



Networking & Outreach

- *Michigan Green Chemistry Education Network Conference (5/09)*

- *MIGreen e-newsletter (08)*

<http://www.gvsu.edu/~green/mission/ACADEMY-4130-5701-7-2008-0904100001workshop.pdf>



GC Education Network

Goal:

- To create a network of collaborators who seek to implement or improve Green Chemistry Education within the state of Michigan



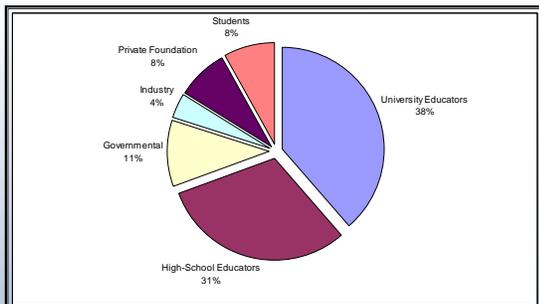
Funding sources

- Michigan Department of Natural Resources and Environment
- Grand Valley State University
- American Chemical Society

Michigan DNRE
natural resources & environment



Attendees (n = 106)



Format of the conference



- Keynote address
- Educator Speakers
- Networking time and activity
- Laboratory demonstrations

Keynote speakers



- **John Warner** President of both the Warner-Babcock Institute for Green Chemistry and Beyond Benign

- **Amy Cannon**
Co-founder of Beyond Benign



Colloquium Sessions

- Speakers who had recently developed and thought a green chemistry curriculum



Jennifer Aurandt and Montserrat Rabago-Smith
Kettering University

Jim Krikke, Grand Valley State University: Pollution Prevention General Education Course at Grand Valley State University



James Jackson Michigan State University

Networking Session

- Brainstorm 2 projects that can be implemented using collaboration with tablemates
- Brainstorming worksheets were collected after lunch



Laboratory Demonstrations



- **Doug Mandrick**
Portage, Michigan Public Schools
- **Main concept:** Green replacement of hazardous chemicals
- **Hands on demonstrations**

Follow-up from the conference

- **Jennifer Aurandt, Montserrat Rabago-Smith**
 - Green Industrial Organic Chemistry Course for Engineers
 - Green Chemistry in an Industrial Ecology Course
- **Robert Lehmann, Saginaw Valley State University**
 - Site design and pollution prevention for a fictional, but typical, small factory
- **Doug Mandrick, Portage Michigan Public Schools**
 - Continuing to develop green alternatives to common laboratory chemicals
 - Attended a Beyond Benign training session
- **Min Qi, Grand Valley State University**
 - Visit National Institute of Biological Sciences in Beijing to teach a short course on supercritical fluid extraction and supercritical fluid chromatography and their green applications





- Most of the public, judging by the paucity of results found at the news outlet web sites, have never heard of green chemistry.
- They are not likely to anytime soon. This is sad, because most stories about accelerating environmental problems paint a scenario that counsels despair.
- Whereas, green chemistry shows that we humans have found a new and powerful tool that we can employ to reduce pollution, re-use materials, and greatly reduce the amount of toxic materials entering the biosphere. Green chemistry can foster hope that the human intellect and capacity for ingenuity can, combined with the political will, snatch our planet away from the brink of the abyss. And the need for the political will to exert itself is why the public needs to hear about green chemistry! They are the political will.

Summary: GC @ GVSU

- The two year courses bring a significant and beneficial contribution to the education of our students and contribute in great measure to build upon the other institutions' interests to integrate green chemistry in their curricula. We anticipate significant changes in the chemistry program accreditation to include green chemistry and act proactively to the benefit of our students.
- The certificate program has an unique design and does not only by inclusion of required courses outside the chemistry major but insuring the research experience required as a fundamental part of this program. Designed for transition in dual degree years, is an attractive option not only for our students but also for people looking to re-boost their career and become competitive on the job market.
- The certificate and semester were specifically designed in response to issue #7 on the Action Plan for Advancing Michigan Green Chemistry Research, Development and Education, July 2008.

Establish a Green Chemistry education program and capabilities. We are excited about the enthusiasm and interest of the participants, responsive and eager to continue our work to assess, promote and supporting green chemistry education in MI.

GVSU's work toward green chemistry introduction in the higher education in Michigan was rewarded with the Michigan Green Chemistry Governor's Award for education (September '09)

Dear Editor:

A wonderful tool has been unveiled In just the last 15-18 years that allows the chemical industry to revolutionize the manufacture of all the products we have come to expect as part of everyday life. It is called "green chemistry." It consists of replacing our manufacturing process which uses too many starting materials and creates a lot of sometimes toxic unusable waste with a new process. This new process utilizes smaller amounts of raw-tails (or less toxic) starting materials, requires less fossil fuel and produces little to no waste, and, usually, no toxic by-products. Hence the designation "green chemistry" to indicate that it is friendly to the environment. Green chemistry is still in the early stages of replacing the old paradigm of manufacturing. That was based partly on something we used to believe; that we will never run out of anything. Now we know we can't. So we must begin to prepare for a time of scarcity. The ingenuity of green chemistry is in the ability of chemists to find substitute methods that greatly reduce waste and toxics. This saves off scarcity, buying us time to create an alteration in lifestyle expectations, which will surely have to occur as the world population continues its upward trajectory. The replacement of old manufacturing methods with those of green chemistry should give hope to the public that we needn't give up all comforts and conveniences in order to "save" the planet. Human creativity and intellectual prowess, coupled with political will, has gotten us through in the past. It should suffice in the future.

- ## Where do we go from here?
- What is the role of Green Chemistry in the education of the new generation?
 - What are our common values?
 - What are our concerns & hurdles?
 - What solutions could we find?

Questions?

