ACADEMIC PROGRAM REVIEW
SELF-STUDY REPORT

This form is provided for your convenience and is also available in electronically as a Word document. Feel free to attach additional pages if necessary.

Four items should be attached to this Report when it is submitted to the Academic Affairs Council (AAC) for review: (1) data tables from Assessment Services, including data from the Institutional Research Office, and from the Graduating Senior and Alumni Surveys; (2) a copy of your program's most recent Program Development Plan; and copies of both (3) the AAC and (4) the Dean's official conclusions and recommendations following your program's last review.

Name of Program: Chemistry

Department Chair: John Lyon

Date Report Completed: Nov. 2014 Date of Last Program Review: Fall 2007

Section I. Mission Statement.

Briefly state your program's mission. Indicate how it relates to UW-Green Bay's core and select missions and guiding principles.

The mission of the chemistry program at the University of Wisconsin – Green Bay is to provide expertise in chemistry to the University and to the citizens of Wisconsin and to further the understanding and teaching of chemistry through research and scholarship. We provide expertise to the University by teaching upper level courses that lead to three different degree options in chemistry, including two options that are approved by the American Chemical Society. We provide students with laboratory research experience. We offer the General Education science course Principles of Chemistry. We provide an array of courses that are required for a number of programs in addition to Chemistry including: Biology, Earth Science, Education, Environmental Science, Human Biology, and Interdisciplinary Studies. We contribute to the teaching of upper level courses in the Environmental Science and the Human Biology programs. We provide course instruction, consultation and thesis supervision to the graduate program in Environmental Science and Policy. The program is focused on supporting the four touchstones of The Green Bay Idea through the use of problem-focused instruction.

Section II. Program Curriculum.

Provide a description of components of your curriculum, e.g., laboratories, internships, program-based student organizations, lecture series, etc. that you feel are not adequately described in the catalog. Recent changes in program requirements that are not reflected in the current catalog description should also be provided here.

The university catalog accurately presents the current requirements for each of the three tracks that lead to a BS degree in chemistry. Two of these tracks are approved by the American Chemical

Society as meeting their curricular guidelines for an approved major. The American Chemical Society guidelines for an approved curriculum specifies that an approved program should build from supporting course work through a set of core courses and finish with upper level electives. That the upper level electives should have one or more core courses as prerequisites. This structure of the chemistry major, defined by the prerequisite structure of each course, is not adequately presented in the current catalog. When students do not complete the supporting courses in the major in their first two years of study they cannot complete the major in four years.

The Environmental Chemistry track in the major has been modified to remove a course that had not been taught in a number of years and replace by a similar course from the Environmental Science program. The course removed, Environmental Chemistry, was a course that was only used as part of the Environmental Chemistry track and therefore saw very low enrollment pressure. The course that is replacing it, Environmental Systems, has a similar range of topics and is co-taught by the professor who would teach Environmental Chemistry if it were to be offered. The Environmental Chemistry course and its companion laboratory course, Environmental Chemistry Laboratory, will be deactivated as courses.

Since our last program review the American Chemical Society has modified the curricular guidelines that programs must follow to have their program approved by the Society. The modifications have allowed us to modify our program to allow students to complete the upper level core in four semesters of study and to reduce the prerequisite structure of some electives making them available to more students.

Section III. Issues Addressed Since Last Review.

Describe how your program addressed the issues raised in the last review. If any issues were not addressed, please explain why they were not.

The last program review accurately identified the strengths and the limitations of the chemistry program. The program graduates well-trained majors who are successful in gaining admission to graduate and professional schools and in finding employment in the chemistry field. The issues raised in last review included:

The number of graduates is less than what would be expected based upon the number of declared majors.

The lack of statistical data generated by the assessment plan.

The use of ad hoc instruction is high.

The array of upper level elective courses is small.

The number of declared majors over the past 7 years has averaged approximately 50 students with approximately half of them having senior status. The number of graduates each year has averaged 10 students. A simple analysis of this data leads one to believe that only half of our senior level chemistry majors obtain chemistry degrees. The flaw in this analysis is that the average number of credits completed by chemistry majors leading up to their first degree is approximately 145 credits with an average of 110 credits earned at UWGB. The average chemistry major has senior status for their final four semesters of study. The majority of students who enroll in chemistry courses at the 400 level graduate and graduate as chemistry majors.

The chemistry program does lose declared majors to other programs. In a survey of students currently taking chemistry courses the majority of the students identified poor performance in required courses, lack of interest in program material or the identification of an major that held greater attraction for them as the reasons student would use to justify changing their majors. They also give as their reasons for selecting a major as employment opportunities with a given major, interest in the content of the major, and the ability to succeed in the courses of the major. Among upper level chemistry majors the majority of the students

identified the intellectually challenging nature of chemistry program as why they have remained as chemistry students. The information obtained from our students is consistent with survey results addressing the retention of students in STEM majors conducted at other universities.

To determine the number of our currently declared majors who might be considering a different major a review of their academic work was made. Of this group of 37 students 11 had not taken or were currently enrolled in organic chemistry, the first course taken of the upper level chemistry core requirements, 15 had completed both physics and organic chemistry and were making good progress towards a chemistry degree and 11 were identified as being at risk of not completing the program due to low academic performance. The students in the first group are not sufficiently invested in the major to predict if they will commit to the major or not. The students in the second group have made the commitment and have demonstrated the interest and ability to complete the program. The third group is the at-risk group. The majority of this group is continuing to take courses towards the major but is also working on the requirements for their interdisciplinary minor. Some students in this group will change majors, but will most likely remain in the sciences.

The last thing that the faculty of the chemistry program wants to do is to encourage students who are not interested in a career in chemistry to major in the subject. But we work very hard to help those students who wish to succeed to meet their goals. What we don't have is a systematic way to identify students at risk and to provide assistance to these students in a timely fashion. This will be a project that we will pursue in the future.

A weakness in the chemistry curriculum is the number of upper level courses that are offered and the frequency that they are offered. The solution to this problem is more majors and more faculty in chemistry. The main reason that additional upper level electives are not offered is a weak demand by chemistry majors for electives. Secondary, the chemistry department cannot staff all of the sections of courses that it currently offers even with the majority of the faculty teaching at least one course on overload each year. With more majors the enrollment in elective courses should increase and with additional faculty in chemistry we should have the opportunity to move more faculty load into upper level electives instead of required core courses. This year, in an attempt to reduce our use of ad hoc instruction, we have expanded the chemistry faculty by one position with the hiring of Jeremy Intemann. Dr. Intemann will devote the majority of his teaching load to organic chemistry, reducing our need for ad hoc instruction in that area. He will also be encourage to develop an upper level elective for the chemistry major that highlights his area of expertise. Even with the addition of Dr. Intemann the chemistry department will still need to rely upon ad hoc instructor and faculty teaching overload to offer the chemistry major and the courses that chemistry teaches as a service to other majors.

Increasing the number of chemistry majors will be challenging. First, the campus has only begun this year to actively recruit science majors. Currently, the expectation that anyone in a campus tour group would be interested in the science is so low that tour guides routinely only go only as far as the Environmental Science building when showing prospective students the campus buildings. The building that was designed to showcase the science departments is pointed to from a distance without much of a presentation of the opportunities housed within. Second, chemistry is a disciplinary major. Students who were interested in studying chemistry at UWGB are confronted with the graduation requirement of completing an interdisciplinary minor or second interdisciplinary major in addition to the chemistry major. When given a choice, students who want to concentrate on the physical sciences will attend a school that has graduation requirements that more closely fit their career interest. Attracting students from other majors is also difficult. The chemistry major requires the most extensive course work in math and physics at the supporting course level of all of the science programs at UWGB. Students who have started in a different major have the task of completing two semesters of calculus before completing two of the upper level courses in the major. For students who have been away from math courses for a while this is a very difficult challenge. Currently, the major that has the program requirements that are most similar to chemistry is a track in the Human Biology.

A few students switch between majoring in chemistry and this Human Biology track each year with the majority of the students completing the requirements of the Human Biology major for graduation instead of the other way around. These students are often only one or two courses away from earning a double major in chemistry and Human Biology, but chose to graduate with only one major instead of continuing their studies for another year. In the future we will have students in our engineering technology program on campus. These students will have to complete an array of supporting course work that includes the supporting courses for the chemistry major. We may find that students who come to campus for these majors might switch to the chemistry major with some frequency.

The comment regarding assessment is addressed below.

Section IV. Assessment of Student Learning

a) **Student Learning Outcomes.** List your program's anticipated student learning outcomes. What do you expect all students to know or be able to do?

- Have knowledge of inorganic chemistry
- Have knowledge of chemical analysis and instrumental analysis
- Have knowledge of organic chemistry
- Have knowledge of atomic and molecular structure, thermodynamics, kinetics, quantum mechanics and spectroscopy
- Have knowledge of applications of Chemistry to environmental, industrial and health issues
- Have the ability to synthesize and characterize, by chemical or physical means, both organic and inorganic compounds
- Have the ability to perform both qualitative and quantitative analysis by chemical and instrumental methods.
- Have the ability to perform experiments to obtain fundamental thermodynamic and kinetic data on chemical systems.
- Have the ability to operate scientific instruments that provide basic spectroscopic and electrochemical information and to interpret the data obtained.
- Have the ability to perform separations of materials, including chromatographic techniques, with both manual and instrumental methods.
- Have the ability to collect and analyze data using computerized methods.
- Have the ability to write and present formal laboratory reports on the results of chemical experiments. This includes computation, error analysis, and graphic data displays. This should include skills with computer based simulations and computational models.
- Have the ability to design experiments to collect information on a specific chemical problem or process.

- Have the ability to access the primary and secondary chemical literature as well as other chemical data sources by both written copy and computer database methods.

- Have the ability to work safely and with confidence in a chemical laboratory.

b) **Assessment Methods.** Describe all of the methods used by your program to assess the student learning outcomes listed above.

The assessment of student learning outcomes in the major is performed using imbedded assessment methods. Core courses in the major address one or more of general knowledge areas identified in the student learning outcomes listed above and those course assess student learning using the traditional exam format. Deficiencies are addressed by individual faculty members as part of an on going program wide course development initiative. When deficiencies can be traced to prerequisite courses, the faculty in both courses work to develop strategies to improve the mastery of the shared course content.

Student learning outcomes that can be best assessed by direct observation of student performance are evaluated one-on-one in the upper level laboratories and students are given the appropriate guidance such that each student meets our expected level of achievement in each of these learning outcome areas.

Student learning outcomes that can be assessed based upon a product produced in a course are evaluated using a rubric that is specifically designed for that learning outcome. Learning outcomes that are developed in a series of courses in the major are usually evaluated formally only once towards the end of a student's academic program as a final check on the development of that student learning outcome. When deficiencies are identified in the performance of a learning outcome the faculty develop a plan to strengthen the curriculum in that area.

Two capstone products are evaluated as part of our overall program assessment. The first is the design, execution, analysis and presentation of an independent project that is part of the Instrumental Analysis course, Chem 413. All students in the major are required to produce this product and the faculty as a whole review and evaluate the student performance on the project. The second is the formal research report produced by students who complete the Research in Chemistry course. This course is required of all students who complete the curriculum that is approved by the American Chemical Society. As part of our periodic review by the American Chemical Society we must submit these formal research reports as part of our review materials. High quality reports are necessary for the continuation of our ability to offer an approved degree.

c) **Summary of Results.** Summarize the results and conclusions you have drawn from the evidence collected using the assessment methods described above.

The on going quality improvement program does not provide quantitative data that can be used to evaluate our assessment program. The results of these efforts are reflected in scores on course exams and the percentage of the students who pass a given course. As a whole, the chemistry program is seeing an improvement in both areas. We still are not satisfied with the level of achievement of our students in our courses and will continue to investigate ways to improve the student learning in all of our courses.

The part of our assessment program that produces quantitative data, the areas scored using rubrics, has identified only one area of significant weakness in our program as a whole. This was in the use of the primary chemistry literature. An exercise has been developed for use in the Instrumental Analysis course that will address this deficiency.

Our program continues to be approved by the American Chemical Society to offer an approved chemistry major.

d) **Uses of Results**. Describe and provide specific examples of how you have used the assessment results to guide program planning and decision-making.

Our assessment data dealing with the Principles of Chemistry sequence was identified a weakness in the application of chemical concepts to solving quantitative problems. We added an on-line homework product to the course materials in an attempt to give students a learning environment that would provide quality feedback to them as they worked on building this skill in the course. The use of this product has not been as successful as we had hoped and we are currently reconsidering it use in this course.

Weak math skills were identified in our previous review and we added Math 104 as a prerequisite for Chem 212. Math performance overall has improved, but a number of students still demonstrate very weak math skills in this course even though they have passed Math 104.

Section V. Accomplishment of Program Goals.

For each area below describe the projects and initiatives completed by your program since its last review to meet your program development goals.

a) **Curricular Modifications.** For example, addition or deletion of courses or areas of emphasis; new majors or programs; course development and improvement including pedagogical changes and the use of instructional technology; accreditation by an outside agency.

The chemistry major has not undergone any significant changes since the last review. Some minor changes have been made in the prerequisite structure of some courses and we have formally substituted Environmental Systems for Environmental Chemistry in the Environmental Chemistry track. This substitution had been done on a case-by-case basis for a number of years. The Environmental Chemistry courses will be deactivated. Starting this year, the chemistry program will change the periodicity of the biochemistry lecture and laboratory courses to both fall and spring. In the past this course was scheduled to be offered during the fall semester only but was often offered as a spring semester course when student demand could be expected. This course requires that the student complete either the one semester bioorganic chemistry course or the two-semester organic chemistry sequence. The majority of the students in the biochemistry course complete the two-semester organic chemistry sequence for their major. This required that the students complete organic chemistry in the year before they desired to take biochemistry course placing extreme pressure on the organic chemistry I course each fall. With this change in our scheduling of biochemistry we hope to have the pressure on Organic Chemistry I in the fall reduced.

The chemistry program as increased its use of on-line instructional material to support its courses. In organic chemistry laboratory courses Dr. Wondergem uses an on-line tutorial for introducing and demonstrating techniques used in the laboratory. She has reported that the use of this material has made student use of laboratory time more efficient and improved student performance. In the Principles of Chemistry sequence the chemistry department has utilized an on-line product to try to improve student understanding of the course material and to improve problem solving skills. Over the past two years the product has caused too many problems for students and faculty to be considered successful and we have decided to reconsider the use of on-line homework software for use in the Principles of Chemistry sequence.

The future of data collection is currently moving to the use of wireless communication between instruments and personal processors like smart phones and tablets. The chemistry department is currently exploring the use of this kind of technology for use in the introductory chemistry laboratories.

b) **Procurement of Resources.** For example, additional faculty or staff positions, expanded laboratory space, research grants and other extramural funds.

In our last program review we identified the need for 2 to 3 additional faculty positions in chemistry to be able to meet the needs for instruction by faculty trained in chemistry. This past year we filled the first of these needed positions. With the addition of this new faculty position we hope to be able to reduce our reliance on ad hoc instruction in upper level core chemistry courses for the near future. We will continue to rely upon ad hoc instructors and faculty taking overload assignments to address the staffing needs in the lower level courses. The contributions made by chemists to the graduate program in Environmental Science and Policy, the Environmental Science undergraduate program and the general education program, in particularly the Freshman Seminar program, are still much less than is desired by the chemistry department. Only additional faculty in chemistry will allow us to fully contribute to the wide range of academic engagements that chemists can provide.

The chemistry faculty has been active in the soliciting extramural funds for the support of undergraduate and graduate research in chemistry and environmental science. As a result of these efforts the University has received approximately 1.16 million dollars in research funds. The majority of these awards were funded research grants that were submitted by a team of two or more faculty members of Natural and Applied Sciences. The chemistry department has also been active in the use of Classroom and Laboratory Modernization fund and one-time funds to address the on going need to maintain a functional array of instrumentation for teaching laboratory based chemistry courses.

c) **Faculty and Staff Development.** For example, teaching skills improvement opportunities, support of faculty research and other scholarly activity; renewal and retraining; enhancement of instructional technology skills, attendance at conferences, retreats and workshops.

The chemistry department has been active in the Teaching Scholars and the Online Teaching Fellows programs on campus and in academic enhancement workshops and conferences on campus and off. Faculty are given the opportunity to take advantage of most professional development activities that they deem appropriate by the chair of Natural and Applied Sciences.

d) **Student Advising.** Efforts your program made to enhance the quality of academic advising for students who have declared a major in your program.

The academic advising program used by the chemistry program during the time period covered by the last review were viewed as strong and appropriate. We have not changed them during the time of this review. We continue to be active in the R&R portion of the FOCUS program, the Majors Fair, and encourage one-on-one academic advising for all majors.

e) **Plan 2008.** Your program's efforts to implement the recommendations contained in the institution's Plan 2008. Goals 2, 3, and 5 are of particular relevance to academic programs. A complete copy of this plan can be found at: http://www.uwgb.edu/univcomm/news/diversity/2008rprt.pdf.

The program created for our recent faculty searches integrated a number of elements that encouraged minority candidates to apply.

f) **Other Proposed Initiatives.** These could include unit sponsored internships, student organizations, workshops and lecture series, etc.

The chemistry department supports the Students Affiliates chapter of the American Chemical Society and is active in the NAS Friday Lecture series.

g) **Summary of Accomplishments.** Briefly summarize how successful your program has been in accomplishing the goals listed in your most recent Program Development Plan.

The chemistry faculty identified six program goals in the May 2006 Program Development Plan, the last plan submitted. Since that plan was submitted we have made progress on all six initiatives. The program has increased the number of full-time faculty teaching chemistry courses by one member. This has reduced our reliance on part-time instructors but has not eliminated this need. With the addition of the engineering technology program the chemistry program foresees the possibility of growth in the introductory chemistry program and in the courses that would support an environmental engineering professional. An additional faculty position in the area of environmental or analytical chemistry may be necessary once these new tracks become fully enrolled.

In the past 7 years the two assistant professors in the chemistry program have been promoted with tenure and are productive scholars and teachers in the program. One associate professor was also promoted to full professor during this time.

The undergraduate research program remains very active.

The department did not attempt to develop an interdisciplinary track in Biochemistry. Resistance to the development of a track that would directly complete with the Human Biology major was the reason this program goal was not attempted.

The instrumentation used for chemistry instruction was maintained in good working order over the past 7 years. The major problem encountered during this time was the evolution of the computer operating systems that the campus uses for the networked computer systems. The software that is used to control and process the data from individual instruments is often not revised to operate under newer operating systems requiring that the computer running this software operate using a legacy version of the Windows operating system. Due to network security concerns, the majority of the computers used for chemistry instruction are now operating on a separate network that provides printing capabilities but not Internet connectivity. The majority of the instrumentation used for chemistry instruction is now seven years older than during our last review and replacement of major instruments is a definite possibility during the next seven years.

The program has retained its status with the American Chemical Society and continues to offer a major that is approved.

Section VI. Additional Resource Needs

a) Describe any new instructional equipment, instruments, computer hardware and software, and other items, that will need to be obtained over the next five years to meet your program goals.

Unit Priority	Name of Item	No. of Units	Total Estimated Cost	Replacement Item?
#1	Differential Scanning Calorimeter	1	$ 47,100	No
#2	Gas Chromatograph-Thermal Conductivity Detector	1	$ 15,000	Yes
#3	IPC-MS	1	$500,000	No
#4	GC-LC-MS	1	$500,000	No
#5	High Field NMR Spectrometer	1	$500,000	No
#6	Polarimeter	2	$ 42,000	Yes
#7	Capillary Electrophoresis	2	$ 24,000	No
#8	Tensiometer	1	$ 6,500	No
#9	Goniometer, Contact Angle Measurement System	1	$ 6,000	No
#10	Dake Hot Hydraulic Press	1	$ 11,000	No
#11	Optical Rotatory Dispersion Analyzer	1	$ 24,000	No
#12	Scanning Tunneling Microscope	1	$ 26,350	No
#13	Scanning Raman Microscope	1	$35,000	No

b) List in priority order and in bullet form, any ongoing needs with a succinct rationale and dollar estimate for each need. Examples of unmet needs are increases in S&E or student help, ad hoc sections that exceed the provisional funds allocated for additional instruction.

- Ad hoc instruction will continue to be a need of the chemistry department. For the current academic year approximately 20 contact hours of teaching load will have to be covered by ad hoc and overload teaching assignments. This has been made worst this past year with the ability to fill only two of the three graduate teaching assistantships that are routinely used by the chemistry department to provide instruction for the introductory chemistry laboratories. If we need to add additional lecture or laboratory sections of Chem 211 or 212 as a result of the development of the engineering technology programs our ad hoc needs will increase.
- Support for faculty who supervise undergraduate and graduate research projects must be addressed.

As an optional attachment to this report, a program may include a summary of the results from its teaching assessment procedures; course syllabi; University and community service, awards and recognition, etc.

Academic Plan: Chemistry

Institutional Research - Run date: 04FEB2014

	Fall Headcounts				
	2009	2010	2011	2012	2013
Declared Majors, end of term	43	49	50	50	48
Declared Minors, end of term	62	66	65	46	40

Fall Declared Majors - Characteristics										
	2009		2010		2011		2012		2013	
Female	19	44%	20	41%	19	38%	23	46%	23	48%
Minority	4	9%	3	6%	3	6%	5	10%	5	10%
Age 26 or older	5	12%	8	16%	6	12%	6	12%	4	8%
Location of HS: Brown County	18	42%	12	24%	11	22%	12	24%	10	21%
Location of HS: Wisconsin	39	91%	42	86%	44	88%	45	90%	43	90%
Attending Full Time	39	91%	42	86%	46	92%	39	78%	39	81%
Freshmen	1	2%	3	6%	1	2%	4	8%	2	4%
Sophomores	18	42%	8	16%	9	18%	6	12%	7	15%
Juniors	8	19%	14	29%	15	30%	12	24%	14	29%
Seniors	16	37%	24	49%	25	50%	28	56%	25	52%

	Fall Declared Majors - Characteristics				
	2009	2010	2011	2012	2013
Average HS Cumulative G.P.A.	3.32	3.37	3.43	3.38	3.42
Average ACT Composite Score	24.4	23.8	25.2	24.2	23.9
Average ACT Reading Score	23.7	23.7	25.2	24.3	24.1
Average ACT English Score	23.6	23.3	24.4	22.9	22.3
Average ACT Math Score	25.1	24.1	25.7	24.9	24.4
Average ACT Science Score	24.9	24.2	25.4	24.5	24.4

Academic Plan: Chemistry

Institutional Research - Run date: 04FEB2014

	Fall Declared Majors - Characteristics				
	2009	2010	2011	2012	2013
Percent started as Freshmen	74%	51%	60%	58%	52%
Percent started as Transfers	26%	49%	40%	42%	48%
Percent with prior AA degree	2%	10%	6%	8%	13%
Percent with prior BA degree	5%	8%	12%	10%	4%

	Calendar Year Headcounts				
	2009	2010	2011	2012	2013
Graduated Majors (May, Aug. & Dec.)	12	9	7	13	9
Graduated Minors (May, Aug. & Dec.)	29	20	31	37	23

Characteristics of Graduated Majors										
	2009		2010		2011		2012		2013	
Graduates who are... Women	9	75%	3	33%	3	43%	4	31%	1	11%
... Students of Color	0	0%	1	11%	1	14%	1	8%	0	0%
... Over 26 Years Old	5	42%	3	33%	1	14%	1	8%	3	33%
Graduates earning Degree Honors	5	42%	3	33%	2	29%	6	46%	4	44%

	Characteristics of Graduated Majors				
	2009	2010	2011	2012	2013
Average Credits Completed Anywhere	145	149	139	142	159
Average Credits Completed at UWGB	130	97	122	109	105
Average Cum GPA for Graduates	3.43	3.23	3.16	3.38	3.42

Academic Subject: CHEM

Institutional Research - Run date: 04FEB2014

			Headcount Enrollments, Credit-bearing Activities				
			2009	2010	2011	2012	2013
Lectures	1-Lower	1-Spring	244	542	537	470	488
		2-Summer	38	54	81	105	104
		3-Fall	542	619	550	486	506
		All	824	1215	1168	1061	1098
	2-Upper	1-Spring	300	325	333	335	298
		2-Summer	.	.	32	70	34
		3-Fall	278	253	317	273	294
		All	578	578	682	678	626
	3-Grad	1-Spring	1	.	.	.	.
		2-Summer	.	.	.	.	.
		3-Fall	.	.	.	.	.
		All	1	.	.	.	.
	All		1403	1793	1850	1739	1724
IST/FEX	1-Lower	1-Spring	1	2	1	1	.
		2-Summer	.	1	.	.	.
		3-Fall	3	.	2	.	1
		All	4	3	3	1	1
	2-Upper	1-Spring	6	7	5	9	8
		2-Summer	1	1	.	.	.
		3-Fall	7	5	5	4	4
		All	14	13	10	13	12
	3-Grad	1-Spring	.	.	.	.	.
		2-Summer	.	.	.	.	.

	3-Fall	.	.	.	.	.
	All	.	.	.	.	.
All		18	16	13	14	13
All		1421	1809	1863	1753	1737

Academic Subject: CHEM

Institutional Research - Run date: 04FEB2014

			Student Credit Hours, Credit-bearing Activities				
			2009	2010	2011	2012	2013
Lectures	1-Lower	1-Spring	1220	1388	1407	1220	1271
		2-Summer	190	144	213	288	290
		3-Fall	1376	1588	1411	1258	1294
		All	2786	3120	3031	2766	2855
	2-Upper	1-Spring	730	759	803	803	723
		2-Summer	.	.	66	162	76
		3-Fall	617	560	686	593	653
		All	1347	1319	1555	1558	1452
	3-Grad	1-Spring	4	.	.	.	.
		2-Summer	.	.	.	.	.
		3-Fall	.	.	.	.	.
		All	4	.	.	.	.
	All		4137	4439	4586	4324	4307
IST/FEX	1-Lower	1-Spring	1	2	1	1	.
		2-Summer	.	1	.	.	.
		3-Fall	3	.	2	.	1
		All	4	3	3	1	1
	2-Upper	1-Spring	11	13	11	15	14
		2-Summer	3	2	.	.	.
		3-Fall	16	10	8	6	8
		All	30	25	19	21	22
	3-Grad	1-Spring	.	.	.	.	.
		2-Summer	.	.	.	.	.

	3-Fall	.	.	.	.	.
	All	.	.	.	.	.
All		34	28	22	22	23

Academic Subject: CHEM

Institutional Research - Run date: 04FEB2014

			Lectures and Lab/Discussion Sections (#)				
			2009	2010	2011	2012	2013
Lectures	1-Lower	1-Spring	4	16	16	15	15
		2-Summer	2	4	4	4	5
		3-Fall	16	17	16	15	16
		All	22	37	36	34	36
	2-Upper	1-Spring	17	14	17	14	13
		2-Summer	.	.	2	4	2
		3-Fall	12	12	14	13	14
		All	29	26	33	31	29
	3-Grad	1-Spring	1	.	.	.	.
		2-Summer	.	.	.	.	.
		3-Fall	.	.	.	.	.
		All	1	.	.	.	.
	All		52	63	69	65	65
Lab/Disc	1-Lower	1-Spring	19	9	10	8	9
		2-Summer	4	2	2	2	2
		3-Fall	9	11	13	8	8
		All	32	22	25	18	19
	2-Upper	1-Spring	3	3	3	3	3
		2-Summer	.	.	.	.	.
		3-Fall	1	1	1	1	1
		All	4	4	4	4	4
	3-Grad	1-Spring	.	.	.	.	.
		2-Summer	.	.	.	.	.

	3-Fall	.	.	.	.	.
	All	.	.	.	.	.
All		36	26	29	22	23
All		88	89	98	87	88

Academic Subject: CHEM

Institutional Research - Run date: 04FEB2014

			Average Section Size of Lectures				
			2009	2010	2011	2012	2013
Lectures	1-Lower	1-Spring	61.0	33.9	33.6	31.3	32.5
		2-Summer	19.0	13.5	20.3	26.3	20.8
		3-Fall	33.9	36.4	34.4	32.4	31.6
		All	37.5	32.8	32.4	31.2	30.5
	2-Upper	1-Spring	17.6	23.2	19.6	23.9	22.9
		2-Summer	.	.	16.0	17.5	17.0
		3-Fall	23.2	21.1	22.6	21.0	21.0
		All	19.9	22.2	20.7	21.9	21.6
	3-Grad	1-Spring	1.0	.	.	.	.
		2-Summer	.	.	.	.	.
		3-Fall	.	.	.	.	.
		All	1.0	.	.	.	.
	All		27.0	28.5	26.8	26.8	26.5

Unique Lecture Courses Delivered in Past Four Years					
	2009	2010	2011	2012	2013
1-Lower	4	3	3	3	3
2-Upper	12	11	12	12	12

General Education as a Percent of all Credits in Lectures					
	2009	2010	2011	2012	2013
1-Lower	65%	64%	63%	57%	55%
2-Upper	0%	0%	0%	0%	0%

Budgetary Unit: NAS

Institutional Research - Run date: 04FEB2014

	Instructional Staff Headcounts and FTEs				
	2009	2010	2011	2012	2013
Full Professors (FT)	3	3	3	5	7
Associate Professors (FT)	14	15	17	15	12
Assistant Professors (FT)	7	4	3	5	3
Instructors and Lecturers (FT)	6	8	6	4	5
Total Full-time Instructional Staff	30	30	29	29	27
Part-time Instructional Staff	18	18	16	.	.
FTE of Part-time Faculty	6.5	6.8	3.2	.	.
Total Instructional FTE	36.5	36.8	32.2	.	.

	Student Credit Hours per Faculty FTE				
	2009	2010	2011	2012	2013
SCH per Full-time Faculty FTE	364	406	358	.	.
SCH per Part-time Faculty FTE	247	137	587	.	.
SCH per Faculty FTE	344	356	378	.	.

Alumni Survey: 2009, 2010, 2011, 2012 & 2013

	Survey year	Graduation Year	Chemistry	UWGB Overall
Graduates:	2009	2005-2006	5	1087
	2010	2006-2007	7	1148
	2011	2007-2008	6	1162
	2012	2008-2009	11	1133
	2013	2009-2010	9	1295
Response Rate*	2009-2013		7/38 (18%)	882/5825 (15%)

* Note: % response misses double-majors who chose to report on their other major.

Table 1. Preparation & Importance
- **Preparation by UWGB (5-pt. scale; 5 = excellent)**
- **Importance to current job or graduate program (5-pt. scale; 5 = very important)**

		2009-2013					
		Preparation			Importance		
	Unit of Analysis	n	Excellent or Good	Mean	n	Very important or Important	Mean
Critical analysis skills.	CHEM	4	75%	4.0	4	100%	4.8
	UWGB	702	67%	3.8	684	91%	4.5
Problem-solving skills.	CHEM	4	75%	4.0	4	100%	5.0
	UWGB	704	69%	3.8	679	94%	4.7
Understanding biology and the physical sciences.	CHEM	4	75%	4.3	4	100%	4.8
	UWGB	672	46%	3.4	671	30%	2.6
Understanding the impact of science and technology.	CHEM	4	75%	4.3	4	100%	5.0
	UWGB	670	47%	3.4	675	43%	3.2
Understanding social, political, geographic, and economic structures.	CHEM	4	50%	3.5	4	25%	2.5
	UWGB	689	60%	3.7	676	57%	3.5
Understanding the impact of social institutions and values.	CHEM	4	75%	4.0	4	0	2.3
	UWGB	692	68%	3.9	676	63%	3.7
Understanding the significance of major events in Western civilization.	CHEM	4	100%	4.0	4	0	1.3
	UWGB	682	53%	3.5	673	28%	2.6
Understanding a range of literature.	CHEM	4	50%	3.3	4	0	1.5
	UWGB	678	50%	3.5	669	32%	2.7
Understanding the role of the humanities in identifying and clarifying individual and social values.	CHEM	4	50%	3.5	4	0	1.8
	UWGB	676	57%	3.6	663	39%	3.0
Understanding at least one Fine Art, including its nature and function(s).	CHEM	4	100%	4.3	4	0	1.5
	UWGB	682	60%	3.7	667	25%	2.5
Understanding contemporary global issues.	CHEM	4	50%	3.5	4	50%	3.0
	UWGB	680	54%	3.6	665	52%	3.4
Understanding the causes and effects of stereotyping and racism.	CHEM	4	75%	3.5	4	25%	2.8
	UWGB	682	63%	3.8	668	56%	3.5
Written communication skills.	CHEM	4	50%	3.8	4	100%	4.5
	UWGB	694	80%	4.1	672	92%	4.7

Table 1. Preparation & Importance
- **Preparation by UWGB (5-pt. scale; 5 = excellent)**
- **Importance to current job or graduate program (5-pt. scale; 5 = very important)**

	Unit of Analysis	2009-2013					
		Preparation			Importance		
		n	Excellent or Good	Mean	n	Very important or Important	Mean
Public speaking and presentation skills.	CHEM	4	50%	3.8	4	75%	4.5
	UWGB	690	60%	3.7	676	85%	4.4
Reading skills.	CHEM	4	25%	3.3	4	100%	4.5
	UWGB	689	73%	4.0	670	91%	4.6
Listening skills.	CHEM	4	50%	3.5	4	75%	4.3
	UWGB	689	74%	4.0	672	96%	4.8
Leadership and management skills.	CHEM	4	75%	4.0	4	100%	4.5
	UWGB	691	65%	3.8	668	94%	4.7

Table 2. Educational experiences
(5-pt. scale; 5 = strongly agree)

	Unit of Analysis	N	Strongly Agree or Agree	Mean
My educational experiences at UW-Green Bay helped me to learn or reinforced my belief that learning is a lifelong process.	CHEM	7	86%	4.0
	UWGB	877	93%	4.4
While at UW-Green Bay, I had frequent interactions with people from different countries or cultural backgrounds than my own.	CHEM	7	57%	3.3
	UWGB	870	51%	3.4
Students at UW-Green Bay are encouraged to become involved in community affairs.	CHEM	7	86%	3.9
	UWGB	866	59%	3.6
My experiences and course work at UW-Green Bay encouraged me to think creatively and innovatively.	CHEM	7	100%	4.1
	UWGB	877	87%	4.1
The interdisciplinary, problem-focused education provided by UW-Green Bay gives its graduates an advantage when they are seeking employment or applying to graduate school.	CHEM	7	57%	3.7
	UWGB	870	78%	4.0
UW-Green Bay provides a strong, interdisciplinary, problem-focused education.	CHEM	7	86%	4.1
	UWGB	877	83%	4.1
Students at UW-Green Bay have many opportunities in their classes to apply their learning to real situations.	CHEM	7	43%	3.4
	UWGB	872	73%	3.9
I would recommend UW-Green Bay to co-worker, friend, or family member.	CHEM	7	100%	4.4
	UWGB	879	90%	4.4
The General Education requirements at UWGB were a valuable component of my education.	CHEM	6	33%	3.5
	UWGB	840	58%	3.5
UWGB cares about its graduates.	CHEM	6	50%	3.5
	UWGB	846	61%	3.7
I feel connected to UWGB.	CHEM	7	29%	3.3
	UWGB	866	45%	3.3

Table 3. "If you could start college over"	Unit of Analysis	n	UW-Green Bay		Another college		No bachelor's degree anywhere
			Same major	Different major	Same major	Different major	
2009–2013 percent	CHEM	7	71%	0	0	14%	14%
	UWGB	876	64%	24%	7%	4%	1%

Table 4. Rating the MAJOR (Scale: A = 4, B = 3, etc.)	Unit of Analysis	2009–2013			
		n	A or B	C or D	mean
Quality of teaching.	CHEM	7	86%	14%	3.4
	UWGB	880	95%	5%	3.5
Knowledge and expertise of the faculty.	CHEM	7	100%	0	3.4
	UWGB	878	98%	2%	3.7
Faculty-student relationships (e.g., helpfulness, sensitivity, acceptance of different views).	CHEM	7	100%	0	3.7
	UWGB	877	91%	9%	3.5
Importance and relevance of courses to professional and academic goals.	CHEM	7	100%	0	3.4
	UWGB	872	89%	11%	3.4
Advising by faculty (e.g., accuracy of information).	CHEM	7	100%	0	3.4
	UWGB	861	87%	12%	3.4
Availability of faculty (e.g., during office hours).	CHEM	7	100%	0	3.4
	UWGB	859	93%	7%	3.6
Overall grade for the major (not a sum of the above).	CHEM	7	100%	0	3.4
	UWGB	867	94%	6%	3.5

Table 5. Highest degree planned	Unit of Analysis	n	Bachelor's	Master's	Specialist	Professional	Doctoral
2009-2013 percent	CHEM	7	29%	43%	0	0	28%
	UWGB	878	36%	46%	1%	5%	12%

Table 6. Graduate/professional study plans	Unit of Analysis	n	Already graduated	Currently enrolled	Accepted, not enrolled	Rejected	Have not applied
2009-2013 percent	CHEM	5	0	80%	0	0	20%
	UWGB	592	22%	23%	4%	3%	48%

Table 7. Current employment status	CHEM (n = 7)	UWGB (n = 879)
Employed full-time (33 or more hours/week)	71%	78%
Employed part-time	0	12%
Unemployed, seeking work	0	4%
Unemployed, not seeking work	0	2%
Student, not seeking work	29%	3%

Table 8. Satisfaction with current job (5-pt. scale; 5 = very satisfied)	Unit of Analysis	n	Very satisfied or satisfied	mean
2009-2013 percentage	CHEM	6	83%	4.2
	UWGB	793	72%	3.9

Table 9. Minimum educational requirements for current job	CHEM (n = 6)	UWGB (n = 788)
High school or less	0	19%
Certificate	0	3%
Associate's degree	17%	14%
Bachelor's degree	66%	57%
Graduate degree	17%	8%

Table 10. Extent to which job relates to major	CHEM (n = 6)	UWGB (n = 789)
Very related	50%	51%
Somewhat related	33%	30%
Not at all related	17%	20%

Table 11. Current income	CHEM (n = 6)	UWGB (n = 766)
Under $20,000	0	13%
$20,000 to $25,999	0	11%
$26,000 to $29,999	33%	8%
$30,000 to $35,999	0	22%
$36,000 to $39,999	33%	13%
$40,000 to $49,999	17%	15%
$50,000 or more	17%	18%

Employers, Locations, and Job Titles

Sigma-Aldrich	Milwaukee	Wisconsin	Chemist I
Shawano Medical Center	Shawano	Wisconsin	Medical Laboratory Technician
Schreiber Foods, Inc.	Green Bay	Wisconsin	Sensory Scientist
		Wisconsin (2)	
Schwabe North America - Enzymatic Therapy	Green Bay	Wisconsin	QC Chemist
Northwestern Univeristy (Grad School)	Evanston	Illinois	Graduate Researcher

Graduating Senior Survey: 2009, 2010, 2011, 2012 & 2013

	Graduation Year	Chemistry	UWGB Overall
Graduates:	2009	10	1051
	2010	7	1106
	2011	6	1185
	2012	12	1293
	2013	8	1229
Response Rate*	2009-2013	24/43 (56%)	2897/5864 (49%)

* Note: % response misses double-majors who choose to report on their other major.

Table 1: Rating the MAJOR (A = 4, B = 3.0, etc.)	Unit of Analysis	2009-2013						
		N	mean	A	B	C	D	F
Clarity of major requirements	CHEM	24	4.0	67%	33%	0	0	0
	UWGB	2890	3.5	57%	35%	6%	2%	<1%
Reasonableness of major requirements	CHEM	24	4.0	54%	33%	13%	0	0
	UWGB	2885	3.5	55%	37%	6%	1%	<1%
Variety of courses available in your major	CHEM	24	3.0	25%	42%	29%	4%	0
	UWGB	2872	3.0	33%	42%	19%	5%	1%
Frequency of course offerings in your major	CHEM	24	3.0	4%	50%	29%	13%	4%
	UWGB	2874	2.7	20%	40%	28%	9%	3%
Times courses were offered	CHEM	24	3.0	38%	46%	12%	4%	0
	UWGB	2823	2.9	26%	42%	24%	6%	2%
Quality of internship, practicum, or field experience	CHEM	11	3.0	46%	36%	18%	0	0
	UWGB	1625	3.3	57%	27%	10%	4%	2%
Quality of teaching by faculty in your major	CHEM	24	3.5	50%	46%	4%	0	0
	UWGB	2869	3.4	52%	38%	8%	1%	<1%
Knowledge and expertise of the faculty in your major	CHEM	24	4.0	67%	29%	4%	0	0
	UWGB	2885	3.6	69%	27%	4%	<1%	<1%
Faculty encouragement of your educational goals	CHEM	24	4.0	67%	21%	12%	0	0
	UWGB	2851	3.4	55%	30%	11%	3%	1%
Overall quality of advising received from the faculty in your major	CHEM	22	4.0	55%	32%	5%	0	9%
	UWGB	2748	3.2	52%	26%	12%	6%	4%
Availability of your major advisor for advising	CHEM	22	4.0	64%	23%	4%	0	9%
	UWGB	2737	3.3	58%	25%	10%	4%	3%
Ability of your advisor to answer university questions	CHEM	22	4.0	64%	23%	4%	0	9%
	UWGB	2699	3.4	63%	22%	9%	4%	2%
Ability of your advisor to answer career questions	CHEM	22	3.0	36%	50%	5%	5%	4%
	UWGB	2446	3.2	52%	27%	13%	5%	3%
In-class faculty-student interaction	CHEM	24	3.0	46%	33%	4%	17%	0
	UWGB	2795	3.1	43%	30%	13%	12%	<1%
Overall grade for your major (**not** an average of the above)	CHEM	24	3.0	42%	50%	8%	0	0
	UWGB	2848	3.4	47%	44%	8%	1%	<1%

Table 2. Job related to major while completing degree?	Unit of Analysis	n	Full-time		Part-time		No
			Paid	Non-paid	Paid	Non-paid	
2009-2013 percent	CHEM	24	4%	0	29%	0	67%
	UWGB	2879	14%	1%	33%	5%	47%

Table 3. "If you could start college over"	Unit of Analysis	n	UW-Green Bay		Another college		No BA degree
			Same major	Different major	Same major	Different major	
2009-2013 percent	CHEM	24	83%	8%	8%	0	0
	UWGB	2875	69%	12%	12%	5%	1%

Table 4. Plans regarding graduate/professional study	Unit of Analysis	n	Already admitted	Have applied	Plan to eventually attend	NA/have not applied yet
2009-2013 percent	CHEM	19	16%	37%	26%	21%
	UWGB	2206	8%	12%	65%	15%

Table 5. Highest degree planned	Unit of Analysis	n	Bachelor's	Master's	Specialist's	Professional	Doctoral
2009-2013 percent	CHEM	24	29%	17%	0	12%	42%
	UWGB	2879	30%	51%	1%	5%	13%

Table 6. General Education preparation Current proficiency vs. Contribution of Gen Ed to current proficiency (3-pt. scale; 3 = high, 2 = medium, 1 = low)	Unit of Analysis	Current Proficiency			Gen Ed Contribution		
		n	% High	mean	n	% High	mean
Critical analysis skills.	CHEM	23	83%	3.0	20	10%	2.0
	UWGB	2674	64%	2.6	2600	29%	2.1
Problem-solving skills.	CHEM	23	96%	3.0	20	20%	2.0
	UWGB	2667	70%	2.7	2590	29%	2.1
Understanding biology and the physical sciences.	CHEM	23	83%	3.0	20	30%	2.0
	UWGB	2623	26%	2.0	2478	26%	2.0
Understanding the impact of science and technology.	CHEM	23	83%	3.0	20	35%	3.0
	UWGB	2620	34%	2.2	2489	25%	2.0
Understanding social, political, geographic, and economic structures.	CHEM	23	17%	2.0	20	25%	2.0
	UWGB	2629	34%	2.2	2549	28%	2.1

Table 6. General Education preparation

Current proficiency vs. Contribution of Gen Ed to current proficiency
(3-pt. scale; 3 = high, 2 = medium, 1 = low)

	Unit of Analysis	Current Proficiency			Gen Ed Contribution		
		n	% High	mean	n	% High	mean
Understanding the impact of social institutions and values.	CHEM	23	30%	2.0	19	26%	2.0
	UWGB	2647	50%	2.4	2560	36%	2.2
Understanding the significance of major events in Western civilization.	CHEM	23	30%	2.0	20	25%	2.0
	UWGB	2629	33%	2.2	2530	32%	2.1
Understanding the role of the humanities in identifying and clarifying values.	CHEM	23	17%	2.0	20	15%	2.0
	UWGB	2639	38%	2.2	2551	33%	2.1
Understanding at least one Fine Art.	CHEM	23	39%	2.0	19	37%	2.0
	UWGB	2631	39%	2.2	2520	33%	2.1
Understanding contemporary global issues.	CHEM	23	39%	2.0	19	32%	2.0
	UWGB	2633	34%	2.2	2528	25%	2.0
Understanding the causes and effects of stereotyping and racism.	CHEM	23	61%	3.0	18	39%	2.0
	UWGB	2644	62%	2.6	2560	38%	2.2
Written communication skills	CHEM	23	57%	3.0	19	16%	2.0
	UWGB	2654	66%	2.6	2595	41%	2.3
Public speaking and presentation skills	CHEM	23	44%	2.0	18	0	2.0
	UWGB	2632	44%	2.3	2517	28%	2.0
Computer skills	CHEM	23	48%	2.0	17	18%	2.0
	UWGB	2634	55%	2.5	2490	26%	1.9

Table 7. Educational experiences
(5 pt. scale; 5 = strongly agree)

	Unit of Analysis	2009-2013		
		n	Strongly Agree or Agree	mean
Because of my educational experiences at UW-Green Bay, I have learned to view learning as a lifelong process.	CHEM	24	71%	4.0
	UWGB	2789	90%	4.4
While at UW-Green Bay, I had frequent interactions with people from different countries or cultural backgrounds than my own.	CHEM	24	25%	3.0
	UWGB	2694	44%	3.2
The UW-Green Bay educational experience encourages students to become involved in community affairs.	CHEM	23	43%	3.0
	UWGB	2677	55%	3.5
My experiences at UW-Green Bay encouraged me to think creatively and innovatively.	CHEM	24	54%	4.0
	UWGB	2785	82%	4.1
My education at UW-Green Bay has given me a "competitive edge" over graduates from other institutions.	CHEM	22	36%	3.0
	UWGB	2672	63%	3.7
UW-Green Bay provides a strong, interdisciplinary, problem-focused education.	CHEM	24	54%	4.0
	UWGB	2759	74%	3.9
Students at UW-Green Bay have many opportunities in their classes to apply their learning to real situations.	CHEM	24	58%	4.0
	UWGB	2782	71%	3.8

Table 7. Educational experiences
(5 pt. scale; 5 = strongly agree)

	Unit of Analysis	2009-2013 n	2009-2013 Strongly Agree or Agree	2009-2013 mean
I would recommend UW-Green Bay to a friend, co-worker, or family member.	CHEM	24	83%	4.0
	UWGB	2782	83%	4.2
There is a strong commitment to racial harmony on this campus.	CHEM	20	40%	3.0
	UWGB	2503	56%	3.7
The faculty and staff of UWGB are committed to gender equity.	CHEM	24	83%	4.0
	UWGB	2608	75%	4.0
This institution shows concern for students as individuals.	CHEM	24	71%	4.0
	UWGB	2743	74%	3.9
The General Education requirements at UWGB were a valuable component of my education.	CHEM	19	21%	3.0
	UWGB	2641	49%	3.3

Table 8. Activities while at UW-Green Bay

	Unit of Analysis	n	Independent study	Student org	Internship	Professional organization	Community service	Worked with a faculty member	Study group	Study abroad
2009-2013 percent	CHEM	24	46%	33%	33%	4%	26%	79%	58%	4%
	UWGB	2894	26%	47%	55%	21%	57%	22%	53%	14%

Table 9. Rating services and resources
(A = 4, B = 3, etc.)

	Unit of Analysis	2009-2013 n	2009-2013 A or B	2009-2013 mean
Library services (hours, staff, facilities)	CHEM	19	95%	4.0
	UWGB	2436	91%	3.4
Library collection (books, online databases)	CHEM	19	79%	3.0
	UWGB	2372	90%	3.4
Admission Office	CHEM	17	94%	3.0
	UWGB	2294	92%	3.4
Financial Aid Office	CHEM	17	82%	3.0
	UWGB	2144	87%	3.3
Bursar's Office	CHEM	24	75%	3.0
	UWGB	2687	87%	3.3
Career Services	CHEM	13	77%	4.0
	UWGB	1595	84%	3.3
Academic Advising Office	CHEM	19	63%	3.0
	UWGB	2237	76%	3.1

Table 9. Rating services and resources (A = 4, B = 3, etc.)	Unit of Analysis	2009-2013		
		n	A or B	mean
Student Health Services	CHEM	8	88%	3.0
	UWGB	1429	88%	3.4
Registrar's Office	CHEM	21	95%	4.0
	UWGB	2402	92%	3.5
Writing Center	CHEM	4	100%	3.5
	UWGB	995	83%	3.2
University Union	CHEM	20	90%	3.0
	UWGB	2333	88%	3.3
Student Life	CHEM	11	82%	3.0
	UWGB	1382	83%	3.2
Counseling Center	CHEM	3	67%	3.0
	UWGB	554	78%	3.2
Computer Facilities (labs, hardware, software)	CHEM	23	100%	4.0
	UWGB	2450	95%	3.5
Computer Services (hours, staff, training)	CHEM	21	100%	4.0
	UWGB	2229	92%	3.5
Kress Events Center	CHEM	12	83%	4.0
	UWGB	1940	96%	3.7
Dining Services	CHEM	15	73%	3.0
	UWGB	1989	56%	2.6
American Intercultural Center	CHEM	1	100%	3.0
	UWGB	358	86%	3.3
International Office	CHEM	1	100%	3.0
	UWGB	381	80%	3.1
Residence Life	CHEM	7	86%	3.0
	UWGB	1159	76%	3.0
Bookstore	CHEM	23	70%	3.0
	UWGB	2758	79%	3.1

PROGRAM DEVELOPMENT PLAN

Name of Program: Chemistry

Department Chair: Warren Johnson

Date Plan Completed: May 17, 2006 Date Last Program Review Completed: October 31, 2000

Section I. Mission Statement

Briefly state your program's mission. Indicate how it relates to UW-Green Bay's core and select missions and guiding principles.

The mission of the chemistry program at the University of Wisconsin – Green Bay is to provide expertise in chemistry to the University and to the citizens of Wisconsin and to further the understanding and teaching of chemistry through research and scholarship. We provide expertise to the University by teaching upper level courses that lead to three different degree options in chemistry, including two options that are approved by the American Chemical Society. We provide students with laboratory research experience. We offer the General Education science courses Principles of Chemistry, and General Chemistry. We provide an array of courses that are required for a number of programs in addition to Chemistry including: Biology, Earth Science, Education, Environmental Science, Human Biology, and Interdisciplinary Studies. We contribute to the teaching of upper level courses in the Environmental Science and the Human Biology programs. We provide course instruction, consultation and thesis supervision to the graduate program in Environmental Science and Policy. The program is focused on supporting the four touchstones of The Green Bay Idea through the use of problem-focused instruction.

Section II. Assessment of Student Learning

a) **Student Learning Outcomes.** List your program's anticipated student learning outcomes. What do you expect all students majoring in your program to know or be able to do?

Have knowledge of inorganic chemistry

Have knowledge of chemical analysis and instrumental analysis

Have knowledge of organic chemistry

Have knowledge of atomic and molecular structure, thermodynamics, kinetics, quantum mechanics and spectroscopy

Have knowledge of applications of Chemistry to environmental, industrial and health issues

Have the ability to synthesize and characterize, by chemical or physical means, both organic and inorganic compounds

Have the ability to perform both qualitative and quantitative analysis by chemical and instrumental methods.

Have the ability to perform experiments to obtain fundamental thermodynamic and kinetic data on chemical systems.

Have the ability to operate scientific instruments that provide basic spectroscopic and electrochemical information and to interpret the data obtained.

Have the ability to perform separations of materials, including chromatographic techniques, with both manual and instrumental methods.

Have the ability to collect and analyze data using computerized methods.

Have the ability to write and present formal laboratory reports on the results of chemical experiments. This includes computation, error analysis, and graphic data displays. This should include skills with computer based simulations and computational models.

Have the ability to design experiments to collect information on a specific chemical problem or process.

Have the ability to access the primary and secondary chemical literature as well as other chemical data sources by both written copy and computer database methods.

Have the ability to work safely and with confidence in a chemical laboratory.

b) **Assessment Methods.** Describe all of the methods used by your program to assess the student learning outcomes listed above.

The assessment of the chemistry program uses the five components a standardized comprehensive exam, the evaluation of a student presentation of an independent project, a program wide portfolio of student "special projects", the evaluation of student performance in course work, and a program evaluation by the American Chemical Society. The combination of these five elements provides us with both internal and external evaluations of student learning, and of program content.

The standardized exam is given periodically in the spring semester in conjunction with the Structure of Matter course. This exam performs the external component of our assessment of student learning. The exam covers the core elements of the undergraduate chemistry curriculum. We receive from the testing service our students' test score in four areas of chemistry, inorganic, organic, physical and analytical, along with the students' national ranking in each area.

Internal assessment of student learning is performed using their performance in course work, their presentation of an independent project performed in Instrumental Analysis and Structure of Matter and from their reports from student research projects. The comparison between students' performance in course work and on standardized exams provides us with the opportunity to evaluate our learning objectives with respect to those of other universities in the United States. The independent project in Instrumental Analysis is required of all graduates of the chemistry program and allows us to evaluate their integration of a number of the Student Learning Outcomes. The portfolio of student reports from undergraduate research projects allows us to document the abilities of our graduates as they apply the skills and knowledge developed in our program to new problems. These reports are submitted to the ACS as a regular part of our accreditation process.

The American Chemical Society as part of their program approval process evaluates the chemistry program every five years. This evaluation process requires the department to review the content and requirements of the program with respect to the guidelines of the American Chemical Society for an approved program.

These guidelines are reviewed annually by the American Chemical Society and modified to address changes in the skills and knowledge needed by new Bachelor level chemists entering either graduate school or industry. The approval process provides directives when deficiencies in a program are found.

c) **Summary of Results.** Summarize the results and conclusions you have drawn from the evidence collected using the assessment methods described above.

The external assessment of student knowledge based upon the standardized exam provides us with a tool that we use to correlate the level of our students' success in their course work with the knowledge skills of chemistry students at similar levels of academic experience. Based upon the data collected we have seen a strong correlation between the success that students achieve in their class work and their scores on the standardized exam. We believe that this supports the concept that the content of the program and the faculty's level of expectations of student achievement in the program are consistent with that of the majority of the chemistry programs in the country.

We continue to see a large range in the success of our students' ability in demonstrating their mastery of program learning objectives in the lower level chemistry courses. The lower level chemistry courses are supporting courses for a number of majors and minors. In this capacity, these courses are expected to develop students' understanding of chemistry and their problem solving skills to a level that is appropriate for the upper level courses in their programs. We have found that students who do well in these courses also do well in the courses in their major. We therefore conclude that these courses are appropriately designed gateway courses for the science majors.

The American Chemical Society (ACS) continued our "approved" status based upon the "Five Year Report" submitted in 1999. It suggested that we make some changes to what is expected in the literature section of the reports produced by students performing undergraduate research projects. These suggestions have been incorporated into our program. The ACS is currently reviewing our most recent "Five Year Report".

d) **Uses of Results.** Describe and provide specific examples of how you have used the assessment results to guide program planning and decision-making.

Weak math skills among students in the Principles of Chemistry series continue to be a concern of the faculty members teaching these courses. In an attempt to address this weakness, Math 104, a prerequisite for Principles of Chemistry II, has been made a required co-requisite for Principles of Chemistry I.

We have identified four courses in the program, Biochemistry, Instrumental Analysis, Organic Chemistry, and Inorganic Chemistry, that can integrate exercises dealing with the access of the primary and secondary chemical literature into their course content. We will produce exercises for students in each of these courses to address this Learning Outcome and monitor the effectiveness of this solution.

Section III. Program Goals

Describe your program's major development goals for the next five-year period. These should be the goals you want to use to guide program planning, support requests for additional resources, and serve as a framework for your program's next self-study and review. A special effort should be made to include goals that relate to your program's efforts to contribute to the implementation of the Diversity Plan 2008, the use of instructional technology, and the enhancement of academic advising.

Program Goal #1. Obtain adequate faculty resources to teach students who need to take chemistry.
Program Goal #2. Facilitate tenure track faculty members to be promoted with tenure.
Program Goal #3. Increase the participation of students in our undergraduate research program.
Program Goal #4. Develop **interdisciplinary tracks** in chemistry in Biochemistry and in Environmental Chemistry.
Program Goal #5. Modernize instructional technology used for chemistry instruction. This includes instrumentation for chemical synthesis and analysis, computers and software used for data analysis and modeling, and hardware and software used for instruction.
Program Goal #6. Maintain our accredited status with the American Chemical Society

Section IV. Program Development Projects and Initiatives – Five Year Plan

What projects and initiatives does your program plan to undertake to meet your program development goals. These efforts could be related to things like curricular modifications, procurement of resources, faculty and staff development, student advising and the implementation of Diversity Plan 2008.

a) **Curricular Modifications.** For example, addition or deletion of courses or areas of emphasis; new majors or programs; course development and improvement including pedagogical changes and the use of instructional technology; accreditation by an outside agency.

The chemistry discipline is considering the development of two interdisciplinary tracks for the chemistry major. Biochemistry, the interface between Chemistry and Biology, would be the subject of one interdisciplinary track. Biochemistry has been one of the most rapidly developing areas of science over the past 20 years. It is now a mature area of science that supports a wide range of academic and technological pursuits that require well-trained bachelor level Biochemists. This interdisciplinary track would provide a coordinated program of study from chemistry and biology that was designed to provide a broadly based educational foundation for either graduate studies in biochemistry, pharmacology, or medicine or employment in the expanding health science related economic sector.

Environmental Chemistry is the second interdisciplinary track that we are considering. This track would replace our current ACS approved track in Environmental Chemistry. This track would integrate chemistry, natural chemical processes that occur in the environment, and the impact that society has on these processes. Students would learn how chemistry can be applied to better the impact that society has on the environment.

b) **Procurement of Resources.** For example, additional faculty or staff positions, expanded laboratory space, research grants and other extramural funds.

The chemistry discipline currently sees the need for three additional faculty positions in chemistry to meet current needs for chemistry instruction. The growth of the Human Biology program has put a severe strain on the ability of the chemistry program to deliver instruction in the Principles of Chemistry series, the Organic Chemistry series, in Analytical Chemistry, and in Biochemistry. Currently, the chemistry faculty cannot meet their teaching responsibilities to undergraduate and graduate instruction even though it is teaching one to two hours of overload instruction per faculty member per year. Our greatest need is for a faculty member in the area of Organic/Bio-organic chemistry to support the upper level instruction in Organic chemistry and in the proposed Biochemistry track of the major. Additionally, we need faculty with expertise in Analytical chemistry and Biochemistry to teach courses in the introductory chemistry sequence, in the Analytical chemistry sequence, and in Biochemistry.

Program Goal number two, to increase the participation of students in our undergraduate research program, would benefit from increased funding for student and faculty research stipends and supplies. External funding to support this goal will be sought through research grants. A University funded program to support this goal on a campus wide scale should also be pursued. The role of the University would be to help create an expectation that students pursue undergraduate research projects regardless of their program of study.

The chemistry program has recently hired three new faculty members to replace faculty members who have left. With the recent renovation of the Laboratory Sciences building we have appropriate laboratory space for these faculty members to perform their research work. We will need to find ways to help these faculty develop the facilities that they need to be productive researchers.

The evolution of scientific instrumentation creates the need to maintain modern equipment for the training of science students. The science programs acquired a number of new instruments during the renovation of the Laboratory Sciences building. These included a 60 MHz broad band pulsed NMR system, a fluorescence spectrophotometer, an ICP-AES, an GC with ion trap mass spectrometer detector, and an electron microscope with an energy dispersive x-ray analyzer. While the current array of instruments maintained by the chemistry discipline is significant, we have a number of deficiencies. The most significant deficiency is the lack of a high field nuclear magnetic resonance (NMR) spectrometer. This instrument costs about $300,000 to purchase and an additional $5,000/year to maintain. The lack of this facility places our students at a disadvantage and may affect our ability to recruit qualified faculty members in organic chemistry, physical chemistry and biochemistry in the future. We will seek both internal and external assistance to remedy this deficiency in the near future. In addition, the department does not have adequate facilities in laser spectroscopy, x-ray fluorescence spectroscopy, x-ray diffraction, capillary electrophoresis, and elemental analysis. We will also seek to obtain these important instruments to increase the opportunities for student learning and research.

c) **Faculty and Staff Development.** For example, teaching skills improvement opportunities, support of faculty research and other scholarly activity; renewal and retraining; enhancement of instructional technology skills; attendance at conferences, retreats and workshops.

The addition of new faculty members to the chemistry discipline will require significant faculty development efforts. The chemistry discipline will provide assistance to new faculty members to help them to obtain the resources that they need to be productive colleagues. It is certain that new faculty members will require start-up funds to obtain the equipment and supplies needed to initiate their research programs, funds to support undergraduate and graduate stipends to assist their research efforts, and funds to support travel to conferences and work-shops. We also expect to provide new faculty members with assistance in developing their skills as teachers

d) **Student Advising.** Briefly describe any efforts your program plans to make to enhance the quality of academic advising for students who have declared a major in your program.

The chemistry discipline has a comprehensive advising manual for its faculty that covers both all University requirements and program specific requirements. The document contains information on all of the tracts within the chemistry major and offers suggestions of appropriate 4-year academic plans for the completion of each of the tracts in the major.

The chemistry faculty has identified one member to coordinate the collection of information dealing with external undergraduate research opportunities and the advising of students of these opportunities.

e) **Plan 2008.** Describe your program's efforts to implement the recommendations contained in the institution's Plan 2008. Goals 2, 3, and 5 are of particular relevance to academic programs. A complete copy of this plan can be found at: http://www.uwgb.edu/univcomm/news/diversity/2008rprt.pdf.

The program created for the current faculty search has integrated a number of elements aimed at encouraging minority candidates to apply for the position.

f) **Other Proposed Initiatives.** These could include unit sponsored internships, student organizations, workshops and lecture series, etc.

The chemistry faculty desires to help students to maintain an active chapter of the Students Affiliate chapter of the American Chemical Society. We would like this student group to host a seminar series for the chemistry program that can help introduce professional opportunities in chemistry to our students.

Note: Sections V and VI are to be completed only by Budgetary Unit Chairs.

Section V. Resource Needs

a) One-Time Requests

List, in order of priority, any new or existing equipment, instruments, computer hardware and software, or other items or expenses that will need to be acquired or replaced over the next two years. Include only non-budgeted expenses or items (i.e., ones which can not be paid from existing funds allocated to your unit). For each item listed please attach a completed "Request for Funds" form.

Unit Priority	Name of Item	No. of Units	Total Estimated Cost	Replace-ment Item?
#1	300 MHz NMR Spectrometer	1	300,000	No
#2	Polarimeter	2	42,000	Yes
#3	Differential Scanning Calorimeter	1	17,300	No
#4	Capillary Electrophoresis	2	24,000	No
#5	Tensiometer,	1	$5,500	No
#6	Goniometer, Contact Angle Measurement System	1	$6,000	No
#7	Dake Hot Hydraulic Press	1	$11,000	No
#8	Gas chromatograph-mass spectrometer	1	54,000	No
#9	Optical Rotatory Dispersion Analyzer	1	24,000	No
#10	Scanning Tunneling Microscope	1	26,350	No
#11	TM-3/2005 Fluorescence Lifetime Spectrofluorometer	1	60,000	No

b) Un-funded, Ongoing Needs

In this section, list in priority order and in bullet form, any ongoing needs with a succinct rationale and dollar estimate for each need. Examples of un-funded, unmet needs are - remaining commitments from CAPE II, increases in S&E or student help, ad hoc sections that exceed the provisional funds allocated for additional instruction.

Ultracentrifuge Service Contract, $2,000.00 per year: This is both a necessity and a bargain. The service contract provides for an annual check-up and service in addition to unlimited service calls to keep the ultracentrifuge operational. All needed parts are covered in full. If not properly maintained an ultracentrifuge can easily become a serious hazard to both personnel and facilities. Past service contracts have resulted in the university spending far less than what would have been spent without a service contract. The manufacturer purposefully makes service contracts for ultracentrifuges financially attractive because they do not want their instruments associated with serious accidents.

Ad hoc instruction in Organic and introductory chemistry, $35,000 per year: There are 30 teaching hours of instruction annually that cannot be covered with current faculty and academic staff. Much of this instructional need is a consequence of an increase of students with majors in Human Biology. We are not able to provide the chemistry instruction that these students need using our current amount of faculty FTE qualified to teach chemistry.

NMR maintenance, $5,000.00 per year: This is what is needed in materials and maintenance to keep a 300 MHz NMR operational for one year.

Note: Sections V and VI are to be completed only by Budgetary Unit Chairs.

Section VI. Allocation of Instructional Personnel

List all courses (lectures and labs) that are currently the responsibility of faculty or academic staff assigned to your budgetary unit and indicate the name of the person who is likely to teach that course each semester over the next two years.

- If a course is not scheduled to be offered in a given semester, enter "**NO**" in that cell.
- If a permanent faculty or academic staff member is not available to teach a course in a given semester, enter "**Ad Hoc**" in that cell.
- If you do not know who will be teaching a course because of a resignation or retirement, but it had been taught by someone assigned to your unit, enter "**TBD**" (To Be Determined) in that cell

Lectures and Labs			Individual(s) Scheduled to Teach Course/Lab			
Number	Section	Credits	Fall 2001	Spring 2002	Fall 2002	Spring 2003

List below, the courses not included above that are offered less than once every two years. Include the course number along with the next scheduled semester and year the course will be offered.

How many "legal" faculty FTE (1 FTE = 21 credits of instruction) are currently assigned to your budget unit? (Legal faculty are those with the rank of assistant, associate or full professor.)	
How many instructional academic staff FTE (1 FTE = 27 credits of instruction) are currently assigned to your budget unit?	
How many credit-generating[1] reassignments (1 reassignment = 3 credits of instruction) are currently being awarded to legal faculty and instructional academic staff assigned to your unit?	
How many non-credit-generating[2] reassignments (1 reassignment = 3 credits of instruction) are currently being awarded to legal faculty and instructional academic staff assigned to your unit?	

[1] Credit-generating reassignments include those provided for applied instruction, internship supervision, and student teaching.

[2] Non-credit-generating reassignments include those provided for administration, new faculty release, curriculum development, governance, assessment, accreditation, research, Oshkosh MBA teaching, advising and thesis supervision.

UNIVERSITY of WISCONSIN
GREEN BAY

To: Sue Hammersmith
Provost and Vice Chancellor for Academic Affairs

From: Scott Furlong
Dean of Liberal Arts and Sciences

Date: April 18, 2008

Re: Report on the Chemistry Program Review

I have examined the Self-Study Report prepared by the faculty in Chemistry, as well as the Program Review conducted by the Academic Affairs Council. Based on my examination of these materials, I recommend continuation of the Chemistry program. Specific comments that I made to the faculty include the following:

1. Chemistry is a rigorous program that is accredited by the American Chemical Society. Its majors are healthy and have grown significantly since its last review, although the faculty may want to explore why the number of graduates with Chemistry majors is less than one might expect. They have done a good job of increasing the number of students participating in undergraduate research.

2. The Chemistry program is a critical component to other majors on campus, most specifically the Human Biology program. The significant growth of Human Biology over the past five years has strained the Chemistry program. The program currently uses a large number of ad hocs and overloads to teach their courses. There is also ongoing equipment issues that will continue.

3. I encouraged the faculty to continue to examine the issue of math preparedness of their students as they are going through the Chemistry program.

4. I note that Chemistry currently does not have any Full Professors. It will be important for the program's faculty to think about this issue and what might be necessary to encourage promotions. This is important for both the guidance of the program as well as the mentoring of newer faculty.

Office of the Dean of Liberal Arts and Sciences, Theater Hall 335,
2420 Nicolet Drive, Green Bay, Wisconsin 54311-7001
Phone: (920) 465-2336 • FAX: (920) 465-2718

UNIVERSITY of WISCONSIN
GREEN BAY

To: Michael Zorn
Chair, Chemistry

From: Scott Furlong
Dean of Liberal Arts and Sciences

Date: April 18, 2008

Re: Report on the Chemistry Program Review

The Chemistry program at the University of Wisconsin-Green Bay is a disciplinary program with three different degree options (regular Chemistry major, American Chemical Society Certified Major, and American Chemical Society-Certified Major in Environmental Chemistry) as well as a minor. In addition to serving majors in Chemistry, the program is involved in offering courses that meet general education requirements and also serve other university programs particularly in Human Biology, Environmental Science and Education. Faculty are also involved in the graduate program in Environmental Science and Policy. As stated by the AAC, the program offers a high quality program with rigorous expectations. Faculty in the program are active in soliciting outside grants that aids in acquiring equipment and providing opportunities for student research.

Enrollment Trends/Resource Issues:
The Chemistry program has averaged 58 majors over the past five years and has seen growth in both majors and minors during this time. As noted above, there contributions to the Human Biology major in particular suggest an even higher number of students that they are directly serving. All HUB majors take the Principles of Chemistry sequence and a number of these will take upper level courses in Organic Chemistry, Analytical Chemistry, and Biochemistry. The significant growth of the HUB major over the past five years has had direct effects on the Chemistry program and its faculty. The AAC notes, perhaps rightly so, that while the number of declared majors is healthy, the program does not graduate that many majors each year. This may need some additional research by the unit.

The faculty use a large amount of ad hoc resources each year as well as a number of paid overloads in order to offer the necessary curriculum. The needs of these students also prevent as much participation in the graduate program or the Environmental Science interdisciplinary program as they may want.

The self study also notes the importance of modern equipment for the science students. While the renovation of Laboratory Sciences brought many needed upgrades, they note a number of equipment deficiencies that affects student competitiveness in the job market.

Assessment:
The AAC notes that the current student assessment methods do not provide statistical data for the program to use for planning and improvement. The self-study notes a number of assessment

Office of the Dean of Liberal Arts and Sciences, Theater Hall 335,
2420 Nicolet Drive, Green Bay, Wisconsin 54311-7001
Phone: (920) 465-2336 • FAX: (920) 465-2718

areas for their students and it would not take much to move more toward a data-oriented process. I do note that Chemistry lists fifteen (15) different student learning outcomes, which may be a bit unwieldy in the assessment process. Perhaps there could be some combination of outcomes. The fact that they are accredited by the ACS, which provides directives when deficiencies are found in the program, is an important mechanism for addressing program and curricular issues. Chemistry has made a number of changes based on their assessment results including changes in specific courses. One area that they are continuing to examine is the issue of weak math skills for students in their Principle of Chemistry series. I encourage the faculty to continue to examine this issue and make the necessary changes to help their students be successful.

Curriculum Development/General Education:
The major changes in the Chemistry curriculum has been the adding of additional sections of existing courses (Chem 211, Chem 212, Chem 302-305) as well as the labs associated with these courses. This has not only helped the Chemistry and Human Biology students but potentially general education as well. The unit has commented that they would like to offer additional upper level offerings and/or more sections of the current offerings but faculty resources do not allow this. Senior surveys also comment on this issue. There has been an increase in the level of undergraduate student research, which I commend.

In summary, the program in Chemistry is a rigorous program that serves its majors well. It also is an important program for a number of other majors around campus. There are resource issues that I hope the university can begin to address in the future.

Cc: Mark Everingham, Academic Affairs Council
Tim Sewall, Associate Provost

UNIVERSITY of WISCONSIN
GREEN BAY

April 9, 2008

To: Sue Hammersmith, Provost and Vice Chancellor for Academic Affairs

From: Mark Everingham, Academic Affairs Council chair

Re: Chemistry Program Review Self-Study Report

Introduction

The Chemistry program provides expertise and training in upper level courses through three degree options as well as in general education courses to support several programs besides the Chemistry major. These are, most notably, Environmental Science and Human Biology at the undergraduate level and the graduate program in Environmental Science and Policy.

Student Learning

The program assesses laboratory skills via student majors' successful completion of lab courses. Laboratory skills are evaluated on a one-on-one basis by direct observation of appropriate techniques. Due to its moderate size, the program does not use lab practicum to observe final products now, but this could be done if the number of majors increases in upper-level labs. As an additional evaluation method, students prepare presentations on lab work in CHEM 331, CHEM 413, and CHEM 495. The program does not produce statistical data and information through the assessment process to address student learning.

Program Accomplishments and Strengths

The program continues to maintain high quality and rigorous expectations in line with national standards and guidelines.

A small number of faculty members deliver effective instruction to meet current student needs and pursue internal lab modernization grants and external research grants to support instrument needs.

The program keeps lecture and laboratory sizes at manageable numbers of students so as not to sacrifice efficiency and quality.

The impressive internship program makes connections with local industries and environmental consulting firms. In addition, students participate in paid Research Experiences for Undergraduates programs during the summer.

Areas in Need of Attention

Student assessment methods do not produce statistical data and analysis used for program planning and improvement.

Data on course enrollments and majors show healthy trends, yet the number of undergraduate degrees granted is small. This phenomenon may be due to several students who change majors to interdisciplinary options, particularly Human Biology, which present more attractive career paths.

The program relies heavily on ad hoc instruction to staff courses. This situation would be problematic if the program were to grow substantially over the next five years.

Many freshmen students who enroll in introductory courses lack necessary preparation in math and science to continue in the Chemistry major. This does not reflect negatively on the quality of instruction, but may partially explain a relative low number of recent graduates in Chemistry.

Recommendations

Student assessment methods should produce statistical data and analysis to be used for program planning and improvement.

The program should conduct a student survey to ascertain why students switch to other majors.

The program could raise its visibility and attractiveness through the development of a web site and proactive promotion of chemistry as a career.

An increase in the number of majors would help to justify more upper level course offerings.

CC: Mike Zorn, Chemistry chair
Greg Davis, Natural and Applied Sciences chair
Scott Furlong, Dean of Liberal Arts and Sciences
Pat Przybelski, Program Associate, Secretary of the Faculty and Academic Staff
Tim Sewall, Associate Provost for Academic Affairs