Co-Teaching • Individual Instruction • Online Writing Center • Writing Across the Curriculum Website
The Delta Program for the Integration of Research, Teaching, and Learning		
Events and Activities		<ul style="list-style-type: none"> • Roundtable dinners • Workshops • Brownbag series
Programs or Seminars		<ul style="list-style-type: none"> • Creating a Collaborative Learning Environment • Mentor Training Seminar • Expeditions in Learning
Formal Graduate Courses		Graduate courses are an integral part of the Delta Learning Community. Students may take a single course, structure their minor around the courses, or work toward a Teaching Certificate (see below). Common course titles have included The College Classroom, Informal Science Education for Scientists, and Effective Teaching with Technology.

<i>University of Wisconsin Cont.</i>		
Teaching Certificate Program		The Delta Certificate in Research, Teaching, and Learning confers recognition of a student's achievement including (1) experience in teaching, (2) awareness of how to promote successful learning with diverse participants, (3) knowledge of foundational research and scholarship on teaching and learning, (4) demonstrated application of research skills to the improvement of participant learning, (5) engaged membership in the Delta Learning Community, and (6) the development of a reflective teaching and learning portfolio.
Department/College-based Programs		
Center for Biology Education (Institute for Cross-college Biology Education)		Biology Instruction Brownbags (Bibs) are lunchtime discussions for faculty and staff interested in sharing classroom experiences and developing more effective teaching strategies. Graduate students and Post-docs can sign up to be notified by email about upcoming brownbags.
Departmental Teaching Courses		<ul style="list-style-type: none"> • Biological Systems Engineering 799: Practicum in Agricultural Engineering Teaching • Educational Psychology 711: Teaching at the Undergraduate Level • Horticulture 799: Practicum in Teaching Horticulture • Journalism 880: Informal Science Education for Scientists: A Practicum • Patho-Biological Sciences 799: Practicum in Veterinary Science Teaching
Engineering Learning Center (College of Engineering)		<ul style="list-style-type: none"> • Teaching Improvement Program (TIP) • New Educators Orientation (NEO)
Graduate Seminar in Teaching Large Classes (Department of Soil Science)		This graduate course was developed as a companion to ES/SS101, Forum on the Environment. One goal is to have participants develop a teaching module to implement in ES/SS101. Additionally, participants read about and discuss the challenges and opportunities of teaching large classes; learn about large class management and technology strategies that can help reduce anonymity, including the use of clickers; and put what you learn into practice by developing group activities focused on case studies in current environmental issues.

<i>University of Wisconsin Cont.</i>		
Teaching Biology (Department of Microbiology)	 The logo consists of a small blue square with the word "COURSE" in white, positioned above a stylized lowercase "ta" in a bold, black font.	A graduate seminar, this course is an opportunity for biology TAs interested in teaching and learning to explore and develop their skills as teachers and future faculty. Participants have the opportunity to explore current biology teaching research, investigate topics in graduate student professional development, discuss teaching successes and share techniques, share teaching challenges, build community and network with other biology TAs and teachers.
Wisconsin Program for Scientific Teaching (Department of Bacteriology)		<ul style="list-style-type: none">• Scientific Teaching Fellows course

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