

GREEN CHEMISTRY & CHEMICAL STEWARDSHIP

Online Certificate Program



Make a difference by learning to design safer commercial products and industrial processes

PROGRAM OVERVIEW

Explore the principles of green chemistry, an innovative approach for designing safer and more sustainable commercial products and industrial processes. Businesses are facing increasing market and regulatory pressures to use less toxic chemicals in their manufacturing processes and products, and there is a need to develop new solutions and more sustainable substitutes. Learn how to incorporate the principles of green chemistry into product design, material selections, and supply chain decision-making. Examine the connection between chemical toxicity and human health, and assess how these factors influence material and product decision making. Develop a new framework for reducing chemical risks and unintended adverse consequences. Incorporate best practices into your business model that leads to a safer and sustainable approach for the design, use and selection of chemicals.

KEY OUTCOME

You will learn the fundamental principles of green chemistry and *evaluate frameworks* for incorporating chemical toxicity and human health considerations into product design, material selections, and supply chain decision-making.

TARGET AUDIENCE

- Engineers, chemists and materials scientists
- Environmental Product Managers and Safety & Health professionals
- Sustainability supply chain managers
- Risk Management Researchers
- Product Stewardship Professionals
- Environmental and other sciences professionals in industry, labor, academia, and non-government organizations.

Program Dates

October 3, 2016 - June 9, 2017

Information Sessions

June 22, 2016	12:30 - 1:30 PM
July 14, 2016	11:30 AM - 12:30 PM
August 22, 2016	5:30 - 6:30 PM
September 14, 2016	12:30 - 1:30 PM

All times are PST, sessions are hosted online.

Cost

\$910/course
\$50 one-time application fee
\$45 registration fee per quarter

Courses are available ala carte, completion of all 3 is required for certificate.

Application & Requirements

Applications for this program are now being accepted. Applicants are required to have:

- A four-year degree
- At least 1 year of relevant work experience
- A fundamental knowledge of chemistry equivalent to a basic college-level chemistry course

Extensive professional experience may replace education and will be considered on a case by case basis.

Visit <https://www.pce.uw.edu/certificates/green-chemistry-and-chemical-stewardship> to apply.

Offered in Partnership with the UW Department of Environmental and Occupational Health Sciences

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COURSE I

Sustainability, Toxicology, and Human Health

Duration: 10/03/16-12/09/16 | Location: Online | Credit: 3 CEUs | Cost: \$910

The first course provides an overview of business drivers and barriers to implementing sustainable practices. Sustainability and product stewardship are driving the need to better understand the fundamental principles of toxicology, human health, and material science. Participants will review their own business' sustainability drivers and barriers while investigating the health and environmental hazards that contribute to human disease.

Topics include:

- Metrics for defining sustainability within a business
- Key challenges to bringing sustainable technologies to market
- The basic principles of toxicology and human health
- Chemical exposure, routes of exposure, and understanding risk of exposure
- Concepts that affect human toxicity

COURSE II

Principles of Green Chemistry

Duration: 01/09/17-3/17/17 | Location: Online | Credit: 3 CEUs | Cost: \$910

This course provides the fundamental principles of green chemistry, including the human and ecological reasons for considering less toxic alternatives and the various green applications to chemical design. With an increased awareness of sustainability and toxicology from course one, participants will learn about the new tools and cutting edge research that is available to the design 21st century chemicals that minimize hazards to health and the environment.

Topics include:

- Ecological and human health risks
- Demand for safer products
- Historical and current regulatory drivers
- Green chemistry role in new product design
- Environmental, economic, and societal benefits of green chemistry
- New tools available for chemical design

COURSE III

Assessment Tools for Safer Chemical Decisions

Duration: 04/03/17-06/09/17 | Location: Online | Credit: 3 CEUs | Cost: \$910

The final course explores decision-making tools and methods used for comparative chemical hazard assessments. Participants will have an opportunity for hands-on use of these tools through the completion of a culminating project.

Topics include:

- Chemical hazard data, location and use
- Decision-making tools for choosing better materials
- Green Screens methodology and use
- Third-party evaluation tools
- Life cycle thinking

Expert Advisory Board

Each of our programs uses an advisory board to review content, guide design, and recommend updates to ensure the program remains current as the field of study evolves. By tapping the minds of the top thinkers, doers, and leaders in the field, we offer a transformational learning experience. The following individuals serve as the advisory board for this program.

Paul T. Anastas, Teresa and H. John Heinz III
Professor in the Practice of Chemistry for the Environment, School of Forestry & Environmental Studies, Yale University

Joel Baker, *Professor, UW Tacoma Center for Urban Waters*

Evan Beach, *Program Director, Center for Green Chemistry and Green Engineering, Yale University*

Saskia van Bergen, *Green Chemistry Scientist, Washington Department of Ecology*

Ann Blake, *Environmental and Public Health Consulting*

Rovy Branon, *Vice Provost, UW Educational Outreach*

Tania Busch Isaksen, *Coordinator, UW Department of Environmental and Occupational Health Sciences (DEOHS), Sustainable Technologies, Alternate Chemistry-Training and Education Center*

McKay Caruthers, *Program Manager, UW Professional and Continuing Education*

Curt Fessler, *Marketing Director, Construction Specialties, Inc*

Kim L. Jones, *EHS Chemical Integration Engineer, The Boeing Company*

Grace Lasker, PhD, *Program Director, BAS in Public Health, Lake WA. Institute of Technology*

Richard Morgan, *Analytical Chemist, Modumetal*

Nancy Simcox, *Research Industrial Hygienist, UW DEOHS*

David Simpkins, *Safety Officer at CellNetix Pathology and Laboratories*

Jill Stoddard-Tepe, *Co-Director, Green Lab Alliance*

Matthew Thurston, *Manager of Product & Supply Chain Sustainability, REI*

Ronald Tubby, *Senior Environmental Health & Safety Program Manager, Intel Corporation*

Steve Whittaker, PhD, *Public Health Researcher, Local Hazardous Waste Management Program in King County, Public Health-Seattle & King County*

Michael Yost, *Professor and Chair, UW DEOHS*

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