

# University of Wisconsin Milwaukee

## Chemistry Department

### Assessment Plan Progress Report Fall '03

#### **Mission Statement**

The Department of Chemistry promotes the generation and dissemination of knowledge in the science of Chemistry. It provides high quality instruction and opportunities for original research to students with a wide variety of needs and goals. The department educates scientists (both at the undergraduate and graduate levels) who will be needed to develop the science and technology required for a healthy economy, and to solve environmental, medical and other technological problems of society.

#### **Intended Outcomes**

**1.** Students completing a Bachelor of Science degree in Chemistry will possess a fundamental understanding of chemical phenomena spanning the physical, organic, inorganic, analytical and biochemical disciplines.

(a) Performance of Chemistry majors on national ACS examinations will meet or surpass the national average in their degree emphasis.

The performance of our undergraduates and graduates in ACS exams will provide an objective comparison to national norms. This part of our assessment plan is expected to require significant implementation time as individual Professors/Lecturers will need to buy into the concept and incorporate the exams as part of their syllabus before data will be available.

(b) Chemistry graduates will participate in exit interviews and the majority of these students will agree with the statement, "I am satisfied with my education in the Department of Chemistry"

Performing exit interviews for all majors is an opportunity to gather unqualified opinions of individuals who have participated in the various degrees that the department offers. However, recent changes to the administration of Majors has meant that Departments no longer receive lists of declared majors and no mechanism exists yet to obtain this information from electronic sources. As such the first opportunity to conduct interviews of this type will occur after the Fall '03 semester. Our initial data indicates that students were very satisfied with their education in the chemistry department. In a ten question questionnaire distributed to graduating chemistry majors all responses were entirely in agreement with the above statement, some noting the value of independent research and integrated laboratories (582, 584).

**2.** Students will compete successfully for admission to graduate and professional programs that directly utilize their training in chemistry.

The majority of chemistry graduates who apply will be either **(a)** be accepted into graduate or professional programs or **(b)** will be employed in a chemically related field within 3 years of graduation with their ultimate degree.

The students of Department of Chemistry have enjoyed a considerable degree of success in securing positions in either academic or industrial settings. Of the students who graduated in May of '03, the vast majority are either employed in Chemical Industry or pursuing higher degrees (see below).

#### 2003 Graduates

Name	Employer
Jenifer Anderson	Aldrich Chemical
Heather Hewitt	Chrysler Chemical
Robert Wind	Kovance
Pamela Morren	Special non-degree student at UWM
Scott Bellon	Sigma Chemical
Kotanee Brezezinski	Medical School
Grant Stoeger	Graduate Student UWM Chemistry Dept.
Mike Ver Haag	Graduate Student UWM Chemistry Dept.
Josh Kostera	Graduate Student UWM Chemistry Dept.
Terril Clayton	Graduate Student UWM Chemistry Dept.
Peter lace	Aldrich Chemical

**3.** Students will develop skills in analysis, synthesis, and quantitative reasoning that are essential to establish and rigorously test hypotheses.

All chemistry seniors will participate in faculty supervised research projects, summer internships, or other related research activities and present their findings as either a report or at a conference or meeting presentation.

There is a long tradition of undergraduate students conducting independent research with Faculty and recently this has become a requirement for all degrees offered by the Department. Students are encouraged to compile their data into a form that is appropriate for scientific scrutiny and present the data (usually in the form of a poster) to either the Department at the awards day poster competition or to the wider scientific community at a regional or national meeting. Attached is a list of posters that were presented at the most recent Awards Day. Two additional posters were presented by undergraduates Jennifer Anderson and Heather Hewitt at a recent ACS meeting in New Orleans.

**4.** Non-chemistry majors will develop an understanding of basic chemical concepts and have an appreciation for the importance of chemistry and its role in societies prosperity.

**(a)** As one objective measure of comprehension, students will perform well with respect to national averages in ACS examinations designed for the courses undertaken.

As stated above, it is the long term goal to have ACS exams incorporated into the syllabi of all courses offered by the Department. This will allow our students to be compared directly with students nationally and internationally. Such data is vital to maintain quality in teaching and will be a guide for courses to evolve. We anticipate full adoption of supplemental ACS examinations in our 100 level classes by Spring of '04.

**(b)** Students will respond affirmatively to a series of questions included with course evaluations designed to probe their personal assessment of learning in courses offered by the Chemistry Department.

The department has recently devised new evaluation forms for lecture, lab and discussions. These evaluations are to be accompanied by a short questionnaire designed to assess the student opinion of specific courses. This is of particular importance in service courses designed specifically for Nursing, Engineering or Health Sciences students. Our initial data has come from courses offered to nursing students. In this case students were offered the questionnaire after they had entered the clinical part of their curriculum so that they could reflect on the value of what they had learned. The responses from this questionnaire indicate that the students clearly see the value in the chemistry course(s) they have undertaken (see attached).

Undergraduate Posters Presented at the 2003 Chemistry Awards Day

Board

<u>No.</u>	<u>Name</u>	<u>Advisor</u>	<u>Poster Title</u>
6	Scott Bellon	Holme	<i>Arsenic in Pressure Treated Lumber.</i>
7	Paul Henning	Holme	<i>Hydrogen Fuel Cells in Automotive Applications.</i>
9	Heather Hewitt	Petering	<i>The Role of Metallothionein in Cellular Zinc Metabolism.</i>
16	Terry Clayton	Aldstadt	<i>Stripping Potentiometry Studies of Inorganic Arsenic Oxyanions at Trace Levels.</i>
25	Syeda Fizia Rizvi	Holme	<i>The Chemistry Behind Breast Cancer Chemotherapy.</i>
31	Kotanee Brzezinski	Holme	<i>Mercury Exposure Regarding Fish Consumption to Tribal Members of the Upper Great Lakes Region of the United States.</i>

## **Nursing Students Questionnaire results**

Distributed May 2003 to students who are now in the clinical year of the nursing program. 45 responses

1) Was the material in Chemistry 103 useful for your nursing clinical courses?

Absolutely= **8** Yes = **20** A little = **10** Not much = **4** Not at all = **0**

2) Did Chemistry 103 help you learn how to study and master a huge amount of information?

Absolutely= **8** Yes = **23** A little = **8** Not much = **1** Not at all = **1**

3) Did Chemistry 103 teach you how to think through the diagnostic situations you have encountered in your clinical courses?

Absolutely= **6** Yes = **20** A little = **10** Not much = **4** Not at all = **1**

4) Is there any topic in Chemistry 103 that was most helpful for clinicals? Explain

*Student comments:*

“NSAIDS” “topics on proteins & lipids” “enzymes & diabetes” “acid/base” “material that related to the body” “glycogenolysis” “drugs & diagnosis” “I think it was all pretty helpful” “I felt the Chem 103 class prepared me in many different ways for future classes” “prostaglandin stuff we are relearning in pharmacology” “All of it, it all flows together” “How enzymes work and drug info” “You did a great job teaching us material we need” “The course was great, very related to pharmacology!”