

Jan 2004

Student Outcomes Assessment Plan Rubric
Undergraduate Program

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Department: Chemistry Major: BA/BS

**The student outcomes
assessment plan**

	3	2	1	COMMENTS
	Proficient	Satisfactory	Unsatis.	
1. <u>clearly articulates</u> intended student outcomes/achievement			X	No information provided
2. outlines <u>appropriate assessment tools</u> that will lead to strong inferences on student achievement		X		Concentrates on student evaluation of faculty teaching effectiveness: these are thoughtfully designed. Little on evaluating student learning until now, but new Senior Seminar will "assess cumulative student learning in the subdisciplines." Standardized exams are contemplated.
3. measures student achievement at <u>various stages</u> of the academic program		X		Mainly finishing students except for SIR's
4. demonstrates commitment to using assessment data to modify program	X			Improvements to staffing assignments, curriculum and course structure.

OVERALL ASSESSMENT (Jan. 2002)

 Developed Plan: The plan meets nearly all of the criteria in a proficient manner; remaining criteria are labeled as satisfactory; no criteria are labeled as unsatisfactory

 X **Emerging Plan:** The plan has a spread of criteria labeled across all three levels; on average, criteria appear to be clustered in the middle as satisfactory

 Undeveloped Plan: The plan has nearly all criteria labeled as unsatisfactory; remaining criteria are labeled as satisfactory

COMMENT: Assessment has depended mainly on student satisfaction surveys for each course, and on surveys of graduating seniors and alumni for evaluation of the full program. The department has been exemplary in administering these, making them important in annual performance reviews, and using the data to change staffing assignments and help faculty improve their teaching. The dept recognizes the need to evaluate student learning itself in ways other than grades: the new Senior Seminar and a contemplated standardized exam are promising tools. Although the intended student learning outcomes may be obvious from the curriculum, stating these major goals explicitly would provide a useful structure for the Plan. The dept supports a student chapter of the American Chemical Society, which undoubtedly enhances learning and the probability of career success; this activity perhaps deserves a higher profile in the overall assessment plan.

Department of Chemistry
Student Outcomes Assessment Plans
December, 2001

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At the present time, the Chemistry Department's student outcomes assessment activities consists of four components: (1) course student satisfaction surveys, (2) graduating seniors' exit questionnaires, (3) students' immediate post-graduation positions or plans, and (4) two levels of alumni questionnaires.

The Chemistry Department continually seeks to improve the quality of its instruction and general student learning effectiveness and the quality of the teaching/learning environment. We strive to reach these objectives (particularly lecture/lab learning effectiveness), in part, through the use of 'student satisfaction' questionnaires (attached). This comprehensive survey is conducted each semester for all sections of all lecture and laboratory courses for all faculty. The multidimensional nature of the information obtained (e.g., multidimensional bargraphs and transcribed student comments) from this instrument helps each instructor of our lecture and laboratory courses make improvements in course-delivery mechanics and/or course content. An important purpose of this questionnaire is to help faculty members achieve maximal communication effectiveness with their students.

The Department of Chemistry has used these questionnaires continually for the past 21 semesters to help the faculty assess its teaching quality and relative effectiveness in all lecture and laboratory courses. The results of these evaluations are used in conjunction with other information (e.g. course exams and syllabi, where appropriate, and, in some instances, peer visitations) to improve the quality and appropriateness of the course content, as well as its delivery. Because of the relatively high frequency of these course evaluations, we have been able to use the results of the questionnaires to carry out continuous improvements in the lecture and laboratory courses that we offer. Although we recognize the limitations that are associated with these questionnaires, we feel that they are very practical, requiring little or no faculty time, are relatively unobtrusive, and provide meaningful information about the quality of the undergraduate experience both in the lecture room and the laboratory.

These 'student satisfaction' questionnaires provide very useful feedback to the instructors and the department chair. The results of the questionnaires are rendered in an

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efficiently interpreted, multidimensional, color-coded bargraph. Students' hand-written comments are also transcribed verbatim. This information is made available to each faculty member at the very end of the semester in which the questionnaires are administered.¹ During the annual Spring Semester performance review meetings, the department chair discusses with each faculty member the results of these questionnaires, along with other teaching-related information and concerns. As a result of these discussions, continual improvements can be made, and usually are, to the lecture and laboratory courses. This component of our assessment activity has had, we believe, a direct and positive effect on student outcomes that associated with those courses, as well as the overall chemistry major curriculum.

In addition to this instrument, the Department uses the results of graduating senior and alumni questionnaires to assess the effectiveness of its program. The feedback provided by these inquiries, we believe, has a direct impact on student outcomes because the information thus obtained has continuously brought about improvements, ranging from staffing assignments and teaching methods, to curriculum and course structure. These improvements have been applied to lecture and laboratory courses throughout the curriculum, from our introductory 'general education' courses to advanced courses for chemistry majors.

The results of the graduating senior questionnaires (copy attached) are reviewed by the Department Curriculum Committee and the department chair, with respect to determining what changes should be made in the course structure and quality of the chemistry program and other aspects of the undergraduate's experience in the Department. These exit questionnaires will be given to graduating seniors during the last week of the Spring Semester, 2002. The results will reviewed by the department chair and the curriculum committee in detail during the Fall Semester, 2002.

Similarly, we obtain feedback from recently-graduated alumni through an alumni questionnaire (copy attached) about their educational preparation in our program, and we carefully examine these results with an eye toward making appropriate improvements in our program. During the Spring Semester, 2002, we will send alumni questionnaires to students

¹ According to Department policy all lecture questionnaires are conducted during the next-to-the-last week of the semester, and laboratory questionnaires during week before that.

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who graduated in 1999 and 2000. The results of these surveys will be reviewed by the department chair and the curriculum committee during the Fall Semester, 2002.

Another, new assessment-related activity is that we will offer CHEM 400 (Senior Seminar in Chemistry) for the first time to seniors in the Spring Semester, 2002. This required course will provide a means for us to assess cumulative student learning in the subdisciplines. We are contemplating administering standardized exams in one or more chemistry subdisciplines (or in overall chemistry content) to determine how our students compare with national norms. This information will be carefully analyzed to see if we need to change course content and/or instructional methods. We will attempt to examine whether a correlation exists between student achievement and various input metrics, such as SAT scores, high school graduation class rank, etc.

**Indiana State University
Department of Chemistry
Student Opinion Survey of LECTURE Course**

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(To be conducted during the next-to-the-last week of classes)

Semester _____

Year _____

Course Number _____

Instructor _____

This questionnaire is important to you, other students, the instructor and the Chemistry Department. Please circle the response that you feel is appropriate.

SA=strongly agree; A=agree; N=neutral; D=disagree; SD=strongly disagree

- SA A N D SD 1. The instructor came to class well prepared.
- SA A N D SD 2. The instructor presented material clearly.
- SA A N D SD 3. The instructor was enthusiastic about teaching this course.
- SA A N D SD 4. The instructor made appropriate use of class time.
- SA A N D SD 5. The instructor was concerned and eager to help.
- SA A N D SD 6. I knew what was expected of me in this course.
- SA A N D SD 7. The exams were representative of the material covered in the course.
- SA A N D SD 8. The exams were fairly graded.
- SA A N D SD 9. Feedback on tests was prompt and indicated clearly my standing.
10. The amount of work required for the course was:

far too much too much about right too little far too little

11. Overall, I would rate the instructor as:

excellent good adequate poor very poor

Your written comments are especially valuable to us. Please answer the questions below and provide any other comments that you wish to make. *If you need more space, use the back of this questionnaire.*

1. What did you particularly like about this lecture course and/or instructor?

2. What did you not like about this course and/or instructor?

3. What should the instructor do to improve the course and his/her teaching effectiveness?

Indiana State University
Department of Chemistry
Student Opinion Survey of LABORATORY Course

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(To be conducted two weeks before lab checkout)

Semester _____

Year _____

Course Number _____

Instructor _____

This questionnaire is important to you, other students, the instructor and the Chemistry Department. Please circle the response that you feel is appropriate.

SA=strongly agree; A=agree; N=neutral; D=disagree; SD=strongly disagree

- SA A N D SD 1. The instructor was well prepared for the lab sessions.
- SA A N D SD 2. The pre-lab lectures were appropriate.
- SA A N D SD 3. The instructor was enthusiastic about teaching this course.
- SA A N D SD 4. The instructor was helpful to me during lab.
- SA A N D SD 5. The instructor made me aware of safety considerations.
- SA A N D SD 6. I knew what was expected of me in this lab course.
- SA A N D SD 7. The lab was run in an organized manner.
- SA A N D SD 8. The lab reports were fairly graded.
- SA A N D SD 9. Feedback on grades was prompt and indicated clearly my standing.

10. The amount of work required for the course was:

far too much too much about right too little far too little

11. Overall, I would rate the instructor as:

excellent good adequate poor very poor

Your written comments are especially valuable to us. Please answer the questions below and provide any other comments that you wish to make. *If you need more space, use the back of this questionnaire.*

1. What did you particularly like about this lab course and/or instructor?

2. What did you not like about this lab course and/or instructor?

3. What should the instructor do to improve the lab course and his/her teaching effectiveness?

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March 15, 2001

Dear ISU Chemistry Graduate:

I would like to ask for your help in connection with our self-assessment activities. We are continuously trying to improve the quality of our Program, and one of the components of our attempts is to ask for the opinions and guidance of our graduates. With all the advantages of hindsight, you are in a position to help us identify and see things that are important components in our developmental plans. Of course the beneficiaries of your advice and suggestions, and our attempts to incorporate these ideas in our program and practices, are the undergraduates who will follow your footsteps as holders of the B.S. degree in chemistry from Indiana State University.

The enclosed questionnaire is designed to provide us with salient information about your experiences here and your suggestions for improvement. It should only take you a few minutes to complete this questionnaire. For convenience, I am including a postage-paid, addressed envelope.

Since it is important for us to keep in touch with you, please be sure to give us your current address. Please also feel free to contact us at any time through e-mail or our Web home pages (not yet fully developed). These Internet addresses are:

e-mail: a-halpern@indstate.edu

Web site: <http://carbon.indstate.edu/chem> (Note: there is no www)

With very best regards and best wishes, I am

Yours very truly,

Arthur M. Halpern
Professor and Chairman

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