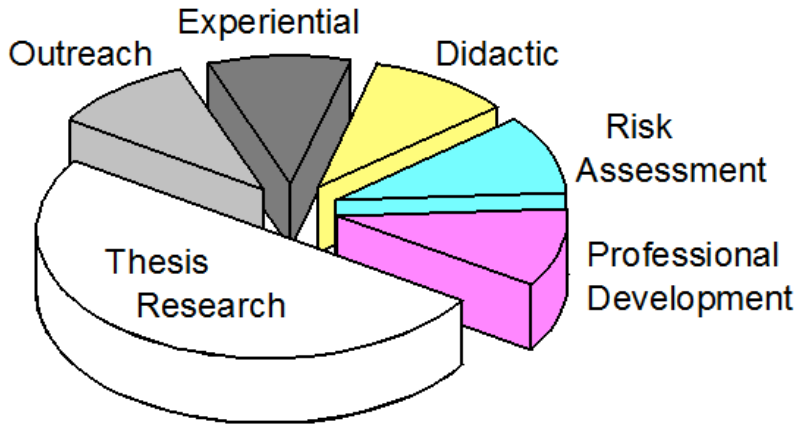
Training Activities and Options

Individualized Training Plans for Pre-Doctoral Students

Our training plan combines traditional laboratory-based thesis research projects with didactic training mechanisms and non-traditional experiential learning venues. Trainees will create individualized training plans composed of elements across the six training strategies to meet their unique needs (see Figure).



Trainees will participate in experiential, outreach and professional development training activities. Each experiential learning activity is designated as 0.5 to 3 "units" depending on the time commitment and expectations of the activity. A total of 6 units will be required for PhD Trainees and 3 units will be required for MS Trainees. Each unit will count toward 1 credit of TOX 699, our 'special topics' course, and will appear on trainees' transcripts with the title of the training activity. Trainees will also be expected to engage in professional development offerings as appropriate to support their career goals.

Required Training Activities (Tasks)

- ☐ **Oral Research Presentation.** This is a professional presentation at a research conference, meeting, EMT Research Day, or with a series on campus like the EH Science Trainee Coloquium.
- ☐ **Ethics Training.** All Trainees will complete IST 520: *Responsible Conduct of Research*. This course covers key topics such as mentor/trainee responsibilities, research ethics, ethical decision making, research misconduct, plagiarism, collaborative science, animal welfare, human subjects, conflicts of interest, peer review, authorship, and the management, collection, sharing, and ownership of data.
- ☐ **Superfund 101.** Stay tuned. This will be an on-line training and/or special seminar. What Is Superfund and the Risk Assessment Process for Regulators?" will introduce trainees to stakeholders and describe the fundamentals of real-world risk assessments.
- ☐ **Outreach Activity.** Participation in a K-12 or community education event. Examples are events with TeamTox, SRP CEC, or EHSC COEC. (One per year is required)
- ☐ **Trainee Webinars and Seminars.** Any webinar or seminar attended, including those outside your department or field, fulfill the requirement. (Three per year are required)
- ☐ **Risk e-Learning Webinars.** All Trainees will attend interactive web-based "Risk e-Learning" seminars hosted by the U.S. EPA Office of Solid Waste and Emergency Response (OSWER). These live, two-hour events, hosted on the Hazardous Waste Clean-Up Information (CLU-IN) website (http://clu-in.org/), provide information about innovative treatment and site characterization technologies for hazardous waste remediation. (Two per year are required)

Elective Training Activities (with units)

- ☐ **EPA Externships in regulatory and risk assessment.** Trainees will shadow EPA Region 10 personnel to gain insight into their day-to-day responsibilities. **2 units**
- ☐ **Aquatic Toxicology Laboratory**. Trainees will receive practical training experience at a facility that conducts toxicology testing for regulatory rule making and risk assessment. Internships at this facility will offer a practical perspective on the testing and risk assessment of environmental contaminants. 1 unit
- ☐ **Participate in NIEHS SRP Student/Postdoc/Alumni Network (SPAN) 1 unit**
- ☐ **Good Laboratory Practices.** This unique training opportunity will teach students about real-world sample analysis under the strict standards of GLP QAPP, which most students do not encounter in academic environments. Trainees will attend the first two weeks of TOX 590. **.5 units**
- ☐ **Field Sampling Training.** Trainees who have already completed the GLP QAPP module will design an actual field sampling exercise at a Superfund site, travel to the site for 1-2 days, collect samples, and return them to the laboratory for analysis.
  1 unit.
- ☐ **Adventures in Collaboration and Team Science.** The objectives of this course are designed to help trainees understand i) the importance of collaboration and team science in today's funding environment, ii) your personality, strengths, and conflict resolution style as well as how other might perceive you, iii) how to build a research team and a shared vision, and iv) how to establish trust and resolve conflict within a team. **1 unit**
- ☐ **Continuing Education Courses (e.g. SOT, SETAC).** Scheduled independently. **1 unit**
- ☐ **Human Micro-Dosing and Physiologically-Based Pharmacokinetics (PBPK).** A workshop on the use of Accelerator Mass Spectrometry to study environmental chemicals at ultra-low exposures in humans. Trainees will learn about the application of this technique to environmental health studies for Superfund chemicals of concern. **2 units**
- ☐ **Bioinformatics, Statistics and Study Design**. Trainees will spend time in residence at PNNL for cross-training in bioinformatics and/or statistics. Offered on demand at PNNL - requires 2-3 students with a dataset or 2 to work with. **1 day = 2 units. 1.5 days = 3 units.**
- ☐ **Biological monitoring of human populations:** A 4-hour workshop on state-of-the-art-techniques for biological monitoring of human populations for environmental toxicant exposures. **2 units**
- ☐ **USGS field and laboratory-based activities on contaminants in ecological communities:** Experiential learning internships at the USGS include field and laboratory-based activities to quantify movement and impacts of contaminants such as PAHs on and within ecological communities. **2 units**
- ☐ **Systems Toxicology**. Workshop introduces the concept of systems toxicology. Trainees will be provided data on PAH mixture exposures to zebrafish and mice. Trainees will learn how to incorporate phenotypic and molecular data using knowledge bases that support the integration of data through computational modeling.
- ☐ **Risk Assessment Training**. Trainees will enroll for 3-6 credits in the new OSU Risk Assessment program. This transdivisional program in Risk Assessment incorporates training in Environmental Law and Environmental Economics.

  ChemRisk® LLC, a scientific consulting firm specializing in applied environmental risk assessment, will provide 8-week experiential training internships for Trainees. **3 units**
- ☐ **Leadership in TEAM-Tox, SRP, SPAN or other relevant group. 1 unit**
- ☐ **EMT Seminar on Current Topics in Toxicology. 1 unit**
- ☐ **GTA in Toxicology. 2 units**
- ☐ **EMT Research Day presentation. 0.5 unit**
- ☐ **Student initiated experiential learning activity.** Needs to be approved by advisor and Training Leaders; credit and financial support will be determined based on need and impact. **1-3 units**

☐ **UC Entrepreneurship Academy @ UC Davis.** 3-day event. **2 units.**

☐ **EMT Seminar on Current Topics in Toxicology.** Only available during the winter term. **1 unit**

☐ **Community-based Research and Outreach to Three Pacific Northwest Tribal Communities:** Trainees who elect to participate in this project will gain cultural competency in working with a diverse population (3 Pacific Northwest Tribal communities—the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), the Swinomish Indian Tribal Community, and the Samish Indian Nation). They will learn about the ethics of human subject's research, the construction and implementation of data-sharing agreements with tribal partners, data collection, and data analysis. **2 units**

☐ **National Workshop on Conducting Community Based Participatory Based Research (CBPR) with Tribal Communities:** A national workshop for interested stakeholders will be hosted to describe the OSU SRP's successful approach for doing CBPR with tribal communities. The workshop will address topics such as tribal research ethics, data-sharing agreements, culturally relevant exposure scenarios, tribal environmental knowledge, and environmental health research in Tribal populations, legal issues, and jurisdictional challenges with sovereign nations. **2 units**

☐ **Risk Communication:** Trainees will spend several days at NPIC gaining practical experience in risk communication, risk assessment, and community outreach. Trainees will develop materials for general and technical audiences. They will also learn how to distill complex subjects into meaningful information for diverse audiences and how to apply cutting-edge technologies to disseminate content.
2 units

☐ **Blogging.** Whenever a trainee authors or co-authors a publication, he or she will submit a short written summary of the research in plain language that includes 1-2 images, links to the journal article and other references that help journalists and science writers. After the written summary, Trainees will also create a videotaped "elevator" speech describing their research and the impact of their training experience. Please let us know if you also want assistance with Twitter and other social media platforms. **1-3 units**

Professional Development Options (non credit)

Be sure to sign up for what you are interested in,
so seminar and workshops can be created or referred to you.

☐ **Manuscript and abstract writing workshop**

☐ **GRAD 511: Designing a path for success (CRN 40400)** Online orientation course/511

☐ **Work shadow.** ½ day internship with a working toxicologist (or similar profession)

☐ **Grant writing workshop.** Introductory (new trainees) and advanced (senior and post-doctoral trainees) grant writing workshops will provide trainees with information on how to find funding, types of funding, preparing a grant application, and cover the review processes for different agencies/sources of funding. Practical skills will be gained through grant writing exercises, editing and reviewing, and optimizing the proposal. Guest speakers will highlight success stories and helpful tips for a winning proposal.

☐ **Building an effective scientific poster and oral presentation**

☐ **Platform and poster presentation skills**

☐ **Communicating your science**

☐ **Resume/CV development workshop**

☐ **Conducting effective literature reviews**

☐ **Experimental design**

☐ **Data interpretation and study inferences**

☐ **Pursuing a scientific career.** Seminar speakers invited to a meeting with the trainees.

☐ **Transitioning development.** Seminar speakers invited to a meeting with the trainees.

- ☐ **Effective teaching skills.** Graduate certification - gradschool.oregonstate.edu/gccut, training at oregonstate.edu/ctl, teaching opportunities