



Center for Science Education  
Handbook  
2011 - 2012



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# Center for Science Education

## Background

The Center for Science Education is part of the College of Liberal Arts and Sciences at PSU. The CSE works to improve the delivery of science education in the Pacific Northwest region by supporting educators at the K-12 level, higher education and in informal science arenas. The CSE offers a Masters in Science Teaching Program, supports teachers as researchers and offers classes, workshops and lectures that focus on the science content and pedagogical approaches to science teaching and learning with a focus on inquiry.

Our students come from many walks of life including career changers and those just getting started in their first professional career. For example, we work with returning students who leave private sector and government jobs in science and engineering to pursue a career in teaching and those that have recently graduated with an undergraduate degree in the sciences. A considerable number of students come to us with a background of working in informal science arenas such as working with science museums and outdoor education programs. Many of those who join our program are teachers all along the spectrum of experience including those that have never taught science before to veteran science teachers who are interested in forming new collegial relationships to further develop their content and pedagogical knowledge in the area of science education. Students who graduate from our program enter into a variety of occupational opportunities including teaching in K-12 and higher education, educational program development and coordination, educational administration and educational research. Many teachers who join our program are interested in stepping into new leadership roles in their current teaching positions in their schools and districts.

Examples of current jobs that our graduates are holding include working with Portland Parks and Recreation City Nature program doing environmental education and service-learning coordination, working with the Portland West-side stewardship program coordinating community efforts to restore, enhance and protect Portland's watersheds and serving as the Intel Northwest Science Expo program director. Others are teaching in K-12 schools such as teaching secondary math, science and sailing at the Antilles School in the US Virgin Islands. Other CSE graduates are currently conducting science education research in a high needs North Portland School, in the new Health and Sciences 6-9<sup>th</sup> grade options school in Beaverton and in the Westside High School Science Inquiry program in Beaverton. And the author of this handbook is a CSE, MST graduate who previously worked as a service learning program coordinator in

Washington and Oregon; a Development Officer and Executive Leadership Council member for a small private K-12 school and currently serves as a program coordinator for teacher education programming at the Center for Science Education.

Faculty with the Center for Science Education are involved in a wide breadth of activities to improve science education including teaching courses and workshops to improve teacher's understanding of science and strategies for teaching in highly diverse K-12 schools, higher education and informal science settings. We bring to our program national leaders in the field of science education and related fields such as math and psychology to teach classes and to provide student advising to graduate students in the center.

Four CSE faculty members are currently working with the state departments of education in Washington and Oregon to provide leadership in the process of implementing the new science standards. CSE faculty are also working with the Oregon Department of Education to develop research projects related to implementing the new standards and improving science education statewide.

## **Center for Science Education Programs**

### **Masters of Science Teaching (MST), General Science Degree**

The goal of the Master's of Science Teaching Degree is to advance the use and understanding of science inquiry through coursework and an active research program. Graduate students work with faculty advisors to develop and carry out a student learning and teaching based research agenda. Several scholarship pathways are open to MST graduate students through involvement with Research Groups including;

- Student learning assessment,
- Curriculum and instruction,
- Teacher professional development,
- Informal science education program research and
- Minority participation and achievement in the sciences.

In addition to research, MST students take graduate level science and education courses. The MST is administered within flexible guidelines to match the needs of students with varying backgrounds and professional plans. For more information contact: Dr. Bill Becker; [beckerw@pdx.edu](mailto:beckerw@pdx.edu)

The CSE offers two Masters of Science in Teaching programs.

- **Option one** is an MST program designed for those who are preparing to teach informal science or in higher education or already hold a teaching certificate. This program is suited to those who are current and future science educators desiring to enhance science teaching and student learning assessment knowledge for Kindergarten through higher education settings or individuals interested in science interpretation for the general public.

<b>MST Option 1 Program of Courses: 2010 - 2011</b>					
<b>Fall 1</b>	<b>Winter 1</b>	<b>Spring 1</b>	<b>Fall 2</b>	<b>Winter 2</b>	<b>Spring 2</b>
SCI 511 Teaching Science Inquiry (4 cr.)	SCI 512 Methods in Science Education Research (4 cr.)	SCI 513 Assessment of Student Learning (4 cr.)		SCI 510 Teaching to Diversity Optional elective course (3 cr.)	Ed Elective (3 cr)
Graduate Level Science Class (4 cr.)	Informal Science students – Field practicum experience (2 cr.)	Graduate Level Science Class (3 cr.)	Graduate Level Science Class (4 cr.)	Graduate Level Science Class (4 cr.)	SCI 514 Teaching Science with Technology (3 cr.) Optional
SCI 507 MST Seminar (1 cr.)	SCI 507 MST Seminar (1 cr.)	SCI 507 MST Seminar (1 cr.)		MST Research Credit (1 cr.)	MST Research Credit (2 cr)
MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)
9 credits	6 credits – required credits plus optional electives or graduate level science Informal Science Program students – 8 cr.	9 credits	9 credits	9 credits	9 credits

Minimum requirement of 45 credits

- Electives include 3 education related credits and 3 credits in any graduate level course

**Option two** is the MST portion of the Robert Noyce Scholarship Program. The Noyce program is a two year program designed specifically for pre-service science and math teachers. The goal of the program is to prepare students for teaching in diverse classrooms in high needs schools. Students enroll concurrently in the part-time GTEP with MST program classes throughout the two-year program. The education research thesis is tied to the GTEP work sample project, thus providing students with guidance to do an in-depth study on an aspect of their own teaching practice.

### Noyce Program Course Plan 2011-2012

Summer 1	Fall 1	Winter 1	Spring 1	Summer 2	Fall 2	Winter 2	Spring 2
Human Development prereq. or completed in session 1	SCI 510 Teaching Science Inquiry (4 cr.)	SCI 510 Methods in Science Education Research (4 cr.)	SCI 510 Assessment of Student Learning (4 cr.)	G 510 Project NANO for Teachers	* Diversity Elective	SCI 510 Teaching to Diversity Seminar (3 cr.)	
	Graduate Level Science Class (4 cr.)	Graduate Level Science Class (4 cr.)	Graduate Level Science Class (4 cr.)	Graduate Level Science Class (4 cr.)			
	SCI 507 MST Seminar (1 cr.)	SCI 507 MST Seminar (1 cr.)	SCI 507 MST Seminar (1 cr.)	SCI 514 Teaching Science with Technology (1 cr.)			
	MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)		MST Research Group (1 cr.)	MST Research Group (1 cr.)	MST Research Group (1 cr.)
CI 512 Teaching and Learning (3 cr.)	CI 513 Instruction and Technology (5 cr.)	<i>CI 510 Engaging HS Learners (3 cr.)</i>	CI 521 Reading and Comp. in Content Area (3 cr.)	<i>CI 510 Engaging MS Learners (3 cr.) - CI</i>		CI 515 Reflective Practice (2 cr.)	CI 515 Reflective Practice (1 cr.)
CI 514 Mult. and Urban Ed. (3 cr.)		SPED 518 Surv. of Ex Learner (3 cr.)	CI 511 Classroom Management (3 cr.)	<i>CI 510 Engaging HS Learners (3 cr.) – if not Winter - CI</i>	CI 519 SSM: Science Methods (3 cr.) - CI	CI 548 ASM: Science Methods (3 cr.) - CI	
	CI 509 Initial Field Experience (1 cr.)				CI 509 Initial Field Experience (1 cr.)	CI 554/556 Student Teaching I (6 hours)	CI 555/557 Student Teaching II (15 cr.)
3 prereq. Credits for GTEP	9 or 10 MST credits	10 MST credits	10 MST credits	7 MST credits	4 MST credits	4 MST credits	1 MST credit
6 GTEP credits	6 GTEP credits	6 GTEP credits	6 GTEP credits	0-6 GTEP credits	4 GTEP credits	11 GTEP credits	16 GTEP credits

**MST: 45 Credits**

**GTEP: 56-59 Credits (depending on dual or single authorization level).**

*Note: The diversity elective course allows students to take any “diversity” related graduate level course in the fall term of the second year. For example, students may opt to take a diversity related class through psychology, sociology, women studies, urban studies or any other department that offers courses related to issues having to do with cultural, ethnic, socio-economic or gender related issues that relate to the classroom experience.*

## **Connect2Math and Connect2Science Program**

Portland State University and has entered into a mathematics and science elementary teacher professional development partnership project with Beaverton, Hillsboro, Portland, Gresham-Barlow and Parkrose school districts entitled “Connect2MATH-Connect2SCIENCE: Proficiency and Inquiry-Based Teaching in Math and Science (C2M-C2S).” Over the 3 years of the project beginning in the fall of 2010, 10 elementary math-science professional learning communities (PLC) from grades 3-5 have been established at high needs schools in the partnering school districts. Each PLC consists of 2 lead teachers (LT), 3 partnering teachers (PT) and their school principal. Teachers from each of the project’s PLCs will receive proficiency-based mathematics and science content instruction that is tailored to their personal learning and teaching needs. Teachers will demonstrate their own content and pedagogical proficiency on externally validated assessments, classroom observations and project work samples.

Teachers in the project’s PLCs will develop, implement and evaluate a/an interdisciplinary proficiency-based mathematics and science instructional unit(s) that is/are designed to generate individual student work samples that will be scored for targeted math and science knowledge and skills including the science inquiry and engineering (SI/ED) outcomes identified in Oregon’s new work sample scoring guides. All student-learning outcomes will be aligned with Oregon’s grade level mathematics and science standards and formative learning targets of Oregon’s Essential Skills from new high school diploma.

Throughout the project master teachers on special assignment (TOSAs) from each school district will collaborate with university mathematics and science faculty members to design and implement week-long Connect2MATH and Connect2SCIENCE pedagogical content summer workshops. These workshops will expand the capacity of the highly successful Connect2SCIENCE summer program that is currently administered by the PSU Center for Science Education (CSE). The new Connect2MATH and Connect2SCIENCE workshops developed under this grant will also be offered to 120 elementary teachers not participating in the project’s PLCs and 60 teachers from local private schools, charter schools and home schools through CSE’s teacher professional development program in partnership with the PSU Graduate School of Education (GSE) and the Preparation for Instruction in Science and Mathematics (PrISM) network. Thus the project will generate two populations of teachers served by C2M-C2S workshops and enable us to conduct a quasi-experimental research project that demonstrates the value and efficacy of employing PLCs to improve student achievement on standardized mathematics and science assessments.

### **Program Faculty and Staff:**

William Becker, PhD. – Lead Principal Investigator, CSE Department Chair

Dean Randy Hitz – Co Principal Investigator, Dean of the Graduate School of Education

Chris Steiner – Hillsboro School District Teacher on Special Assignment (TOSA) program liaison

Carol Biskupic-Knight – Program Coordinator and Beaverton School District Teacher on Special Assignment (TOSA) program liaison

Nancy Lapotin – Portland Public School Teacher on Special Assignment (TOSA) program liaison

Matt McCaw – Parkrose School District Teacher on Special Assignment (TOSA) program liaison

Emily Saxton, M.S.T. – Research Associate

Tina Johnston, PhD. – Research Associate

Cary Sneider, PhD. – Research Associate

Linda Mantel, PhD. – Associate Research Professor and Project Coordinator for the Student Research for Secondary Education program

## PSU Robert Noyce Scholarship Program

This National Science Foundation grant funded program is a partnership between the Center for Science Education, the Graduate School of Education, Portland Public Schools, Parkrose School District, Gresham Barlow School District and the Beaverton and Hillsboro School Districts. This two-year intensive science and math teacher preparation program includes a Masters in Science Teaching (MST) degree and earning an Oregon teaching license through the Graduate Teacher Education Program (GTEP).

The PSU Noyce Program includes course work specifically designed to prepare teachers to teach using the constructivist method in highly diverse science and math classrooms at the K-12 level. The program also involves the development and implementation of a science or math education research thesis or project working in partnership with the Oregon Teacher Scholars Program teachers, track one MST students, faculty advisors and program partners.

**The Robert Noyce Scholarship stipend:** A \$20,000 financial stipend supports the work of students involved in this program. Noyce scholars are required to teach at a high-need public school in the U.S. upon graduation for two - years for each year of funding (a total of 4 years).

**The Teach Grant:** Noyce Scholars with a minimum cumulative GPA of 3.5 are invited to apply for a \$4,000 Teach Grant through the PSU Office of Financial Aid. In order to receive this scholarship, recipients must agree to teach for two years in a high needs public K-12 school. This two year period is concurrent with and not in addition to the four year period Noyce scholars must work in a high needs school. The application and contract can be downloaded from the Financial Aid website. Heather Mattioli, (Assistant Director, Financial Aid) is the Teach program point person to speak to with any questions or issues regarding this or the Noyce scholarship.

### Noyce Program Faculty and Staff

William Becker, PhD. – Lead Principal Investigator, CSE Department Chair

Liza Finkel, PhD. - Co Principal Investigator, Graduate School of Education Professor

Nicole Rigelman, PhD. - Co Principal Investigator, Graduate School of Education  
Professor, GTEP Noyce program liaison

Linda Mantel, PhD. – Program Coordinator

## **The Intel Northwest Science Expo**

The Northwest Science Exposition's (NWSE) mission is to develop scientific talent and promote science literacy in Oregon students. The NWSE is an Intel International Science and Engineering Fair-affiliated science fair held for 5th through 12th grade students every spring since 1984. Top projects in the high school division attend the Intel International Science and Engineering Fair. The top middle school projects are nominated to enter the Broadcom MASTERS.

**The 27th Annual Intel NWSE will be Friday March 23, 2012 at PSU.**

### **Intel NWSE Contact Info**

**Stephanie Jones, Intel NWSE Fair Director**

**Email:** [nwse@pdx.edu](mailto:nwse@pdx.edu)

**Heather Ohana, Intel NWSE Assistant Fair Director**

**Email:** [nwse\\_ad@pdx.edu](mailto:nwse_ad@pdx.edu)

## **Center for Science Education Faculty and Staff**

*Dr William Becker, PhD. – Department Chair*

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*Carol Biskupic-Knight – Beaverton School District Program Liaison to the OTSP and Noyce program*

*Elizabeth Lipes – Department Secretary*

*Todd Duncan, PhD. – Research Associate*

*Celine Fitzmaurice MS. – Adjunct faculty instructor*

*Michael Flower, PhD. - Adjunct faculty instructor*

*Stephanie Jones, MST – Intel NW Science Expo Fair Director*

*Lin Howel – Johnson Creek Watershed Council, Creeks and Kids program instructor*

*Nancy Lapotin – Portland Public Schools, Program Liaison to the OTSP and Noyce program*

*Linda Mantel, PhD. – Associate Professor of Research and Executive Director of the Intel, NWSE*

*Heather Ohana – Assistant Intel NWSE Fair Director*

*Stephen Scannell – Gresham Barlow School District Program Liaison to the OTSP and Noyce program*

*Cary Sneider, PhD. – Associate Professor of Research*

*Chris Steiner. – Hillsboro School District Program Liaison to the OTSP and Noyce program*

*Jennifer Wells, MST – Research Associate*

## **CSE Partner Programs**

### **Vernier Software and Technology on-line course and workshops**

Vernier Software and Technology is a local company that offers cutting-edge technology to help enliven teaching and learning in K-12 classrooms. Vernier probe-ware increases the relevance of science and expands the possibilities of inquiry in the disciplines of biology, chemistry, physical science and math. Vernier has been a staunch supporter of science education for more than 26 years and in particular has enthusiastically supported the mission of the CSE through their support of the Intel Northwest Science Expo, the Robert Noyce Scholarship Program and offering workshops for specifically designed for CSE students.

Currently, Vernier supports the MST program by supporting summer research conferences and offering a summer workshop for teachers. In addition, Vernier and CSE have teamed up to

support professional development for current teachers. The CSE offers a two-credit hour graduate level on-line course to support teachers to integrate Vernier technology into their classrooms. The course requirements include attending a qualifying Vernier workshop offered anywhere in the United States, submitting a formal write-up of an inquiry-based experiment that includes Vernier software and technology and developing, implementing, and assessing a lesson involving electronic data collection. For more information, please see the “Training” and “Earn Graduate Credit” section of the Vernier Systems and Technology website at: <http://www.vernier.com/workshop/>

## **MESA – Mathematics, Engineering, Science Achievement**

**Oregon MESA** is a pre-college academic program that engages 6th-12th grade students in hands-on, inquiry-based math, engineering, science and technology projects during weekly chapter meetings at school sites. The MESA Partnership Model connects students, teachers, schools and families with universities, community colleges, industry and government. The vision of the program is to provide under-represented students with skills, knowledge and opportunities necessary to play a leading role in an increasingly technology driven world. In 2006, 92% of MESA graduating seniors pursued a college education. The CSE has a long standing relationship with the MESA program. Program Director Bill Becker serves on the Oregon MESA advisory board and the CSE contributes toward staffing of their programming with CSE MST students and volunteers.

## **Health and Sciences Magnet Program (HS2)**

HS2 is a small options high school for students interested in science and medicine. The CSE contributed to the design and launch of this college- prep program that is designed for students from all social, cultural and economic backgrounds. The school is a laboratory for CSE researchers who are examining the success of this school model to engage and prepare students for careers in health and sciences. Three CSE graduate students are working within small, teacher-led investigative teams that foster communication, student engagement, research skills, critical thinking and problem-solving. As the school enters its second year, it is currently comprised of grades, 6, 9 and 10. Students currently entering the tenth grade will be eligible to earn college credit in grades 11 and 12. Seniors at HS2 will participate in internship rotations at local hospitals, medical facilities and research labs.

## **The Northwest Science Expo System (NWSES)**

The NWSES encompasses the seven regional fairs (expos) and the Intel Northwest Science Expo in Oregon, which are affiliated with the Intel International Science and Engineering Fairs (ISEF). Each expo sends its “Best of Fair” high school students directly to Intel ISEF, and its top third qualify for the Intel NWSE, the state-level science expo. The mission of the Northwest Science Expo System (NWSES) is to develop scientific talent and promote science literacy in Oregon students by providing a structure and a venue for presenting high quality student research. The NWSES encourages students to learn science, engineering and math by engaging in the activities that characterize these endeavors. Students compete in 17 categories encompassing all the scientific disciplines, engineering, computer science and mathematics. Participants come from all parts of Oregon. A goal for the NWSES is to increase the number of ISEF-affiliated fairs statewide and to provide support for teachers

and students in their research activities. NWSSES is supported in part by the Oregon University System. Additional sponsors are needed to support Team Oregon, the participants and alternates who qualify to attend the Intel ISEF each year.

For information on the NWSSES, contact:

Linda H. Mantel

Executive Director, NWSSES

Center for Science Education (<http://cse.pdx.edu>)

Portland State University

PO Box 751

Portland, OR 97207-0751

503-725-4221

[mantelh@pdx.edu](mailto:mantelh@pdx.edu)

## Center for Learning and Teaching in the West

The Center for Learning and Teaching in the West is currently in the “sun-setting” phase at PSU, as the last PSU doctoral student, Mike Ellison completes his dissertation. CLTW is a network of five partnering universities creating a community of graduates, faculty, and educators who are dedicated to improving mathematics and science education in the nation’s schools so that they nurture the naturally inquiring minds of children and youth. The program prepares graduates to influence educational change to ensure that all students develop questioning and problem solving skills essential to success in science and mathematics courses and inspires them to seek opportunities to achieve social and environmental justice and to actively promote environmental sustainability.

### CLTW Guiding Philosophy

*A Course of Study and Research Agenda that:*

- Responds to culture and learning in a dynamically changing American population
- Builds bridges and makes connections between scientists, mathematicians, and educators
- Builds community among faculty and students across different and diverse institutions of higher education
- Creates opportunities to engage graduate students, faculty and K-12 teachers in mutually beneficial relationships to facilitate relevant improvements in learning and teaching science and mathematics
- Honors quality research and recognizes that valid and functional research incorporates multiple models and methodologies for creating and disseminating knowledge
- Strengthens the influence of research for educational change at classroom, school, and district, state and federal levels.
- Requires research that will help us understand and promote K-20 student learning and achievement in mathematics and science in high-need populations.

*An Approach to Learning and Teaching that:*

- Honors the cultural and community contexts that shape the identity and experience of all our students
- Recognizes and builds on the various disciplines informing their graduate studies
- Fosters development of learning communities through on-line instruction and discourse and annual meetings
- Engages students in school and community based activities to enhance learning

## Masters in Science in Teaching (MST)

### Research Groups

The CSE MST program requires that all students engage in conducting science education research. Research proposals are generated with the support of the Methods of Science Education Research course, a Research Group and two Research Group faculty advisors. Teacher Scholars involved in the Math and Science Partnership funded Oregon Teacher Scholars Program are also engaged in developing science education research projects. Both the MST and Teacher Scholar researchers are grouped thematically into Research Groups. CSE faculty members mentor the research groups during meetings that occur twice a month throughout the research cycle.

### Research Group Leaders

*Cary Sneider, PhD.*  
*William Becker, PhD.*  
*Emily Saxton, MST.*  
*Stephanie Wagner, MS.*

*Linda Mantel, PhD.*  
*Melissa Potter, PhD.*  
*Liza Finkel, PhD.*  
*Michael Flower, PhD.*

## The MST Program Students

- ⊗ Option One – This program is for currently certified teachers earning a graduate level degree and for those preparing to teach at the higher education level and in informal science settings.
- ⊗ Option Two – This program is for pre-service K-12 teachers preparing to teach in highly diverse, high needs schools in the United States.

### Option One Students

*Gretchen See*  
*Robert Cressman*  
*Anika Baker Lawrence*  
*Annie Lawrence*  
*Eric Fass*  
*Alicia Montez*

### Option Two Students Noyce Scholars

*Secret Belanger*  
*Bradley Davis*  
*Jessica Foster*  
*Doug Howe*  
*Jennifer Johnson-Griffith*  
*Gretchen Kraig-Turner*  
*Julia Langston*  
*Morgan Mulkey*  
*Jared Renfro*  
*Anna Ricks*

*Rachel Stagner*  
*Dean Thomas*  
*Rachel Wallack*  
*Stephen Walsh*  
*Timothy Fiser*  
*Leslie Tenyck*  
*Lindsey Mockel*

*Huck Wilcan is a Math  
MST student affiliated with  
the program as a Noyce  
Scholar*

## 2011 Noyce Scholars Cohort

Stacey Beck  
Jeff Buckingham  
Cheryl Casey  
Erol Chandler  
Jay Dyer  
Rebecca Hoffenberg  
Andrea Leech  
Riley Meinershagen  
Leah Taylor  
Arman Werth

### **Pending Option I MST program acceptance**

Neil Kavanagh  
Doug Lownsbery  
Jennifer Zickel  
Karinsa Kelly

### **Community Learning and Teaching in the West Doctoral Program**

*Mike Ellison, MST – Doctoral Candidate*

### **Masters of Science Education Student Snap Shots**

#### **Option One Students**

##### **Gretchen See**

- Fifth year MST student
- BS in Biology
- Preparing to teach Biology at the Community College level
- Research - currently creating a research proposal

##### **Robert Cressman**

- Second year MST student, Option I
- BS. Environmental Science, Oregon State University, Corvallis (2008)
- Preparing to teach informal science

##### **Anika Baker Lawrence**

- Second year MST student, Option I
- Bachelors of Science of Biology, Humboldt State University (2008)
- Preparing to apply to Noyce on December 1, 2010 to teach high school biology

##### **Andrea (Annie) Lawrence**

- Second year MST student, Option I
- Bachelors of Science of Environmental Science, Oregon State University (2006)
- Preparing to teach in informal science

#### **Alicia Montez**

- Second year MST student, Option I
- Bachelors of Psychology, University of Maryland (1989)
- Masters of Science of Special Education, John Hopkins University (1994)
- Interested in creating afterschool programs in science for English Language Learners and other special needs students
- Veteran teacher

#### **Eric Fass**

- Second year MST student, Option I
- Bachelors on Science of Mathematics, University of Wisconsin (1993)
- Current PPS elementary level teacher (Veteran teacher)

## **Noyce Scholars**

#### **Bradley Davis**

- Fourth year MST student
- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Completed the GTEP as of spring of 2009
- BS in Chemistry from Portland State University, 2007
- Preparing to earn an Chemistry endorsement to teach High School Chemistry
- Research - Is in the process of creating a research proposal

#### **Jessica Foster (Jessie)**

- Fifth year MST student
- Has completed the MST portion of the Noyce program except for final revisions on the thesis.
- Completed the GTEP as of spring of 2009
- Current member of the secondary Math and Science GTEP cohort
- BA in Biology form Reed College, Portland Oregon, 2005
- Preparing to earn an integrated sciences teaching endorsement to teach Middle School Science.
- Research - An evaluation of the ways in which the Oregon Museum of Science and Industry (OMSI) Salmon Camp program impacts students high school graduation rate, science attitudes, and science knowledge. The Salmon Camp program is intended for Native American middle school/high school students.

#### **Doug Howe**

- Fourth year MST student

- Entering the secondary Math and Science GTEP in the summer of 2008 cohort
- Preparing to teach High School Physics
- Adjunct Instructor, Mechanical Engineering Department, Fall 2007. Systems Engineer, Circuit Fine Tuning Division, 9/2004 to 9/2007, Mechanical Engineer, Central Engineering Group, 6/2002 to 9/2004, District Manager, Hosch USA, 5/1994 to 11/1998
- Research

Currently completing an investigation of learning outcomes associated with the program “Engineering of Everyday Things”

The Engineering of Everyday Things\* is an NSF-sponsored Research Project with the goal of improving how engineering students learn core concepts in thermodynamics, fluid mechanics and heat transfer.

### **Julia Langston**

- Fourth year MST student – entered the program during the spring term of 2008 during the completion of her senior year.
- Has completed coursework and is wrapping up her research
- BS in Natural History, Evergreen State College, Olympia Washington, 2003
- Assistant Director of Kids Community Learning Center from 2004-2007
- Owner of Northwest Garden Works garden design company
- Preparing to earn an Integrated Sciences Endorsement to teach Middle School Science

### **Anna Ricks**

- Fourth year MST student
- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Completed the GTEP as of spring of 2009
- B.S. in General Science in the Liberal Arts, Portland State University, 2007
- Current member of the secondary Math and Science GTEP program 2008 cohort
- High School Biology and Environmental Science Teacher, Outdoor Education and Environmental Education (OMSI, Audubon Society of Portland, Battle Ground School District)
- Preparing to teach high school Biology
- Research working title: Comparing Effectiveness of Botany Field Experience and Classroom Instruction: Results of a Mixed-Method Experiment

### **Rachel Stegner**

- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Completed the GTEP as of spring of 2009
- BS in Fisheries and Wildlife Biology, Michigan State University, East Lansing, MI.
- Student Ambassador for MESA Oregon, Graduate Research Assistant for the Oregon Teacher Scholars Program 2007-08, Graduate Teaching Assistant for several PSU classes, supported Sybil Kelly’s research at Okley Green MS in N. Portland

- Preparing to earn an endorsement in Biology to teach high school science

### **Stephen Walsh**

- Fifth year MST student
- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Completed the GTEP as of spring of 2009
- BA in Environmental Studies, Lewis and Clark College, Portland Oregon, 2003
- Preparing to earn an endorsement in Integrated Sciences to teach Middle School Science
- Worked as the Assistant Admissions Advisor for the AFS Intercultural Student Exchange Programs for 2005-2006; served as the garden coordinator for the Center for Research in Environmental Science and Technologies (CREST); and served as an Americorp volunteer at CREST assisting with and teaching science for K-12 students in West-Linn Wilsonville School District.
- Research – Exploring the effectiveness of virtual science labs in middle school classrooms

### **Rachel Wallack**

- Fifth year MST student
- Has completed the MST portion of the Noyce program except for final revisions on the thesis
- Completed the GTEP as of spring of 2009
- Masters of Environmental Management, Portland State University, 2000
- Worked for the past eight years as an environmental consultant focused on environmental clean-up
- Preparing to earn an Integrated Sciences Endorsement to teach Middle School Sciences
- Research - Is currently creating a research proposal in partnership with Education Doctoral student Susan Duncan.

### **Jared Renfro**

- Fourth year MST student
- Has completed coursework and is making final revisions to his thesis
- BD in Recreational Therapy, University of Missouri at Columbia, MO. 1999
- Preparing to earn an Integrated Science endorsement to teach Middle School Science
- Missouri Special Education Certified Teacher
- Worked in several mental health clinics as an adult therapist for Alzheimer's and demented older adults, worked with reading for the blind programs and as a Boy Scouts of America camp councilor from 1992-1995.
- Research - will create a research proposal during winter term of 2009

### **Harold (Huck) Wilcan**

- Fourth year MST student in the Math MST program

- Oregon Certified Teacher completed the GTEP first in the Noyce sequence. Graduated in the spring term of 2008.
- BA in the Physics of Harmony, The Evergreen State College in 1999
- Current career goal is “to rid the world of math fear”.
- Research - currently creating a research proposal with a focus on “unraveling the natural gender biases” within our mathematics curriculums.

## **Noyce Scholars**

### **Lindsey Mockel**

- Second year MST and GTEP student MST and GTEP student, Option II, phase II Noyce
- Bachelors of Science, Biomedical Sciences and Bachelors of Arts in Spanish, Auburn University (2005)
- Preparing to teach high school biology

### **Leslie Teneyck**

- Second year MST and GTEP student MST and GTEP student, Option II, phase II Noyce
- Bachelors of Science of Biology, Oregon State University (2008)
- Preparing to teach high school biology

### **Timothy Fiser**

- Third year MST student, and beginning Noyce this year
- Double Major, BA in Physics and Philosophy, Cornell College, Mt. Vernon, Iowa (2001)
- Preparing to teach high school physics

# Resources

## CSE Administration Help Sheet

<b>Task – CSE Secretary</b>
Aramark catering requests
Banner reports
Bill's Calendar
CSE Budget
Course Forms (by arrangements, etc.)
Course Scheduling
Equipment Checkout
Foundation accounts
General reimbursements
Graduate student files
Keys/alarm codes
Large-scale photocopying jobs
Mail
Paying subcontractors
Paying graduate students
Personnel files
Phone requests
PR materials (brochures, displays, etc.)
Purchasing/Accounts payable
Questions re: grant expenditures
Reserving rooms
Setting up a teacher development course for credit
Scheduling/course related
Supply and equipment requests
Travel arrangements
Vehicle check-out requests
Work study hiring procedures/payroll
Cramer 287/SB2 469/Conference room scheduling

## Faculty and Staff Office Resources

### Stephen Epler Hall

The Epler Hall offices houses the faculty and staff offices for the OTSP, Noyce and CLT-W program, the Executive Director for the Intel NWSE and graduate student work spaces. Epler Hall also houses the conference room.

Epler Hall has a work station located in the center of the office. The CSE Epler fax number is 503 -725-3884. **Please use the fax machine to make small runs of copies rather than using the copier unless you have an odd sized document to copy.** We are charged by the copy to use the copy machine and wish to limit our costs. There is replacement toner cartridges for the printer and fax and also extra paper located on the shelf underneath the printer. The user manuals for the printer, fax machine and copier are also on the shelf beneath the printer.

There is a Common Computer Station located near the kitchenette. This computer is available for any students or faculty/staff to use. The SPSS program is loaded on this computer. Also there is a scanner/copier connected to this computer. This copier can do colored copies but unless you really, really need color copies, please use the fax machine to make your copies since the replacement toner cartridge for this machine is rather expensive.

The shredded is great for small jobs but can only run for six minutes at a time before it needs to cool off. Please make sure that you don't try to shred documents with staples or thick labels or tape as this will jam the shredded.

There is a metal office supply cabinet located next to the work station in the office. These supplies are for CSE faculty and staff only. If you anticipate needing something that is not the closet, please enter this item on the order request sheet that is on the door of the closet. If you notice that an item is low in supply, please add this to the order request form. Elizabeth will generally.

If you have any difficulties with any of the office equipment including your computer system, please let Elizabeth know so that she can put in a work order to fix what isn't working.

The PSU Recycling crew comes by once a week or so to pick up the recycling from the work station area and the kitchenette. If you would like your recycling from your desk area picked up, please put it in the container located next to the workstation. You will notice that there is a mixed paper waste box and a large blue plastic shredded paper container next to the workstation.

The kitchenette is available for any CSE faculty, staff or student to use. Please use the recycling containers located under the kitchenette table! Also please make sure that you don't leave old food in the office refrigerator and please do your own dishes as we are all equally responsible for keeping that area neat and tidy. There are permanent ware cups, plates and utensils in the cabinets that are available for everyone to use. Unless you are having a

gathering somewhere other than the office that requires disposable ware, please use the permanent ware rather than the disposable supplies that are found under the microwave.

The teas and coffee on the shelves are for everybody but if you see that we are running low, please help to restock the supplies if you use them since this is something we all share out of the goodness of our hearts.

There is a shower next to the kitchenette that is available for everyone to use and again, the responsibility of the users to keep neat and clean.

The CSE has a lending library behind the conference room that is available to everyone in the Center. We use the honor system for checking out books. Although we do not use a formal check-out system, please fill out the form located on the CSE library bulletin board so that people can track down the item if they need it. Please put it back when you are done with it for the moment so that it will be there for others to use too and there for you when you need it again!

Between the NSW and Dr. Mantel's cubical is a black metal bookcase. These shelves contain past MST student project and thesis which you are welcome to browse and return to the shelves for others to see. Also on that same black bookshelf are science program related materials from other programs who send us their materials. On top of the shelves you'll find subscriptions to several science related journals that are there to give you ideas for what you may wish to address with classes you teach or simply to help you to keep abreast of science news. These are also on a self-check-out basis. The archived editions will be stored in the CSE lending library under the name of the journal.

Many of the faculty members and graduate students have books and materials in their office spaces that belong to them personally. Please do not borrow these items unless you have the permission of the owner

The PSU Recycling crew comes by once a week or so to pick up the recycling from the workstation area and the kitchenette. If you would like your recycling from your desk area picked up, please put it in the container located next to the workstation. You will notice that there is a mixed paper waste box and a large blue plastic shredded paper container next to the workstation.

There is also a shelf on the same bookshelves with journals and other publications that is a give away section. If you have journals or printed article that you would like to give away, please put those items on this shelf. If you have materials gathered at a conference or books you want to share with the Center, please give those to Elizabeth and tell her if the items is to be included in the CSE library or on the give-away shelves so that she can properly organize the materials.

The department mail boxes and out-going mail boxes are located near the north entry to the Epler office. The office is open on Monday through Friday from 9:00-5:00 during the academic year.

The large copier in Science Building II room 218 is available for faculty to make copies. Please use this copier if you have a large copy job to do. The department secretary can provide you with the copy code if you are an instructor or a TA needing to make copies.

### **Faculty Email Addresses:**

Bill Becker	beckerw@pdx.edu
Carol Biskupic Knight	carol_biskupic_knight@beavton.k12.or.us
Cary Sneider	csneider@mos.org
Celine Fitzmaurice	celine@pdx.edu
Chris Steiner	steinerc@hsd.k12.or.us
Emily Saxton	esaxton@pdx.edu
Heather Ohana	nwse_ad@pdx.edu
Jennifer Wells	wellj@pdx.edu
Jessica Baker	pdx04446@pdx.edu
Linda H. Mantel	crablady@teleport.com
Lorna Tran	lorna_tran@yahoo.com
Melissa Potter	Melissa_potter@pdx.edu
Michael Flower	flowerm@pdx.edu
Nancy Lapotin	nlapotin@pps.k12.or.us
Stephanie Jones	sjones@pdx.edu
Stephen Scannell	scanning@pdx.edu
Todd Duncan	duncant@pdx.edu

### **Commonly Used Acronyms and Terms**

NSI – Natural Science Inquiry

MSP – Math and Science Partnership

RBLI and RBL II – Research Based Learning One and Two: the new names of these courses are:

RBLI has become Teaching Science as Inquiry

RBLII has become Methods of Science Education Research

MST – Masters of Science Teaching

MST Option I – Masters of Science Teaching in General Science Program for:

- Students who are already K-12 certified teachers
- Students who are preparing to teach at the higher education level
- Student who are preparing to teach in informal science (science museums, Watershed Education programs, citizen science research related programs, etc.)

MST Option II – Robert Noyce Teacher Scholars Program

LSAMP – Louis Stokes Alliance for Minority Participation

Senior Inq. – Senior Inquiry

ESM – Environmental Sciences and Management Program

Global Village – A housing program located upstairs in the Stephen Epler Hall for first year students designed to foster development of intercultural awareness, communication skills, and academic success by encouraging discourse and shared experience among a diverse community of peers.

General Science in the Liberal Arts: A broad overview of academic disciplines within the arts and sciences that includes natural sciences, philosophy, languages, history, arts and letters.

Non-matriculated students – Students who are taking classes for the purposes of professional development rather than earning an academic degree

Quarter System: PSU is on 11 week quarters including fall, winter and spring (trimesters) and summer session (two 4-week sessions and one 8-week session offered within the summer quarter)

Out of Sequence with the session – pretty much most of what the CSE offers during the summer term.

### **Important PSU Forms**

Special Registration Form

[http://www.pdx.edu/sites/www.pdx.edu.admissions/files/media\\_assets/special\\_reg.pdf](http://www.pdx.edu/sites/www.pdx.edu.admissions/files/media_assets/special_reg.pdf)

By Arrangement Form

[http://www.pdx.edu/sites/www.pdx.edu.registration/files/media\\_assets/by\\_arrangement.pdf](http://www.pdx.edu/sites/www.pdx.edu.registration/files/media_assets/by_arrangement.pdf)

Deadline Appeals Form

[http://www.pdx.edu/sites/www.pdx.edu.registration/files/media\\_assets/DAC.pdf](http://www.pdx.edu/sites/www.pdx.edu.registration/files/media_assets/DAC.pdf)

Official Transcript Request

[http://www.pdx.edu/sites/www.pdx.edu.admissions/files/media\\_assets/transcript\\_request.pdf](http://www.pdx.edu/sites/www.pdx.edu.admissions/files/media_assets/transcript_request.pdf)

Travel Reimbursement

[http://www.pdx.edu/sites/www.pdx.edu.bao/files/media\\_assets/BAO\\_travelreimb-Jan09.pdf](http://www.pdx.edu/sites/www.pdx.edu.bao/files/media_assets/BAO_travelreimb-Jan09.pdf)

Graduate Office forms

[http://www.gsr.pdx.edu/ogs\\_forms.php](http://www.gsr.pdx.edu/ogs_forms.php)

*The most important of these include:*

The Graduate petition form  
The GO-12  
The GO-16M  
The GO-17M  
The GO-21

## **Conclusion**

Thank you for reading the 2011-2012 CSE hand book. I hope that this handbook has provided you with useful information that will make your life easier. Please let the department secretary know if there is anything that you think would be helpful to see added to the handbook or corrections/update that you would like have included in the handbook this year.

Thank you and have a fabulous year!