

Goal I. Biology majors will have a breadth of knowledge of basic biological principles.

A. Objective 1: Sixty-five percent of the students will score in the 50th percentile or higher on the Major Field Test (MFT) short form subject test.

1. Method of Assessment

In order to assess the effectiveness of our core courses (required of all majors) in preparing students in a broad range of topics judged to be important by outside viewers, biology majors enrolled in BIOL 4050 (Genetics), the course taken last in the biology core, took the Major Field Test in Biology, produced and scored by Education Testing Services of Princeton, N.J., on the last day of the genetics course or during the departmental assessment day.

2. Results

Table I summarizes the number of students taking the exam, the percentage of students making greater than the 50th percentile, the all institutions scale score mean, Anderson University score mean and the percentage of institutions at or below Anderson University for 2004, 2006 and 2007. Institutional scale score means and institutional total score distribution were available only for 2006-07. However, in looking at past years (2000-2003) the means have not varied more than one or two points for the different years. Consequently, the data from 2004 and 2006 will be interpreted using the mean information from 2007. Data for 2005 was not found.* Table II summarizes the average subscores for each of the four subareas per all institutions, Anderson University and the percentage of institutions at or below Anderson University.

Year	Number of Students Tested	% of Students \geq 50th Percentile	Institutional Scale Score Mean for all Institutions	Anderson University Scale Score Mean	% of Institutions at or Below Anderson University
2004	9	67%	153 \pm 13.3	157.6 \pm 13.3	70%
2006	10	60%	153 \pm 13.3	157.5 \pm 11.9	70%
2007	21	71%	153 \pm 13.3	162.0 \pm 12.0	90%

3. Conclusions/Interpretations

The goal of 65% of our students to be at or above the 50th percentile was met in two of the three years. If one averages the three years, 67% of our students were at or above the 50th percentile.

* The transition of the chair responsibilities from Dr. Sipe to Dr. Janutolo occurred at the beginning of the 2005-06 school year. During the transition some assessment data was misplaced. Compounding this situation was the retirement of the secretary in the science office at the end of the 2004-05 school year. Some assessment data turned in 2005 apparently was not filed.

This past year 90% of the other institutions who administered the test were at or below Anderson University's score. This indicates that our students are gaining a breadth of knowledge of basic biological principles when compared nationally to other students.

Before 2000, subscores for molecular biology and genetics were low. Based on those lower subscores, when a position became available due to a retirement in 2000, the decision was made to hire someone in the field of molecular biology and genetics. Since the addition of Dr. Lyle-Ippolito, subscores in molecular biology and genetics are now much higher than in the past. The increased scores in molecular biology and genetics have been consistent since 2000. This is an example of "closing the loop."

The subscore for general biology, evolution and ecology was the lowest subscore for all three years, yet 70% of other institutions taking the test were at or lower than Anderson University students. The lower score for this subarea is predictable since the information covered by that subarea is covered primarily in the first year courses. As long as the subscore for this area places us in the top 50th percentile, the department is not overly concerned. However, students take the exam right after finishing a course in genetics; consequently, the department expects that subscore to be high.

Goal 1, Objective A: MET

4. Future Actions

- A. Continue to review ways that key elements of all subject areas tested are reinforced in as many core courses as possible.
- B. Consider the addition of a core course at the upper division level that reinforces general biology, evolution and ecology.

B. Objective B: Eighty percent of the graduates surveyed will agree that they were adequately academically prepared for related graduate programs or entry level biology jobs.

1. Method of Assessment

The Assessment Committee asked the Biology Department to redesign parts of our graduate survey and only survey graduates three years after graduation. The graduate survey was redesigned and the revised survey first administered in the fall of 2006 to biology graduates of the class of 2004. (See appendix 1) Surveys were sent to 20 graduates. Ten surveys were returned for a return rate of fifty percent.

The second question on the survey was, "The biology program at Anderson University adequately prepared me with the knowledge, study skills, and critical thinking skills to enter graduate school or an entry level biology job."

The fourth question on the survey was, “In graduate school or in an entry level biology job, I found I was as well as or better prepared with the knowledge, study skills, and critical thinking skills than the majority of my peers.

2. Results

Seven graduates strongly agreed and three graduates agreed that they were adequately prepared by the biology program at Anderson University with the knowledge, study skills, and critical thinking skills to enter graduate school or an entry level biology job. No graduates disagreed or strongly disagreed.

Six graduates strongly agreed and three agreed that they were as well as or better prepared with the knowledge, study skills, and critical thinking skills than the majority of their peers. No graduates disagreed or strongly disagreed. One marked non-applicable.

3. Conclusions/Interpretations

100% of graduates agreed that they were adequately prepared for graduate school or an entry level biology job.

Goal 1, Objective B: MET

4. Future Actions

None at this time

Goal II: Biology majors will develop laboratory skills necessary to meet professional requirements including entry level positions and graduate schools.

A. Objective 1: Sixty percent of the students will score 80% or higher on a lab skills test designed by the department to verify the student is competent in the following skills (list of skills under Method of Assessment).

1. Method of Assessment

Students take a laboratory skills test at the end of the Genetics class taken in the fall semester. By this time all students should have completed the Biology Department core requirements. The test given in 2004-2005 included the entire laboratory skills test involving ten different laboratory skills: use and care of microscope, sterile transfer skills, dissection skills, using a dichotomous key, solution preparation, centrifugation & gel electrophoresis, laboratory safety, pipetting & dilution, care and use of a spectrophotometer, and construction of a standard curve. (See appendix 2) In 2005-2006 and 2006-2007, a subset of laboratory skills was tested.

2. Results

In the year 2004-2005 twelve students took the laboratory skills test. Two skills were not graded due to technical problems: use and care of microscope and using a dichotomous key. Only six of the students (50%) scored an 80% or higher on the test. The overall average was 78%. In the year 2005-2006 twelve students took the laboratory skills test. The test given was a shortened version of the skills test. Eight of the students (67%) scored an 80% or higher on the test. The overall average was 82%. In the year 2006-2007 twenty-four students took the laboratory skills test. Again, the test given was a shortened version of the skills test. Twenty-four of the twenty-four students (100%) scored an 80% or higher on the test. The overall average was 93%. These results are summarized in Table III.

Table III: Laboratory Skills Test Student Results by Year

Year	Number of students	Average score (%)	Number of students scoring >80% (% of total)
2004-2005	12	78	6 (50%)
2005-2006	12	82	8 (67%)
2006-2007	24	93	24 (100%)
Total	48	84	38 (79%)

The average scores for the individual subtests are summarized in Table IV.

Table IV: Average Scores for Individual Subtests in the Laboratory Skills Test by Year.

Subtest	2004-2005	2005-2006	2006-2007
Sterile transfer	86%		
Dissection	77%		
Solution preparation	62.5%	92.5%	95%
Centrifugation & gel electrophoresis	95.5%	94%	98.8%
Laboratory safety	90.8%	96%	97%
Dilutions	77.5%	70.8%	98%
Use of a spectrophotometer	61.6%	61%	76%
Construction of a standard curve	90%		

3. Conclusions/Interpretations

Overall, students do very well on the laboratory skills tests. On average, 79% of our students score greater than 80% on the test. As a department, individual subtest scores were used to determine the need for changes in teaching. A greater emphasis on solution preparation and dilutions was made in upper division classes and the test scores improved.

Goal II, Objective 1: MET

4. Future Actions

None at this time

The entire laboratory skills test will be given this year. For the next two years after this year only subtests that are below the 80% mark will be given. Continued emphasis in labs will be placed on the use of a spectrophotometer.

B. Eighty percent of the graduates surveyed will agree that in graduate school or in an entry level biology job, they were as well as or better prepared with the knowledge of laboratory procedures and laboratory skills than the majority of their peers.

1. Method of Assessment

The Assessment Committee asked the Biology Department to redesign parts of our graduate survey and only survey graduates who had graduated from the program three years ago. The graduate survey was redesigned and the revised survey first administered in the fall of 2006 to biology graduates of the class of 2004. Surveys were sent to 20 graduates. Ten surveys were returned for a return rate of fifty percent.

The third question on the survey was, “The biology program at Anderson University adequately prepared me with the knowledge of laboratory procedures and laboratory skills to enter graduate school or an entry level biology job.”

The fifth question on the survey was, “In graduate school or in an entry level biology job, I found I was as well as or better prepared with the knowledge of laboratory procedures and laboratory skills than the majority of my peers.”

2. Results

Seven graduates strongly agreed and three graduates agreed that the biology program prepared them with the knowledge of laboratory procedures and laboratory skills to enter graduate school or an entry level biology job. No graduates disagreed or strongly disagreed.

Two graduates strongly agreed and seven graduates agreed that in graduate school or an entry level job that the biology program prepared them with the knowledge of laboratory procedures and laboratory skills. No graduates disagreed or strongly disagreed. One graduate responded that the question was not applicable.

3. Conclusions/Interpretations

Goal II, Objective B: Met

4. Future Actions

None at this time

Goal III. Biology majors will be able to analyze and interpret biological data and basic professional literature and to effectively communicate findings for peer review.

A. Objective 1: Ninety percent of the biology majors will achieve a grade of “B” (83%) or better on their oral presentation in senior seminar second semester as assessed by the faculty in the sciences.

1. Method of Assessment

In order to assess the ability of our biology majors to analyze and interpret biological data and basic professional literature, students are required to enroll in BIOL4920, Senior Seminar. As part of the course requirements, students must choose a topic from an area of study in biology to research. The research may be independent laboratory or field research performed by the student or it may consist of library research in which a paper is presented as if it were the student’s own work. Each student presented a 20 minute oral presentation in the format standard to meetings in the sciences. Each presentation was evaluated by the science faculty using a rubric (Appendix 3).

2. Results

Table V. summarizes the number of students making oral presentations for the years 2005-2007, the range of scores for each year and aggregate, the average score for each year and aggregate, and the percentage of students who scored above a B (83%) for each year and aggregate.

Year	Number of Students Evaluated	Range of Scores	Average Score	% of Students \geq B
2005	5	73.8%-97.8%	88.7%	80%
2006	14	87.2%-97.6%	93.4%	100%
2007	15	89%-97.8%	94.8%	100%
Summary	34	73.8%-97.8%	93.3%	97.1%

3. Conclusions/Interpretations

The goal of 90% of our students achieving a grade of B (83%) or better on their oral presentation in senior seminar second semester was met two of the three years assessed and was met overall for the time period.

This indicates that our students are capable of analyzing and interpreting biological data and orally communicating the findings for peer review.

Only one student failed to score above an 83% and receive at least a B. This student was a member of the smallest class; therefore, the percentage of students earning a B or better was only 80%. This variance was due more to the randomness of the sample than any other factor.

Goal 3, Objective A: MET

4. Future Actions

The department anticipates no changes in either methods of assessment or in the goal.

B. Objective B: Eighty percent of the biology majors will score 80% on the assessment tool used to assess the final paper required for science seminar.

1. Method of Assessment

In order to assess the ability of our biology majors to analyze and interpret biological data and basic professional literature, students are required to enroll in BIOL4920, Senior Seminar. As part of the course requirements, students must choose a topic from an area of study in biology to research. The research may be independent laboratory or field research performed by the student or it may consist of library research in which a paper is presented as if it were the student's own work. Each student wrote at least a ten page paper excluding title page, abstract, tables, figures, and bibliography on the chosen topic. The paper followed a format for papers to be submitted to the journal *Bioscience*. A random sample of papers was evaluated by two members of the biology faculty using a rubric (see Appendix 4).

2. Results

Table VI. summarizes the evaluations by two biology faculty members of second semester Senior Seminar papers submitted as part of the class requirements.

Student	Evaluator 1 Score	Evaluator 2 Score	Average Score
1	90%	66.5%	78.25%
2	77%	71%	74%
3	84%	86.5%	85.25%
4	82%	91.5%	86.75%
5	91%	93.5%	92.25%
6	93%	93%	93%
7	85%	94%	89.5%
Average Score for all students			85.6%
% Students with Score of $\geq 80\%$			71.4%

Table VII summarizes the evaluations of only the **writing mechanics** portion of the rubric by two biology faculty members of the second semester Senior Seminar papers submitted as part of the class requirements.

Student	Evaluator 1 Score	Evaluator 2 Score	Average Score
1	100%	82%	91%
2	74%	63%	68.5%
3	84%	91%	87.5%
4	84%	85%	84.5%
5	90%	89%	89.5%
6	94%	94%	94%
7	82%	96%	89%
Average Score for all students			86.3%
% Students with Score of $\geq 80\%$			85.7%

Table VIII summarizes the evaluations of the **development and content** portion of the rubric by two biology faculty members of the second semester Senior Seminar papers submitted as part of the class requirements.

Student	Evaluator 1 Score	Evaluator 2 Score	Average Score
1	80%	54%	67%
2	80%	79%	79.5%
3	84%	78%	81%
4	80%	98%	89%
5	92%	98%	95%
6	92%	92%	92%
7	88%	92%	90%
Average Score for all students			84.8%
% Students with Score of $\geq 80\%$			75%

3. Conclusions/Interpretations

The goal of 80% of our students scoring at least 80% on the assessment tool used to evaluate the written paper submitted as part of the Senior Seminar second semester class was not met. One student's score meant a failure to meet this objective. Analyzing the papers for both writing

mechanics (Table VII and development and content (Table VIII) of the paper separately reveals that writing mechanics met the goal of 80%. Looking at the data from Table VIII indicates that the development and content of the students' senior level papers is the reason the objective was not met. On closer evaluation, the department feels that there is less of a problem with the students' writing abilities and more a problem with the evaluation instrument and the expectations of the evaluators in using it.

Goal 3, Objective B: NOT MET

4. Future Action

Several factors account for not meeting the goal and will be addressed before the next assessment: sample size, disparity of scores between the two evaluators, and the evaluation instrument. Increasing the sample size might be more representative of the students' efforts. However, if the sampling were truly random, this should not make a difference but will be discussed before the next assessment. The disparity of the two evaluators' scores for the first student had an impact upon the results as did the differences in the evaluation of the development and content of the paper. Adding a third evaluator might help provide a more accurate score. This, too, will be reviewed for the next report. The evaluators noted many changes that should be considered for the evaluation instrument and "tweaking" of the instrument will be done so that it better reflects the assignment and the faculty's expectations of what is acceptable senior level writing. Inter-evaluator reliability was very poor as evidenced in Table 4. To address this concern, training for use of the rubric will be done prior to assessment of the papers so that each evaluator has equal understanding of what is expected for each area to be evaluated.

Goal III, Objective B: NOT MET

4. Future Action

The department does feel that writing competency and written expression of scientific concepts and data is an area for due diligence and must be monitored. Many classes in the biology core for the major involve opportunities for the student to communicate in written form. The faculty must be certain that the expectations for effective scientific writing are understood by all biology majors. The rubric to assess the papers needs to be revised, and there needs to be discussion among evaluators on how to interpret the rubric before rating the papers to insure more consistency among evaluators.

C. Objective 3: An improvement of five points will occur between the average score of the freshman lab reports and those of the senior lab reports.

Method of Assessment

Lab reports were collected from all students for one lab done in BIOL 2220 (freshmen), BIOL 2230 (sophomores), and BIOL 4050 (juniors or seniors) in 2004-05, 2005-06 and 2006-07. For BIOL 2220 and BIOL 2230 the lab report collected was the first report due in the course. In

BIOL 4050 the lab report collected was one of two complete lab reports done during the course. A random sample (one out of four papers) was taken to be scored by faculty using a rubric (See Appendix 5). The lab reports were scored by two different professors. At the bottom of the rubric the evaluator gave an overall rating of the lab report as excellent, good, fair, poor or very poor.

Results

It readily became evident to the evaluators that the rubric used was in need of revision. It included categories for evaluation that were not included in the instructions for writing the lab reports. Consequently, it was decided to use the overall rating of the lab reports as an indicator if we were meeting this objective. Lab reports were rated as being excellent, good, fair, poor or very poor. Table IX summarizes the ratings of the two evaluators.

Table IX. Percentage of lab reports rated excellent, good, fair, poor or very poor for BIOL 2220, BIOL 2230, BIOL 4050 by two different evaluators.

		Excellent	Good	Fair	Poor	Very Poor
BIOL 2220	Evaluator I	0%	33%	42%	25%	0%
	Evaluator II	0%	25%	8%	59%	8%
BIOL 2230	Evaluator I	22%	56%	11%	11%	0%
	Evaluator II	11%	56%	22%	11%	0%
BIOL 4050	Evaluator I	22%	56%	8%	8%	0%
	Evaluator II	11%	56%	11%	11%	0%

Conclusions/Interpretations

It is evident from the ratings that there is improvement from the freshman lab reports to the sophomore and junior/senior lab reports. Only 25-33% of the freshmen lab reports were rated excellent or good; whereas 66-76% of the sophomore and junior/senior students were rated excellent or good.

Goal III, Objective 3: MET

Even though this goal was met, we still have some concerns about this objective. First we were disappointed that there did not appear to be much improvement in the lab reports from the junior/senior students over the lab reports from sophomores. A number of students have a problem writing a word description of data or place the word description of data in the conclusions. Titles of tables and graphs often did not contain enough information to format the table or graph. Finally more attention needs to be given to referencing within the lab report. As has been observed in other parts of the report, there still remain concerns about the mechanics of writing.

Future Actions

(1) Devise a new rubric for evaluating the lab papers. (2) Change the wording of the objective to reflect the new rubric. (3) There needs to be discussion among the evaluators on how to interpret the rubric before rating the papers to insure more consistency among evaluators. (4) Create a handout giving examples of how to reference books, articles and websites. (5) Continue to stress proper ways of titling graphs and tables.

Goal IV. Provide adequate biological principles and knowledge to equip students to integrate their faith and scientific knowledge when making personal decisions about societal/community issues.

Objective 1: 80% of respondents to an alumni questionnaire affirm the application of biological and faith principles to societal issues (i.e., environmental awareness and activism, medical ethics, and health care decisions)

1. Method of Assessment

The Assessment Committee asked the Biology Department to redesign parts of our graduate survey and only survey graduates who had graduated from the program three years ago. The graduate survey was redesigned and the revised survey first administered in the fall of 2006 to biology graduates of the class of 2004. Surveys were sent to 20 graduates. Ten surveys were returned for a return rate of fifty percent. Due to the redesign of the survey, the wording of Objective 1 was revised to reflect the wording on the survey.

Question seven on the survey was “My knowledge of biology informs and substantially affects my views on many societal issues (environmental stewardship, medical ethics, health care etc.).

2. Results

Three graduates strongly agreed and seven graduates agreed that their knowledge of biology does inform and affect their view on many social issues. No graduates disagreed or strongly disagreed.

3. Conclusions/Interpretations

Goal III. Objective 1 Met

4. Future Plans

No future action on this objective

Objective 2 (rewritten): 80% of respondents will state that they are able to integrate their biological knowledge and their faith commitment, and that the integration began while they were students at Anderson University

1. Method of Assessment

The Assessment Committee asked the Biology Department to redesign parts of our graduate survey and only survey graduates who had graduated from the program three years ago. The graduate survey was redesigned and the revised survey first administered in the fall of 2006 to biology graduates of the class of 2004. Surveys were sent to 20 graduates. Ten surveys were returned for a return rate of fifty percent. Due to the redesign of the survey, the wording of Objective 1 was revised to reflect the wording on the survey.

Question eight on the survey on the survey was “I have successfully integrated my knowledge of biology within the larger context of my faith commitment; the two work together in shaping my world view as well as in affecting the way I conduct myself in everyday life.

Question nine on the survey was “The integration process described above (in question eight) began when I was a student at Anderson University.

2. Results

Five graduates strongly agreed and five graduates agreed that they have successfully integrated their knowledge of biology with the larger context of their faith commitment. No graduates disagreed or strongly disagreed.

Six graduates strongly agreed and four graduates agreed that the integration process began when they were a student at Anderson University. No graduates disagreed or strongly disagreed.

3. Conclusions/Interpretations

Goal III. Objective 1 Met

4. Future Plans

No future action on this objective

Objective 3: Sixty percent of the students preparing a case study on the integration of faith and biological knowledge will score 75% or higher on the assessment rubric designed for those papers.

1. Method of assessment:

In order to assess our students’ ability to integrate faith and scientific knowledge, biology students enrolled in BIOL 3070 (Ecology) and BIOL 4050 (Genetics) are required to write a 10-

20 page term paper dealing with a specific bioethical issues in the respective disciplines. In these papers they must demonstrate the following:

- A grasp of the scientific issue(s) involved
- The ability to fairly represent one or more Christian perspectives on the issue
- The ability to fairly represent at least one other ethical/philosophical perspective
- The ability to draw logical conclusions
- A thoughtful personal integration of the scientific, religious, and ethical issues involved

A random sample of papers (25% of total papers) was evaluated by two members of the biology faculty using a rubric (see Appendix 6). There were 2 papers from ecology and 7 papers from genetics.

1. Results

Table X shows the summary of evaluations of the integration papers by two evaluators.

TABLE X. Summary of Evaluations of Integration Papers from 2005-2007 by two evaluators				
Evaluator	Average for Ecology Papers (N=2)	Average for Genetics Papers (N=7)	Average for all Papers (N=9)	% Students \geq 75%
1	90%	56%	63%	22%
2	82.5%	64%	68%	44%
Average	86.25%	60%	65.5%	33%

3. Conclusion/Interpretations:

Goal IV, Objective 3 was not met; however, a “misunderstanding” contributed to the low scores on the Genetics papers: Items B.2. and B.5. on the scoring rubric require students to support a thesis, but the instructor explicitly told the genetics students not to spell out a position (thesis) until the very end of their papers. Even allowing for the above misunderstanding, our students’ level of integration still leaves something to be desired. Students scored highest (an average of 3.33 out of 5 possible points) on section C.1.: “A Christian perspective or world view on this topic was adequately explained,” while students scored lowest (an average of 2.7 out of 5 possible points) on section C.5. “There is a critical evaluation of both (theological/philosophical) perspectives.” Students can adequately describe different perspectives on an issue, but they have difficulty comparing and contrasting them with an eye to critical evaluation.

Goal IV. Objective 3: NOT MET

4. Future Actions

The scoring rubric is to be revised in order to better reflect our goal to test for the students’ integration skills and reflect the actual assignment for the paper. Discussion of the rubric among

evaluators before evaluating the papers should help with better agreement among evaluators in scoring a given paper.

The department is assigning faculty mentors to ecology and genetics students to assist them with their integration papers and help them develop the ability to compare and contrast different perspectives on an issue with an eye to critical evaluation. It is also hoped that the mentor can also work with the student on writing skills.

Overview

Overall the department is pleased with the major we are offering to our students. It is evident that students who do well in our program have little trouble getting into graduate school or obtaining an entry level job. Once there our graduates report that they were prepared and equipped to be successful. Comments on the graduate survey reflect graduates feelings about the biology major. Below are samples of some of the comments received:

“I feel that being a biology major at AU was one of the best decisions of my life! The department gave me just the right guidance to become self-efficient and self-motivated to do the thing that I needed to do. I feel that I was ahead of the game in graduate school. “

“In general, I think that biology department did a very good job in preparing me as a biology major and preparing my science foundations. As a medical student, I feel that my biology background was as strong as any of my classmates.”

“The biology department at AU did a very good job of offering a broad spectrum of curriculum. Upon graduating, I felt that I had a fairly good grasp of the many disciplines one could specialize in, including: animal & plant science, microbiology, cell biology, genetics, ecology, and biochemistry. The real-world applications of the science through laboratory experience and field work was invaluable to my work as a graduate student now. Also, the advising and mentorship I received from the faculty was excellent, in fact in my opinion it was better than that which I receive now at Indiana University.”

For those objectives that were not met it seemed to be more of a problem with the rubric than an outright failure to meet the objectives. It is evident that rubrics need to be revised and tested before scoring future papers. Also a discussion of the rubric by evaluators before scoring papers might lead to better reliability between evaluators.

In addition to implementing the future actions under each objective, another area that the biology department would like to emphasize for the next few years is the writing skills of our majors. While generally the writing skills of our majors are good, especially when forced to revise their first attempts, the department would like to strive for improvement. To this end, mentors are being assigned to students writing integration papers to allow more one-on-one instruction in the writing process, and advisors for senior seminar papers are being asked to insist on more revisions for those students with weak writing skills.

Closing the Loop

I. Lab Skills

In the last report in 2004, Goal II, Objective 1 dealing with the acquisition of lab skills by biology majors was not met. Analysis of the data indicated that students were having problems with preparation of solutions, construction and use of standard curves, and the use of the spectrophotometer. The department increased its emphasis on making up solutions in several of the core biology courses, as well as asking the chemistry department to emphasize this skill in the introductory chemistry labs. Core biology courses were also asked to increase the opportunities for students to use the spectrophotometer and to construct and use standard curves. Results of the lab practical test for the past three years have shown marked improvement in the ability of students to prepare solutions, construction and use standard curves and correctly use the spectrophotometer. In the present report in 2007, Goal II, Objective 1 was met.

II. Writing of Lab Reports

In the last report in 2004, Goal III, Objective 3 was not met. In an attempt to meet this objective the department decided on a common lab report format that would be used in all biology courses requiring a formal lab report. The department mandated formal lab reports in three of its five core courses. In the present report in 2007, improvement in lab reports from the freshman to senior year did improve enough to meet the stated criteria for Goal III, Objective 3.