



The Green Chemistry Commitment

TRANSFORMING CHEMISTRY EDUCATION

www.greenchemistrycommitment.org
<http://www.washcoll.edu/departments/chemistry/>

Washington College

Bringing green chemistry to undergraduate students through teaching and research — That is the approach that Washington College is taking to integrate green chemistry into their chemistry curriculum.

The Chemistry Department at Washington College got involved with green chemistry upon the arrival of Dr. Anne Marteel-Parrish in the Fall of 2004. She offered a new course for chemistry majors and minors titled "Toward the greening of our minds" for the first time in the Spring 2005. The course is now re-titled "Green and Sustainable Chemistry" and continues to be offered for chemistry students. Dr. Marteel-Parrish worked with faculty in the department to implement green chemistry across the laboratory curriculum, including in general, organic and inorganic chemistry. Student research is also a major focus at Washington College and many students include green chemistry in their senior capstone projects.

The Chemistry Department further recognized Dr. Marteel-Parrish's contributions in green chemistry by naming her the Frank J. Creegan Chair in Green Chemistry in 2011. The endowed chair is one of only two designated chair faculty positions in green chemistry in the country.

The Department continues to expand its offerings in green chemistry and is currently working to green the entire general chemistry laboratory curriculum. New faculty in the department are bringing in additional green chemistry research areas, such as catalysis, to the undergraduate students.

Dr. Anne Marteel-Parrish sits on the Advisory Board of the Green Chemistry Commitment and helps the GCC lead the way for other institutions of higher learning.

Why does Washington College participate in the Green Chemistry Commitment?

1) A way to officially recognize and share the Department's work in Green Chemistry

The Green Chemistry Commitment seeks to bring colleges and universities together to share best practices and to track progress towards the adoption of green chemistry in higher education. Through the Commitment, departments can share their work and be recognized for their extraordinary efforts in green chemistry.

2) A resource for other institutions looking to teach green chemistry

Many faculty and departments are interested in implementing greener practices in their teaching, service and research. The Commitment provides a resource for faculty and departments who are looking to adopt green chemistry principles and practice. The Commitment helps to connect them with like-minded institutions that are currently implementing green chemistry. This can be an invaluable resource for institutions who are new to the field and who are beginning to engage faculty and administrators.

3) A marketing and communication tool for the College

The Green Chemistry Commitment can be a way to communicate the Chemistry Department's dedication to sustainability. It can also be an avenue for communicating to the administration and the community the efforts to address sustainability within the Chemistry Department. The Commitment can provide a platform for engaging the Chemistry Department in campus wide sustainability initiatives.

What is green chemistry?

The Twelve Principles of Green Chemistry, outlined in Paul Anastas' and John Warner's 1998 book *Green Chemistry: Theory and Practice*, focus on the need for alternative chemistries in industry and the laboratory that:

- reduce the toxicity and hazards of chemicals and chemical processes
- prevent pollution
- reduce waste
- increase energy efficiency and sustainability
- maximize safety and efficiency at the design phase
- reduce research, development and manufacturing costs and increase efficiency

As an academic and industrial field, green chemistry encourages chemists and scientists to develop safer, non-toxic, renewable chemistry processes and materials.

The Green Chemistry Commitment

The Green Chemistry Commitment is helping to transform chemistry education in college and university chemistry departments who strive to:

- prepare world class chemists whose skills are well aligned with the needs of the planet and its inhabitants in the 21st century, and
- design and develop innovative, efficient, and environmentally sound solutions to the safety and effectiveness of chemical products and processes.



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The Green Chemistry Commitment offers access to a broad and supportive community of chemistry experts and a flexible framework for green chemistry curriculum and training. With multiple pathways to the implementation of green chemistry education, the Green Chemistry Commitment sets a benchmark to track progress on specific learning and research objectives.

With the GCC, college and university faculty can band together to share resources and experience to shift how and what the next generation of chemists learn. Students will enter the workforce armed with the necessary skills, knowledge, and confidence to be leaders in making the principles of green chemistry standard practice in all fields and sub-disciplines of chemistry.

Why introduce the Green Chemistry Commitment?

During the last 15 years, individual teachers, professors, and chemistry departments have introduced green chemistry concepts into lectures and lab activities, outreach initiatives, and some have even used green chemistry as the basis for academic research projects. The Green Chemistry Commitment seeks to build on the efforts of leaders in the field and systematically change chemistry education. The Green Chemistry Commitment aims to facilitate and support the development of a consortium program that unites the green chemistry community around shared goals and a common vision to:

- expand the community of green chemists
- grow departmental resources
- improve connections to industry and job opportunities in green chemistry
- affect systematic and lasting change in chemistry education

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Who is part of the Green Chemistry Commitment?

Colleges, universities, and industry leaders from around the world have signed the Green Chemistry Commitment for access to shared up-to-date resources, collaborative discussions and projects, improved curriculum, and accountability to track progress on specific learning and research goals.

The Green Chemistry Commitment is shaped and led by a Faculty Advisory Board comprised of 11 faculty members of chemistry departments from across the United States, representing large and small academic institutions.

The supporting organization for the Green Chemistry Commitment is Beyond Benign (www.beyondbenign.org), a non-profit organization dedicated to providing future and current scientists, educators and citizens with the tools to teach and learn about green chemistry in order to create a sustainable future.

Beyond Benign's vision is to revolutionize the way chemistry is taught to better prepare students to engage with their world while connecting chemistry, human health, and the environment. Beyond Benign is led by Dr. John Warner, a founder of the field of green chemistry and co-author of *Green Chemistry: Theory and Practice*, and Dr. Amy Cannon, the world's first PhD in green chemistry.

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“The Green Chemistry Commitment is helping our Department to formalize an existing commitment and is a way for sharing the work that we are doing.”

*Anne Marteel-Parrish,
Associate Professor and
Creegan Chair in Green
Chemistry, Department of
Chemistry, Washington
College*

“The goal of Green Chemistry is for the term to disappear and it simply becomes how we practice chemistry.”

*John C. Warner
Co-author of “Green
Chemistry: Theory and
Practice” and Founder of
the Warner Babcock
Institute for Green*