

AQUATIC TOXICOLOGY

Understanding Impacts of Organic Chemicals and Metals on Aquatic Ecosystems

The Northwest Environmental Training Center presents:

Introduction to Aquatic Toxicology

Understanding Impacts of Organic Chemicals and Metals on Aquatic Ecosystems

Course ID: ETOX - 410

February 4-5, 2010, 8:00 A.M. to 5 P.M.

Hilton San Antonio Airport Hotel| 611 NW Loop 410

San Antonio, TX 78216

Instructor: Ruth M. Sofield, Ph.D.

[Register Online](#) | [Directions](#) | [Accommodations](#) | [Course Brochure PDF](#) | [Course Catalog](#)

Description: This introductory course provides participants with a strong foundation of aquatic toxicology and how these concepts are applied to managing pollutants in aquatic environments. The course covers terminology, common test designs, and endpoints such as lethality, cancer, and endocrine disruption. Important legacy and emerging pollutants of concern such as heavy metals, organic pesticides, PAHs, PCBs, PBDEs, pharmaceuticals, and personal care products will also be presented. Fate and transport as it relates to bioavailability and pollutant partitioning in aquatic environments will be discussed. Water Quality criteria from the Clean Water Act with an emphasis on, and examples of, site specific criteria for metals using hardness correction, water effects ratio (WER), and the biotic ligand model (BLM), which has been included in the 2007 EPA updates for Aquatic Life Copper Criteria is also included.

Course Topics:

- Classes of toxic chemicals (carcinogens, mutagens, teratogens, and others).
- Sources of toxic chemicals entering the aquatic environment.
- Exposure pathways for aquatic organisms.
- Biological, physical, and chemical factors affecting bioavailability and toxicity.
- Bioaccumulation, bioconcentration, and biomagnification.
- Modes of toxic chemical action, including enzyme inhibition and endocrine disruption.
- Types of toxic effects: biochemical, molecular, physiological, behavioral, population, and community.
- Toxicity testing methods: acute and chronic, single and multiple species.
- Laboratory assessment of toxicity: LC50, EC50, NOEC, LOEC, MATC, and dose-response curves.
- Development and use of water quality standards.
- Field application of toxicology using the biomarkers.

About the instructor: Ruth Harper is an Assistant Professor of Environmental Toxicology and Chemistry in the Huxley College of the Environment at Western Washington University. She has worked on projects ranging from genetically based tolerance to pollutant exposure in marine systems with the NOAA Ecotoxicology Branch, CCHEBR; to development of groundwater WET tests with photoactive pollutants with the Washington State DOE; and metal contamination and effects in mining systems in Colorado, Idaho, Washington, and British Columbia with agencies including USGS and USEPA.

After completing this course, participants will be able to:

- Apply toxicology principles to environmental issues.
- Understand how aquatic organisms are exposed to toxic chemicals.
- Identify factors affecting toxicity
- Understand similarities and differences between the toxicity of metals and organic chemicals.
- Understand modes of action of toxic chemicals, types of effects from the molecular to the ecosystem level, and detoxification processes.
- Assess toxicity in terms of LC50 and EC50, and develop dose-response curves.
- Identify the advantages and disadvantages of various toxicity testing methods.
- Understand the scientific basis for and limitations of water quality standards.
- Describe the principles of ecological risk assessment.

Intended audience: This course is specifically designed for practitioners and agency personnel, including toxicologists, biologists, ecologists, hydrologists, planners and regulators involved with stream issues

Prerequisites: Some college-level biology and chemistry coursework is required (even if it was a long time ago). A fundamental understanding of aquatic ecology is also helpful.

Education level: Introductory/Refresher

Course materials: Attendees will receive a binder containing workshop proceedings and reference material.

Continuing Education Units: 1.3

What to bring: Pen or pencil, coffee mug, and a water bottle (to reduce waste). Please wear comfortable clothes appropriate for the prevailing weather. Lunch will be on your own. There are numerous restaurants within walking distance. Drinks and snacks will be provided each day.

Registration: \$495/\$395*

(*reduced tuition is available for Native American tribes; government employees; nonprofits; students; and NAEP, NEBC, NWAEP members). You may register via the link below or by calling the Northwest Environmental Training Center at 206-762-1976.

Cancellation Policy: Registration fees are fully refundable up to 30 days prior to the event and 50 percent refundable (or 100% credit) thereafter up to the day prior to the event. Registration may occur up to the day prior to the event provided that space is available.

Disability Accommodations: To request disability accommodations, please contact us at info@nwetc.org or (206) 762-1976 at least 30 days prior to the event.

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Northwest Environmental Training Center
A 501(c)(3) non-profit program of EOS Alliance
650 S. Orcas Street, Suite 220, Seattle, Washington 98108
Phone: (206)762-1976, Fax: (206)762-1979
www.nwetc.org



Directions to:

Hilton San Antonio Airport Hotel

611 NW Loop 410
San Antonio, TX 78216
[Hotel Website](#)

NWETC Course Catalog

Driving Directions

From Austin (North)

Merge onto I-35 S/US-290 W.
Take exit 166 to merge onto I-410 W.
Take exit 20A toward Farm to Market Rd/TX-537/San Pedro Ave/Blanco Rd.
Merge onto I-410 Access Rd.
Turn right at Pvt Rd.
Take first right to stay on Pvt Rd.
Hotel will be on the right

From Corpus Christi (South)

Merge onto I-37 N.
Continue on US-281 N (signs for US-281 N/ International Airport).
Exit Airport Blvd toward I-140.
Left at I-140 Access Rd
Turn right at Pvt Rd.
Take first right to stay on Pvt Rd.
Hotel will be on the right

From Houston (East)

Merge onto I-10 W toward San Antonio
Take exit 581 to merge onto I-410 N
Take exit 166 onto I-140 W
Take exit 20A toward Farm to Market Rd/TX-537/San Pedro Ave/Blanco Rd.
Merge onto I-410 Access Rd.
Turn right at Pvt Rd.
Take first right to stay on Pvt Rd.
Hotel will be on the right

From El Paso (West)

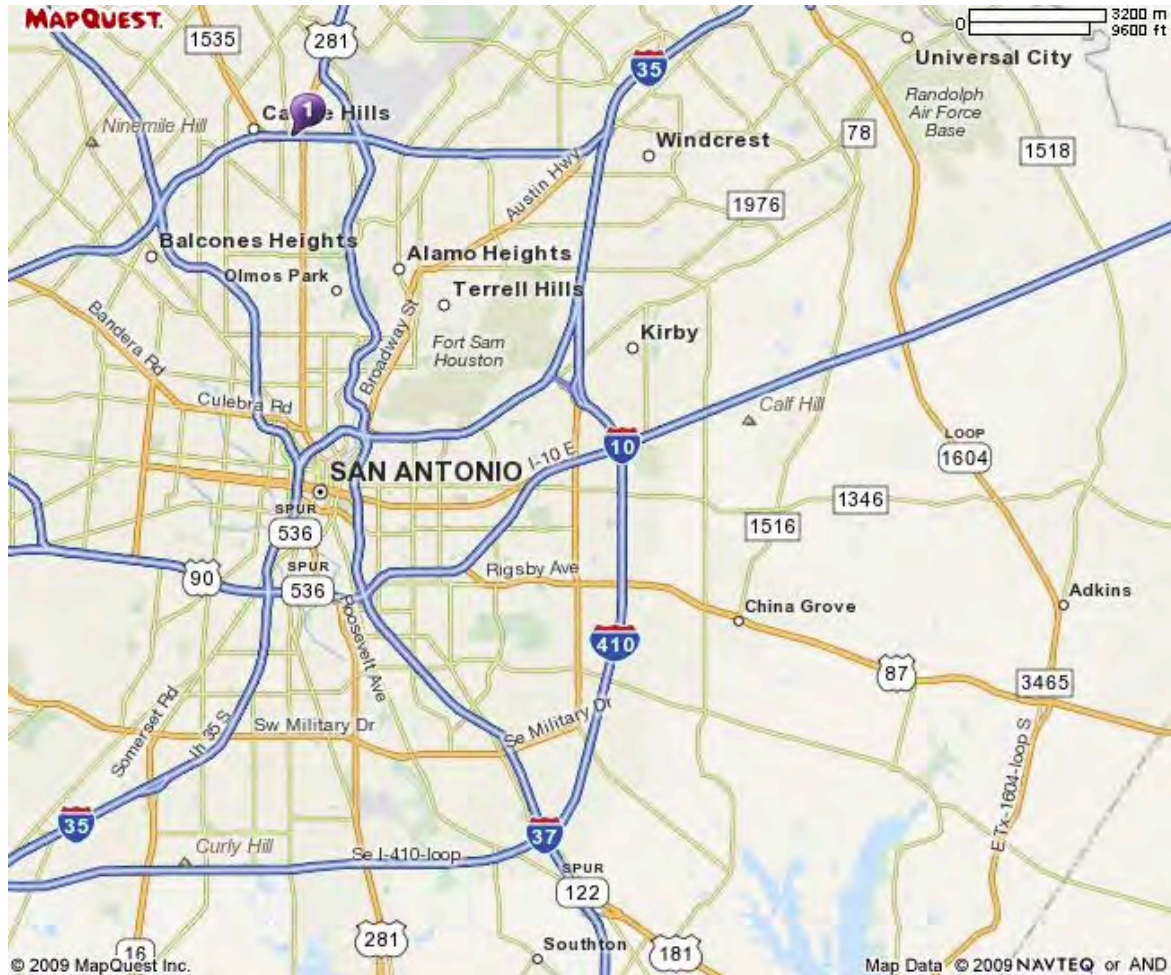
Merge onto I-10 E.
Take exit 564 to merge onto I-410E.
Exit 19 Blanco Rd/Military Hwy/ Farm-To-Market Rd 2696.
Merge onto I-410 Access Rd.
Slight right to stay on I-410 Access Rd.
Left at Blanco Rd/Farm-To-Market 2696
Turn right at Lockhill Selma Rd
Take second right onto Pvt Rd.
Hotel will be on the right

San Antonio Airport

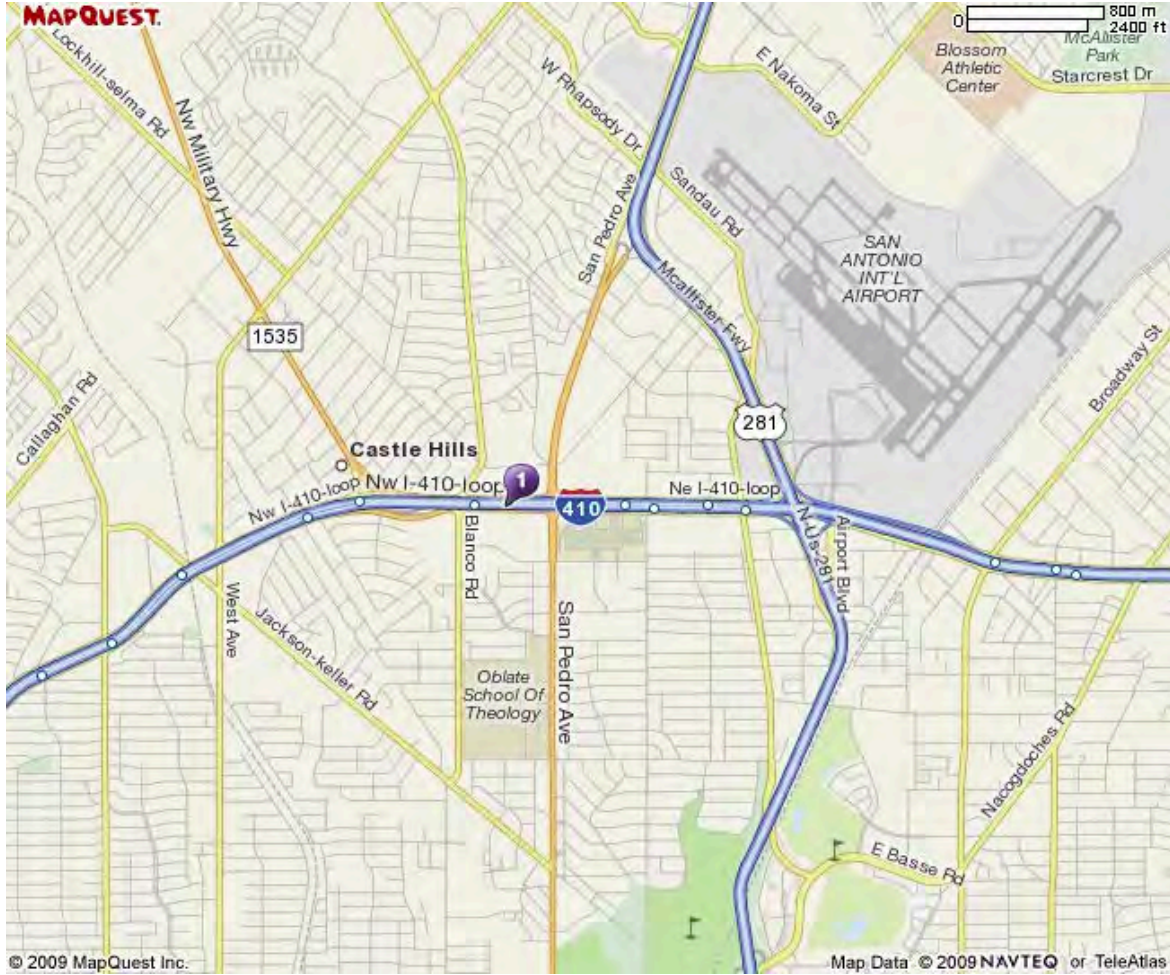
Head Northeast on E Terminal Dr toward Terminal Blvd.
Continue from Terminal Blvd onto Airport Blvd.
Slight right to stay on Airport Blvd.
Turn right at I-410 Access Rd.
Turn right at Pvt Rd.
Take first right to stay on Pvt Rd.
Hotel will be on the right

Parking

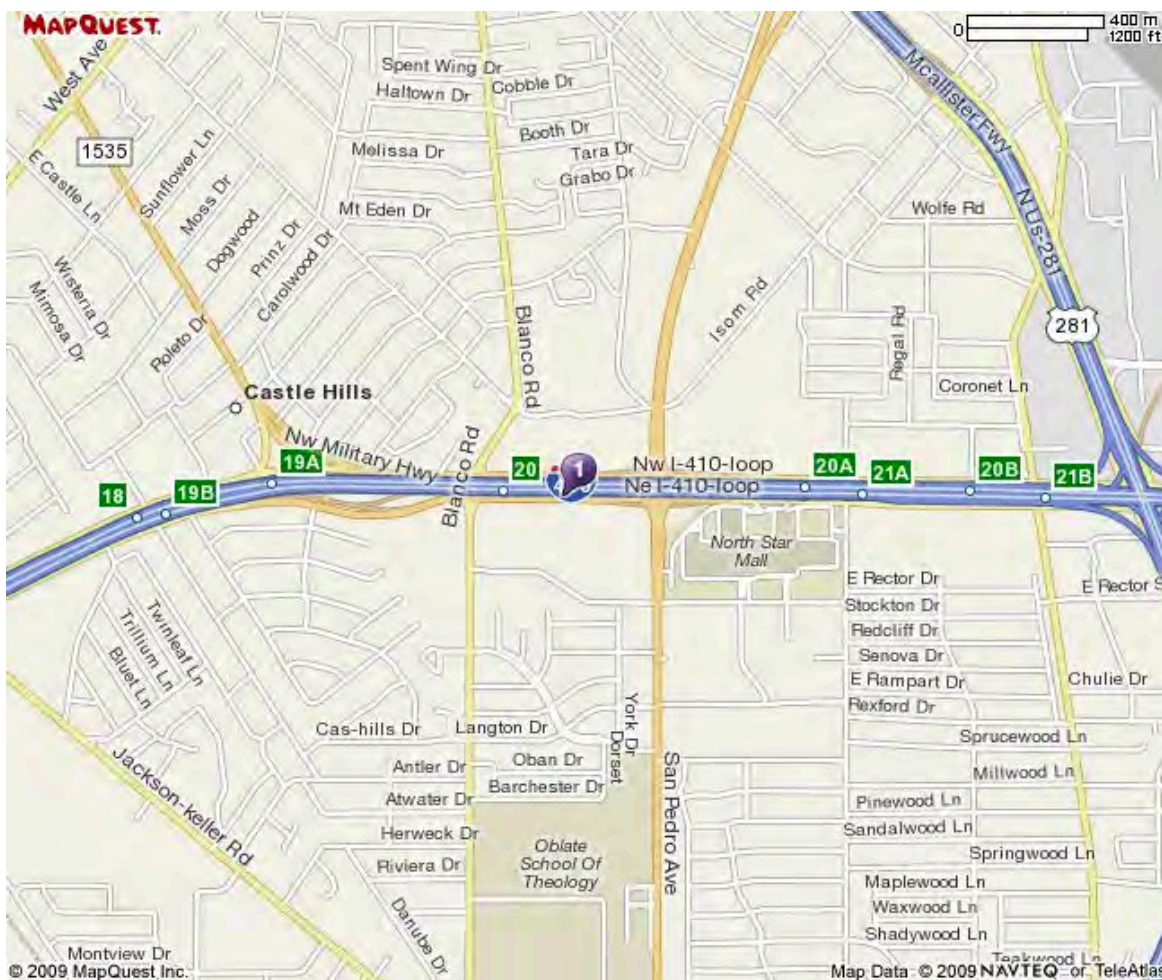
Parking is available in the hotel garage for ten dollars a night or on many streets around the building.

REGION MAP:

CITY MAP:



STREET MAP:



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Northwest Environmental Training Center

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Hilton San Antonio Airport Hotel

(Conference Location)

611 NW Loop 410

San Antonio, Texas 78216

210-340-6060

[Book Online](#)

[{Directions}](#)

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The Hilton San Antonio Airport hotel is located 1.9 miles from San Antonio International Airport (SAT) and across the highway from the celebrated North Star Mall. All of San Antonio's major attractions including the world famous River Walk, the Alamo, SeaWorld, Six Flags Fiesta Texas, and the San Antonio Zoo, are minutes away.

Aloft San Antonio Airport

838 NW Loop 410

San Antonio, Texas 78216

210-541-8881

[Book Online](#)

Homewood Suites by Hilton San Antonio North

125 North Loop 1604 West

San Antonio, Texas 78216

210-497-8200

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REGISTRATION FORM

Name: _____ Today's Date: _____

Agency/Organization: _____

Street Address: _____

Street Address (cont'd): _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email: _____ Title: _____

Environmental Site Restoration/Mitigation

\$ _____

Course ID: ETOX-410

February 4-5, 2010, 8:00 A.M. to 5:00 P.M.

Hilton San Antonio Airport Hotel

611 NW Loop 410

San Antonio, TX 78216

Registration: 450(350*) Early bird special expiring December 31, 2009. \$495(395*)*Reduced rates for Native American Tribes; nonprofits; government; students; and NEBC, NAEP and NWAEP members.

Payment Method: Check PO Credit Card (Visa Mastercard) Total: \$ _____

Credit Card or PO #: _____ Exp: _____

Notes: Please make checks payable to Northwest Environmental Training Center.

Cancellation Policy: Registration fees are fully refundable up to 30 days prior to the event and 50 percent refundable (or 100% credit) thereafter up to 3 business days prior to the event. No refunds are issued for cancellations occurring less than 3 business days before the start day.