

**Department of Chemistry
Third Year Review Written Report
IU South Bend Assessment**

Assessment contact person, and person preparing the report, (if different):

Bill Feighery, Associate Professor and Chair, Department of Chemistry

Attach 2004, 2005 and 2006 annual reports:

Attached (note: the 2004 report is the last third year review)

Attach an updated departmental assessment plan:

Attached

Describe any changes to the program's educational goals since the last Third Year Review, and the rationale for those changes.

The educational goals of the department have not changed since the last Third Year Review.

Describe any assessment techniques used for measuring the Educational Goals that have been added or discontinued since the last Third Year Review, and the rationale for those changes

We are using the same assessment techniques.

Attach any assessment instruments that have been used during the past three years, and the data collected, (or, summarized data, if that is more appropriate.)

A copy of our Graduate Exit Survey is attached. In summary, our graduates are pleased with the experience they receive and rate our program as meeting or exceeding their expectations. Copies of the instruments used as direct measures (student records, standardized tests, lab practicals) are not included but are commented on.

What analysis has been done with this data? What conclusions has your department drawn?

Each year the chemistry faculty review the exit surveys and student comments are considered and discussed. In addition, the faculty review and discuss the results of our direct measures. Appropriate action is then taken.

What changes have been made to the program as a result? (Curriculum, classes offered, classes discontinued, scheduling, advising, faculty education etc. . .)

The following changes have been made:

1. Biochemistry major has recently been approved and our first majors graduated in May 2006.
2. Capstone Course, C301: Students are now assigned faculty mentors at the beginning of the semester. Students are required to meet with their mentor and to give a “background” seminar before their senior seminar.
3. Elective Courses: We will be offering a new elective for our majors, Environmental Chemistry, C303, scheduled for Fall 2008.

How did assessment data and analysis support these changes?

Assessment data and analysis supported these changes in the following manner:

1. Over the course of a number of years our program went from biochemistry being an elective course, to biochemistry being a required course, to offering a biochemistry minor, to the recent approval of the major. This was the cumulative result of faculty effort, student need interest, and analysis of trends in local and national employer need.
2. In faculty analysis of the performance of student performance in our capstone course, we realized that students often misjudged the expectations of the faculty. Consequently, by assigning mentors and having the students do background seminars, we can intervene earlier in the process and ensure that students understand and meet the expectations for the course.
3. Student responses on the exit survey, informal discussions with students, scheduling, and faculty input all pointed to the need to increase the number of elective courses offered by the department. Environmental Chemistry is being offered in response to this need.

What changes does the department plan to make in the coming years to the program and to assessment techniques, and why?

At present, we do not plan to make any major changes to the program. Recently, the American Chemical Society (ACS) released new “Guidelines and Evaluation Procedures for Bachelor’s Degree Programs”. Our program is an ACS approved program; analysis of the new guidelines indicates that our program still meets the criteria for ACS approval and student certification. We will still use ACS exams to aid with assessment of student performance, and use the exit survey to measure satisfaction with the program. One new assessment technique that we are planning is an alumni survey. We recently contacted our alumni with a letter and plan to follow –up with a survey request in the near future. We have also started to collect data on what our graduates do after graduation. This may help in determining future changes in the program.

How were faculty, students, administration, alumni and other groups involved in assessment?

Primarily, faculty are involved in the collection and analysis of the assessment data. Students are involved as far as taking the ACS exams and filling out the exit surveys. As mentioned, we hope to soon survey our alumni. The administration is not directly involved in our assessment efforts (although have supported changes like offering the Environmental Chemistry course).

How were assessment data and results shared with faculty, students, administration and alumni?

Assessment is discussed at almost every faculty meeting, and our reports are posted on our web site (as well as the assessment committee's site).

In one paragraph, please summarize the most important impacts of the assessment of student learning on the program.

Perhaps the most important general impact of assessment is that it has allowed us to identify and focus critically on the central features of our program. We have developed a small and manageable set of student learning goals that we now use to guide discussions about our program and changes that we make. A more specific impact of assessment is found in the way we have changed our capstone course. Students are now aware of our goals and expectations and are better equipped to show us that they are meeting these goals and expectations.

Is there any other information that you would like included in this report?

No.

2006-2007 Assessment Report

- a. **Program Name** – Department of Chemistry
- b. **Report prepared by** – Bill Feighery, Chair
- c. **Who is the current assessment contact for your program?** Bill Feighery
- d. **Should assessment information be sent to anyone else in your department?** No

1. What are the program's educational goals? (Please take goals directly from your program's assessment plan, and highlight any changes made this year.)

A graduate in chemistry will:

1. demonstrate mastery of the fundamental principles of chemistry
2. demonstrate mastery of laboratory techniques and methods
3. have high-level cognitive skills of observation, analysis, and synthesis
4. possess good critical thinking and problem solving skills
5. have well developed written and oral communication skills

2. What assessment techniques did the program use? (Please take assessment techniques directly from your program's assessment plan and highlight any changes made this year.)

1. Three direct measures:
 - i. Review of graduating students' capstone work (C301) and overall curriculum records.
 - ii. Standardized Exams (from the American Chemical Society)
 - iii. Laboratory Practical Experiences and Exams
2. One indirect measure:
 - i. Graduate exit survey asking three questions:
 - a. How well did you achieve each of the departmental goals [using scale of exceeded expectations, met expectations, did not meet expectations].
 - b. What aspects of your education in this program helped with your learning and why were they helpful?

c. What might the program do differently that would help you learn more effectively, and why would these actions help?

3. What has your program done with assessment information this year? (i.e. communicated results to faculty, staff, alumni and students, made changes in the curriculum, made changes in the budget, added new courses. . .)

This past summer, the faculty met six times to review our curriculum and our capstone course in particular. For our capstone course this year, we assigned each student a faculty mentor, and required each student give a background presentation before the final presentation. The students received more feedback on both their oral and written presentations, and overall, performance in this class was improved.

To address the lack of elective options for our students, we have discussed the idea of offering one-credit elective courses on special topics. Both from a student and faculty perspective, these types of courses may be easier to schedule. We will offer our first topics course – Applied Mathematics for Chemists – this Fall.

Overall, based on in-class assessment, performance on standardized test, and our graduate survey, our students continue to perform well and are satisfied with our program.

4. What are two concerns about student learning you identified this year?

Two concerns that the faculty have regarding student learning also appeared in the graduate exit survey. Our program is particularly rigorous and sequence and scheduling, particularly with required courses in other departments, is an issue. We will continue to examine the course sequence and pre-requisites to ensure that students are prepared to take our courses. As an aside, both our students and faculty feel that a Fall break would also be useful. Secondly, the laboratory component of our courses is vital to our program; we need to continue to offer our students access to modern laboratory equipment in order to provide the best learning experience.

2005-2006 Assessment Report

a. **Program Name** – Department of Chemistry

b. **Report prepared by** – Bill Feighery, Chair

c. **Who is the current assessment contact for your program?** Bill Feighery

d. **Should assessment information be sent to anyone else in your department?** No

1. What are the program's educational goals? (Please take goals directly from your program's assessment plan, and highlight any changes made this year.)

A graduate in chemistry will:

1. demonstrate mastery of the fundamental principles of chemistry
2. demonstrate mastery of laboratory techniques and methods
3. have high-level cognitive skills of observation, analysis, and synthesis
4. possess good critical thinking and problem solving skills
5. have well developed written and oral communication skills

2. What assessment techniques did the program use? (Please take assessment techniques directly from your program's assessment plan and highlight any changes made this year.)

1. Three direct measures:

- ii. Review of graduating students' capstone work (C301) and overall curriculum records.
- iii. Standardized Exams (from the American Chemical Society)
- iv. Laboratory Practical Experiences and Exams

2. One indirect measure:

- v. Graduate exit survey asking three questions:
 - a. How well did you achieve each of the departmental goals [using scale of exceeded expectations, met expectations, did not meet expectations].

- b. What aspects of your education in this program helped with your learning and why were they helpful?
- c. What might the program do differently that would help you learn more effectively, and why would these actions help?

Note: This year was the first time we have used the Graduate exit survey.

3. What has your program done with assessment information this year? (i.e. communicated results to faculty, staff, alumni and students, made changes in the curriculum, made changes in the budget, added new courses. . .)

As is typical, the assessment data has been communicated to the chemistry faculty and staff. Due to concerns raised, particularly regarding our capstone seminar course, we are holding a series of meetings this summer to discuss the coherence of our curriculum, the expectations we have for our students, and student performance in the capstone course. We expect to make some changes in how the capstone course is offered and perhaps in other courses leading to the capstone course. In general, our students performed well throughout the curriculum, scoring at or above average on the standardized tests. The graduate survey indicated that we met our students' expectations and that they were satisfied with the program.

4. What are two concerns about student learning you identified this year?

One concern raised by students in the exit survey is that we do not offer very many elective courses in our program. This is a situation that we are aware of, and will try to be creative in dealing with this; limited resources and faculty make it difficult to offer any courses that are not required and the small class sizes (typically only 4 – 5 graduates per year) make it difficult to justify elective offerings.

A concern raised by chemistry faculty is that our program is too difficult/rigorous and that our students – even the best students – are “burned out” by the time they graduate and have lost their enthusiasm for chemistry. Our summer meetings are designed to address this issue.

Third Year Review (2003 – 2005) Report to Assessment Committee

Department of Chemistry
Bill Feighery, Chair

Executive Summary

The Department of Chemistry at IUSB strives to produce educated graduates who will be productive citizens in an increasingly technological society; our goal is to provide instruction in fundamental principles and laboratory methods of modern chemistry. More broadly, the department seeks to sharpen the powers of observation, to develop the critical thinking and problem solving skills, and to improve the written and oral communication skills of our students. A graduate of our program typically chooses to use his or her degree as an industrial chemist, to enter graduate school in chemistry or a related field, or to enter a professional school. The department uses a variety of assessment techniques to ensure that we meet our student learning educational goals. These techniques include entry-level assessment, course assessment, standardized tests, and a capstone experience. As a faculty, we meet regularly to evaluate our curriculum, assess our program, and to discuss and implement new pedagogical approaches. Our BS degree is accredited by the American Chemical Society (ACS) and we are required to submit annual and five-year reports to maintain our status. In addition to courses in the major, the department offers courses in support of the campus general education requirements, for students in Nursing and Health Professions, and for students in Education. We are committed to excellence in all of the programs and courses that we offer and in meeting the needs of our constituencies.

Student Learning Educational Goals of the Department of Chemistry

A graduate in chemistry will:

6. demonstrate mastery of the fundamental principles of chemistry
7. demonstrate mastery of laboratory techniques and methods
8. have high-level cognitive skills of observation, analysis, and synthesis
9. possess good critical thinking and problem solving skills
10. have well developed written and oral communication skills

Assessment Techniques Used

The Department of Chemistry uses a variety of assessment tools. Direct (formal) assessment techniques include:

- **Entry-level assessment.** We have both chemistry and math pre-requisites on all of our major level courses. We adhere strictly to these pre-requisites. This ensures that students have the necessary skills to be successful in our program, from the freshman level general chemistry course through the capstone senior seminar. This is particularly important in our laboratory courses; the skills and techniques learned in our lower-level laboratory course are reinforced and expanded upon in our upper-level laboratory courses.
- **Course Assessment:** All of our required and elective courses use individual course assessment tools to measure student outcomes. These include exams (both mid-term and final), quizzes, homework, laboratory reports, papers, and presentations. These techniques are designed to address most, if not all, of the student learning educational goals listed above. Individual instructors enjoy a great deal of autonomy in deciding which techniques to use. However, because of the “building-up” or sequential nature of our curriculum (each course having the previous course as a pre-requisite) we are able to determine very quickly if our assessment is on target.
- **Standardized Tests:** We use standardized test, available from the ACS, in three of our courses; our sophomore-level Organic Chemistry sequence, our junior/senior-level Biochemistry sequence, and our senior-level Inorganic course. This allows us to compare our student learning to national standards and norms.
- **Capstone Experience:** All of our majors are required to complete the senior seminar course (C301). This course requires the student to complete an independent literature research project and to present the results to the faculty (and students) in the form of a 45-minute oral presentation and a 15 – 20 page written report. It is graded by the entire full-time faculty.

Indirect (informal) assessment techniques include:

- **Faculty Inventory:** The chemistry faculty meet on a regular basis (usually monthly) and the curriculum and assessment are often the topics of discussion. In particular, this past summer (2004) we held a series of meetings to discuss issues such as assessment at the freshman level, the themes and concepts that hold our curriculum together, and how to ensure that our graduates are successful. In addition, chemistry faculty have been active in attending teaching related conferences and workshops and implementing ideas garnered from these meetings, particularly problem based and group learning techniques, in the classroom.

- **Research Experience:** Many of our students are involved in research projects mentored by the chemistry faculty. This allows for additional opportunities for assessment – particularly for laboratory skills, and oral and written communication skills. On average, three chemistry students each year present their work at national or regional meetings.
- **Laboratory Equipment:** In the past three years the department has purchased new IR, UV-Vis, and Raman spectrophotometers. In addition, we have updated pH meters and general purpose spectrometers used in our general and analytical chemistry courses.
- **Library Holdings:** We have worked closely with the library staff to ensure that the holdings meet the needs of the chemistry faculty and students. The move to on-line journals has allowed us to expand our holdings significantly.
- **Student Course Evaluations:** Course evaluations are completed by students in all of our courses. The appropriateness and fairness of classroom assessments techniques can be partly judged from these data.
- **Success of Chemistry Graduates in Finding Employment or Entering Graduate School.** We keep track of our graduates success in continuing their careers in chemistry, whether in industry or in graduate or professional school.

Annual Report Forms

The annual reports from 2003 and 2004 can be found attached to this document as Appendix 1.

Instrumentation and Documentation

The most quantifiable assessment instruments used by the department are the ACS standard tests. These tests are normalized from a national sample of students and departments, with the national average being the 50th percentile. We have used these tests in three courses, with the following results:

1. Final Exam for C341/C342, Organic Chemistry I and II. We have used the ACS test since 1997. In that time, 208 students have taken the test and the average score has been the 56th percentile.
2. Final Exam for C430, Inorganic Chemistry. We have used the ACS test since 1997. In that time, 48 students have taken the test and the average score has been the 55th percentile.

3. Final Exam for C484/C485, Biochemistry I and II. We have used the ACS test in two of the past three years. The average score for the 22 students was the 78th percentile.

In each of these cases, students at IUSB scored above the national average. The combination of these three tests (sophomore-, junior/senior-, and senior-level courses) allows for broad assessment of our program. The sample size is quite large, given that we have averaged just over 5 graduates/year for the past five years (21 graduates total from 2000 – 2004).

Our students have also been successful after they graduate from our program. The following table indicates the career paths our graduates have chosen in the past five years:

Career Category	Number of students	Percentage of total
Industry	9	42.8
Graduate school in chemistry	5	23.8
Medical School	1	4.8
Other Professional Schools	1	4.8
Teaching	1	4.8
Other*/Unkown	4	19.0
Total	21	100

* This includes a student who intends to pursue a law degree, and a student who plans to attend a program in cosmetic/fragrance chemistry.

As can be seen, industrial careers are most commonly chosen by our graduates. While we have not yet conducted a survey of employers, the following are comments made by employers regarding recent IUSB graduates:

From a laboratory supervisor at Serim Corp. in Elkhart who hired an IUSB student.

“...has been a real find for us. Are there more like him?”

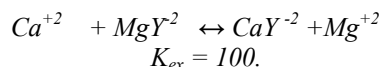
From the president of Valley Research of South Bend.

“IUSB has played a very big part in my life and, as you know, still is with the new graduates we have been able to hire.”

Another from Serim.

“I was impressed with ----'s knowledge of chemistry for someone with a BS degree. IUSB should be given credit for some of that. I first gave ---- a little project trying to assess the purity of a critical raw material we use in one of our products. The following is an excerpt from a technical report ---- and I wrote:

This High Range Water Hardness test, which is called “Monitor™ for Water Hardness” was developed as an extension of an existing product, the “Water Hardness Test Strips”. The Water Hardness Test Strips gave a semi-quantitative assessment of total water hardness from 0 ppm up to 120ppm with 10ppm being the lowest detectable concentration; the intended use is in testing water quality for dialysis. The new higher range water hardness test will give semi-quantitative results from 0 ppm up to 425ppm with 25ppm being the lowest detectable concentration. Both strips use essentially the same chemistry. The high range test uses a background dye and a 3.8 fold larger amount of the indicator, calmagite. The chemistry of the strips are the same. Hard water contains calcium and usually some magnesium (the level of magnesium in ground water is generally less than 10 ppm.) Calmagite binds rather specifically to magnesium. In order to provide some magnesium for the indicator, both strips contain some Magnesium EDTA complex, represented as MgY^{2-} . The binding constant of calcium by EDTA is much larger than that of magnesium. According to literature values, the equilibrium constant K_{ex} for the exchange reaction is,



Therefore, any calcium in solution will displace an equivalent amount of magnesium from the complex. This magnesium is then available to react with the calmagite indicator.

From the above it is clear that if commercially available sodium magnesium EDTA contained excess magnesium or free EDTA, the performance of our product would be adversely affected. ---- worked out the test procedure to insure the quality of this raw material. Because of this experience, when the company made a last minute decision to develop the High range water hardness test strip, he was given responsibility for the project. He has earned the respect of his coworkers in the way he worked on this project and learned the company systems (admittedly complex to the point of being described as Byzantine). We were happy enough with his work that we offered him a permanent position. I would be happy to provide additional information if needed. My phone number is....”

The following are excerpts from two emails received from recent graduates regarding the quality of their experience in chemistry at IUSB.

1. "On a more personal note, thank you for a wonderful education and college experience. IUSB has a fine chemistry department and I appreciate all your assistance and support through the years (please share this with other faculty members as you see fit). You are the primary reason I chose to stick with chemistry and I can honestly tell you the three IUSB chemistry graduates working at Valley Research in the lab (me, ----- and -----) were well equipped for working in industry. We all have a very thorough understanding of basic chemistries and techniques as well as demonstrating the necessary diligence, commitment and compassion necessary to succeed in the industrial climate.

We learned these skills and behaviors in order to fulfill the obligations of the BS degree from your department. We have hired and/or interviewed individuals with bachelor degrees from St Mary's, Ball State, Purdue and other regional schools and although some of them have worked out well, I prefer to work with IUSB graduates...I know they have had a first rate experience in school.

What the department may have lacked in funding or equipment when I was a student was more than adequately superseded by the intense, one-on-one learning environment and the commitment to excellence exhibited by the staff. For my money, that is what makes a great undergraduate education. I had all the necessary experiences to prepare myself for a long, successful career in positions related to my course of study."

2. "I graduated in May 2003 with a BS in Chemistry from IUSB and am currently attending IU School of Medicine at the South Bend Center for Medical Education. Having finished finals today (!!!), I just wanted to mention to you briefly a few of my thoughts on how IUSB prepared me for this incredibly difficult semester of Human Gross Anatomy Lecture, Cadaver Dissection, Medical Biochemistry, Histology, Clinical Medicine I, and Embryology (which consisted of 30 hours of classroom lecture/week, ~15 hours of lab/week, and innumerable hours studying evenings and nights).

When classes began in August, I was intimidated, to say the least. My 15 fellow students came from a wide variety of schools (Yale, Brown, Notre Dame, U of Illinois, etc). While I was confident in the rigors of my education I received from IUSB before Med School began, I am certainly more so now than ever. I received more hands on lab experience (via my work with the SMART program and chemistry course labs), a comparable (if not superior) science background, and an increased understanding of the core scientific reasoning needed to succeed in the above classes than my fellow students who came from the other institutions with degrees in Biochemistry/Chemistry/Biology. I say this not to sound arrogant, but rather to mention some of the professors who made this education possible. I am forever indebted to four professors: Dr. Anderson, Dr. Feighery, Dr. Knowles, and Dr. McMillen for the investment they made in my education and continue to make in numerous students educational endeavors each semester. I have no doubt that I would not be were I am right now were it not for their individual help and the academic programs they have developed at IUSB.

I found the Chemistry department and the Honors Programs to be two of the greatest assets that IUSB had to offer me. From the perspective of a student preparing to attend medical school, these two academic programs proved priceless. The key courses taught by McMillen and Anderson (Organic Chemistry and Biochemistry, respectively) are typically dreadfully difficult courses whose mastery is necessitated for success on both the Medical College Admissions Test (MCAT) and in the first year of medical school. Both of these professors have developed courses that present this material in a dynamic and effective manner. I have come to further appreciate their method of teaching after having worked side by side with students this semester who were taught these courses by different professors. Furthermore, the curriculum of the chemistry major was an invaluable tool in the development of the foundational "science language" that I needed for this semester."

Analysis of Data

The data that the department has collected in terms of assessment have been positive with respect to our stated Student Learning Educational Goals. Across the curriculum, our students score at an above average rate on independent, national, standardized tests. Our students are successful in their career goals, whether that is in industry or graduate and professional school. Informal feedback from employers and students indicate a high level of satisfaction with the chemistry program at IUSB.

Summary of Actions Taken

The following actions have been taken by the department related to assessment our program:

- Standardized testing of students at a variety of stages in our curriculum.
- Summer faculty meetings to discuss assessment-related activities, particularly at the freshman-level.
- Implementation of problem-based and group learning techniques across the curriculum.
- Continued updating of equipment available to students in the laboratory.
- Regular meetings with faculty and staff in Nursing and Health Professions to review chemistry courses required in their curriculum.

Proposed Next Steps

While we will continue as a faculty to fine-tune our curriculum in order to improve our program, there are two steps that we would like to take that we consider critical to our

assessment efforts. These are to conduct an employer survey and to conduct an alumni survey. In order to prepare to collect such data, we are planning to publish a departmental newsletter (both web and print version) twice per year, beginning this summer. Our hope is that this newsletter will allow us to maintain contact with our alumni and their places of employment, present opportunities for feedback from both alumni and employers, and to allow us to develop and maintain a network of alumni and potential employers.

Department of Chemistry Assessment Plan December, 2005

Student Learning Educational Goals of the Department of Chemistry

A graduate in chemistry will:

1. demonstrate mastery of the fundamental principles of chemistry
2. demonstrate mastery of laboratory techniques and methods
3. have high-level cognitive skills of observation, analysis, and synthesis
4. possess good critical thinking and problem solving skills
5. have well developed written and oral communication skills

I. Measures:

1. Three direct measures:

- vi. Review of graduating students' capstone work (C301) and overall curriculum records.
- vii. Standardized Exams (from the American Chemical Society)
- viii. Laboratory Practical Experiences and Exams

2. One indirect measure:

- ix. Graduate exit survey asking three questions:
 - a. How well did you achieve each of the departmental goals [using scale of exceeded expectations, met expectations, did not meet expectations].
 - b. What aspects of your education in this program helped with your learning and why were they helpful?
 - c. What might the program do differently that would help you learn more effectively, and why would these actions help?

II. Annual meeting of Chemistry faculty to discuss data and identify action items.

**Assessment Report
Indiana University South Bend
Department of Chemistry
December 2005**

Student Learning Educational Goals of the Department of Chemistry

1. demonstrate mastery of the fundamental principles of chemistry
2. demonstrate mastery of laboratory techniques and methods
3. have high-level cognitive skills of observation, analysis, and synthesis
4. possess good critical thinking and problem solving skills
5. have well developed written and oral communication skills

Measurement Rubric

<i>Measures</i>	<i>Goal</i> <i>1</i>	<i>Goal</i> <i>2</i>	<i>Goal</i> <i>3</i>	<i>Goal</i> <i>4</i>	<i>Goal</i> <i>5</i>	<i>Uses of Information</i>
Review of students' capstone work (C301) AND overall curricular record	X	X	X	X	X	Data are reviewed annually by the entire chemistry faculty; faculty takes action as appropriate and reports outcomes to dean or other body which has resources to address the issues, and to those composing reports for accreditation or other external audiences. All data are reviewed as part of external program evaluation (ACS), both annually and every five years.

Graduate exit survey asking students for self-assessment and assessment of learning outcomes and program delivery	X	X	X	X	X	Conducted with every student who is graduating. The program takes action as above.
ACS Standardized test at sophomore and senior level	X		X	X		Conducted with every student in program The program takes action as above
Laboratory practical and exams	X	X	X	X	X	Conducted every year with students at the sophomore level. The program takes action as above.

Examples of Changes Based on Assessment:

Recommendations for Improving Assessment Process:

Graduate Exit Survey

Student Learning Educational Goals of the Department of Chemistry

A graduate in chemistry will:

1. demonstrate mastery of the fundamental principles of chemistry
2. demonstrate mastery of laboratory techniques and methods
3. have high-level cognitive skills of observation, analysis, and synthesis
4. possess good critical thinking and problem solving skills
5. have well developed written and oral communication skills

Given the goals listed above, please complete the following Graduate Exit Survey (please use the reverse side for additional comments):

A. How well did you achieve each of the departmental goals (circle one)?

1. Exceeded expectations 2. Met expectations 3. Did not meet expectations

Comments:

B. What aspects of your education in this program helped with your learning and why were they helpful?

C. What might the program do differently that would help you learn more effectively, and why would these actions help?