

# Skyline College

## Biology Department

### Program Review

### Executive Summary



### Short Summary of Findings

Each semester, most classes begin at near 100% of the maximum class size; our load is 29% greater than the average load for the College. The professionalism and energies that lead to curriculum and laboratory development, open labs, and BIOL 690 projects are appreciated by our students and contribute significantly to their success. Most BIOL courses fulfill the GE requirement, consequently Biology courses account for over 7% of the College's WSCHs. Students generally enjoy Biology and feel that they learn. Biology education is an essential part of global citizenship in the 21<sup>st</sup> century and consistent with the institutional SLOs. Student follow-up shows our students do earn baccalaureate degrees in the sciences and do work as professionals in biotechnology, health care, and education. Biology-related majors account for over 50% of Skyline's Transfer Admission Agreements with UC, and 7% all Associate degrees.

### Three Strengths of the Program

1. Our dedication to biology education and our responsiveness to students have resulted in the documented high load (WSCH/FTE) for the Biology Department at Skyline College.
2. Our faculty is active in regional and national professional organizations. Under the leadership of our faculty, scientific and educational meetings are brought to Skyline College and our students are able to attend these meetings. Additionally, the Biology Faculty undertakes independent outreach efforts visiting K-12 schools, providing formal in-service training for K-12 teachers, and judging local and regional science fairs.
3. The Biology Department has made a commitment to assimilate part-time faculty into regular departmental activities and curriculum matters. Additionally, students and classified staff are always an integral part of departmental activities. In addition to providing for students' academic needs, the Biology Faculty try to meet students' needs for professional experience by placing Biology majors in paid and unpaid internships in private companies in Northern California. The faculty regularly volunteer their time to offer BIOL 690, open labs, and science seminars, and to advise students.

### Three Suggestions for Improvement

1. Hire two full-time faculty. Biology consistently has the highest load in and accounts for nearly 10% of College WSCH. The College is likely losing students because we turn away students from full Biology classes.
2. A long-term plan for maintaining or purchasing laboratory equipment and computers is essential to maintaining currency. Increases in the number of laboratories over the last few years should also be met with an increase of a budget to both purchase materials and consumables as well as hire a full time laboratory aid.
3. More support for open labs is needed: this can include pay for faculty and/or instructional aides.

#### Full-Time Faculty Signatures

  
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Shari Bookstaf  
  
\_\_\_\_\_  
Sandra Hsu  
  
\_\_\_\_\_  
Mel Zucker

  
\_\_\_\_\_  
Christine Case  
  
\_\_\_\_\_  
Nick Kapp

Submitted on: March 31, 2008

# SKYLINE COLLEGE PROGRAM REVIEW SELF STUDY

## PART A: Mission Effectiveness

### Overview

1. *State the goals focus of this program and how the program contributes to the mission and priorities of the College and District.*

The 2007-08 Skyline College Mission are:

1. "To provide student-centered education leading to transfer, career advancement, basic skills development, and personal enrichment."

Courses numbered BIOL 100—299 are transferable to UC and CSU. Courses numbered BIOL 200—299 are carefully designed and articulated for Biology and Allied Health Science majors transferring to four-year schools. The goals of these courses include providing tools for students to make wise decisions regarding their personal health and the global environment.

The core program for biology majors consists of two courses, BIOL 215 (Organismal Biology) and BIOL 230 (Introduction to Cell Biology). The primary goal of this program is to prepare students for upper division work at their transfer institutions. This is done through courses which offer a diversity of topics and emphasize critical thinking and laboratory skills. Students are asked to write laboratory reports (two per week in Biology 215 and one per week in Biology 230), and complete an independent research project.

Biology majors are also encouraged to do an independent study (BIOL 690) project. These include research projects, internships and organizing science seminars. Research projects include analyses of new antimicrobial agents, local beaches, and indoor air quality at Skyline College.

We know that Biology students are dedicated to achieving their goals and made their commitment to science while at Skyline College. Results of our exit survey in Spring 2006 indicate that our Biology majors are confident about their abilities and skills.

2. To prepare "students to be culturally sensitive members of the community, critical thinkers, proficient users of technology, effective communicators, socially responsible lifelong learners, and informed participants of a democracy in an increasingly global society."

Consistent with these goals, courses numbered BIOL 100—199 are specifically designed to provide students with a scope of information that will help them develop the ability to objectively deal with the responsibilities of daily life. Among these GE students: 72% of the students plan to transfer; 43 different majors are represented with Business majors as the largest (25%) group. In response to our Fall 2006 questionnaire students said they enjoyed Biology and are more comfortable in Biology after taking their Biology class

2. *Discuss how this program coordinates, impacts, and/or interacts with other programs in the College.*

All students planning to transfer and/or earn an Associate degree can fulfill their natural science requirement with Biology courses. Biology-related degrees account for nearly 7% of all degrees awarded (Figure 2).

The Biology Program contributes to providing the prerequisite courses necessary for students to transfer to four-year schools, to prepare for professional schools (e.g., medical, dental, and veterinary), and to enter professional programs (e.g., dental hygiene and nursing). Moreover, students completing the Biotechnology degree are prepared for and entering the workforce.

The Biology Department has three major areas of service to meet student needs: General Education, Majors which includes Biology/Biotechnology majors, and Allied Health Science. We work closely with other programs including Chemistry, Mathematics, Physics, and Respiratory Therapy in order to develop sequences of courses and coverage of topics needed to complete lower division work in Biology and Allied Health Science.



Biology faculty work with all segments of the College so that our students have the best possible support to reach their educational goals. The areas of collaboration include Student Services, The Learning Center, the Library, the Honors Transfer Program, and MESA. We work with faculty and staff in these areas to provide the best possible support to help students reach their educational goals.

3. *Explain how this program meets the needs of our diverse community.*

It is our obligation as biologists to train the next generation of biologists and to promote science literacy in non-science majors. Many students in G.E. Biology classes do decide to major in Biology. Furthermore, we are aware that African Americans, Hispanics, and Pacific Islanders are not adequately represented in science-related professions. Our classes reflect the diversity of Skyline College and we work very hard to ensure that these individuals benefit from the job opportunities and from the self-esteem that come from science education. They, in turn, will have an impact on society by providing services for their cultural communities and be role models for the next generation.

Allied health science classes are intended to prepare students to function in a medical setting, usually under direct or indirect authority of a physician. All three classes (BIOL 240, 250, 260) are required for most allied health programs including the Respiratory Therapy program at Skyline College. The classes are also required for transfer allied health programs taught at other schools, such as nursing, dental hygiene, physician assistant, physical therapy, radiology technician, and medical transcribing (also at Skyline). To ensure that the basic allied health science classes are meeting the needs of these diverse programs, frequent communication is made with people responsible for these programs. Students of varied ethnic backgrounds have an interest in entering the allied health field. This is reflected in the diversity of students normally attending the allied health science classes. Every effort is made to accommodate people of different ethnic origins, but all students are expected to achieve a minimal level of competency in the allied health science classes.

The administrator of the University of San Francisco nursing program wrote to Skyline College stating that the students from Skyline were the best prepared of all the students that enter their program.

4. *If the program has completed a previous self-study, evaluate the progress made toward previous goals.*

- Our workload (LOAD) is 28% greater than the average load for the College (Figure 1).
- Funds obtained by Biology faculty from the Northern California Biotechnology Center are being used to investigate the feasibility of a Biotechnology manufacturing certificate.
- More articulation agreements have been made with four-year schools.
- Our understaffing worsened when our newest faculty member resigned and a senior faculty retired.

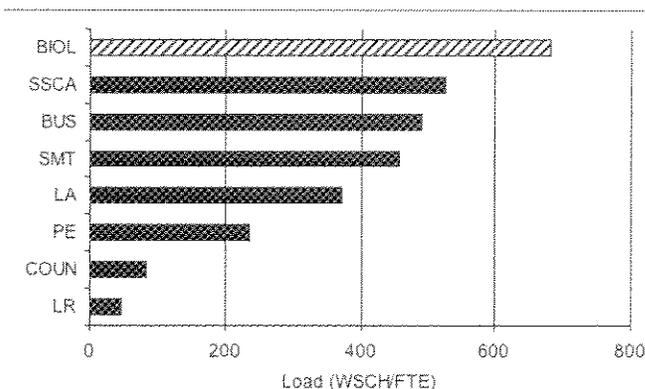


Figure 1. Biology load compared to College load.

## PART B: Student Learning Programs and Services

### Overview

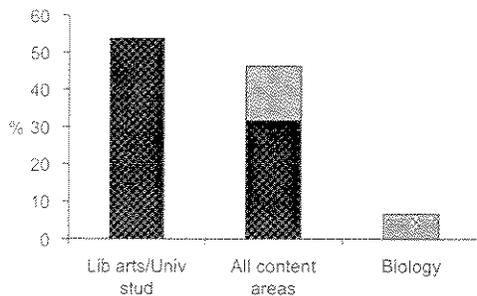
1. *If the program utilizes advisory boards and/or professional organizations, describe their roles.*

The Biology programs do not have advisory boards, however, our faculty are active in regional and national professional organizations. Our faculty contribute to the literature, make presentations, serve as board members, and bring professional organizations to our students. The faculty regularly involve staff and students in professional organizations in order to provide professional development options for staff and to nurture students' interest in science and to help them meet and form personal contacts with professionals working in the life sciences. Under the leadership of the Biology faculty, our students have been able to attend scientific and educational meetings.

## Curriculum

1. Describe how the courses offered in the program meet the needs of the discipline(s) and the students. (This may be answered through descriptive narrative evaluation or quantitative research).

All students planning to transfer and/or earn an Associate degree can fulfill their natural science requirement with Biology courses. Biology-related degrees account for nearly 7% of all degrees awarded at the college (Figure 2).



**Figure 2. Degrees awarded at Skyline, Spring 2007.** The majority of degrees awarded are in Liberal Studies and University Studies; nearly all graduating students take a Biology course. Biology-related degrees (Natural Science, Allied Health, and Biotechnology) account for 6.8% of all degrees and 14.7% of content-area degrees. Liberal arts and University studies account for 53.7% of all degrees awarded.

The G.E. Biology courses (100s) are specifically designed to promote scientific literacy and therefore good citizenship. The ability to make decisions regarding personal nutrition, environmental resources, and health care require the information and problem-solving skills to which students are exposed in science classes. Results of a questionnaire administered to all G.E. Biology students affirmed our efforts. Students were more interested in Biology and less frightened by laboratory activities after their Biology class.

The core program for biology majors consists of two courses, BIOL 215 (Organismal Biology) and BIOL 230 (Introduction to Cell Biology). The primary goal of this program is to prepare students for upper division work at their transfer institutions. This is done through courses which offer a diversity of topics and emphasize critical thinking and laboratory skills. Students are asked to write laboratory reports (two per week in Biology 215 and one per week in Biology 230), and to conduct original laboratory research. Results of an exit questionnaire show students are confident in their laboratory skills. Biology majors constitute over 50% of the College's transfer agreements.

Allied health science classes are intended to prepare students to function in a medical setting, usually under direct or indirect authority of a physician. The three primary allied health science classes designed to achieve this goal are BIOL 250 (Human Anatomy), BIOL 260 (Introduction to Physiology), and BIOL 240 (Microbiology). All three classes are required for most allied health programs including the Respiratory Therapy program at Skyline College. The classes are also required for transfer allied health programs taught at other schools, such as nursing, dental hygiene, physician assistant, physical therapy, and radiology technician. To ensure that the basic allied health science classes are meeting the needs of these diverse programs, frequent communication is made with people responsible for these programs. Students of varied ethnic backgrounds have a greater interest in entering the allied health field. This is reflected in the diversity of students normally attending the allied health science classes. We feel that the success of all students is important in our classes, but all students are expected to achieve a minimal level of competency in the allied health science classes.

Biotechnology courses are designed to provide work skills for entry-level employees and to upgrade skills of current workers. These courses also provide skills to employees who are working in the biotechnology field but whose work activities are not directly involved in biotechnology. The accountants, engineers and janitors of local biotechnology companies look to our program to better understand what their companies do.

2. State how the program has remained current in the discipline(s).

Skyline Biology faculty are textbook authors. We also review textbooks for publishers, publish articles, and conduct research. attend discipline meetings, and work in industry internships.

3. If the student population has changed, state how the program is addressing these changes.

The student population has not changed significantly since our 2000 Program Review. We serve a diverse group of students and continue to succeed in meeting the challenges of those diverse needs (Figure 3).

4. *All courses in this program should be reviewed for currency and modified every six years. If this has not occurred, please list the courses and explain.*

Three courses have not been updated since 2002. These courses (111, 145, and 365) are not currently offered because we do not have content experts.

5. *If external accreditation or certification is required, please state the certifying agency and status of the program.*

NA

### Student Learning Outcomes & Assessment

1. *Highlight any major findings and resulting course or program modifications.*

Biology majors are confident about their knowledge and skills and feel prepared to transfer after completion of the majors' core courses. General Education (100s) students generally enjoyed Biology and are more comfortable dealing with science-related issues after taking their Biology class. Course or program modification are not warranted by these findings.

2. *Where on the continuum do you believe your department is on the SLOAC Initiative?*



3. *How many courses have implemented changes to improve learning based on the outcomes of the assessments?*

Results obtained to date (in seven courses) have affirmed our curriculum and methods. In all classes lecture methods and course content are modified to accommodate differences in learning styles.

4. *What student populations are disproportionately underperforming? Has the department done anything to address these students' needs? If so, what does the department plan to do?*

Retention and success in Biology are comparable to the College—with slightly higher rates in Biology (see Figure 9 on page 9). African-American and first-time students have the lowest success rates in the Department (Figure 4a). These groups also have lower success college-wide indicating an institutional response is needed. We work closely with MESA to provide tutoring and faculty work with students in open labs.

5. *What additional resources are needed to implement the plan?*

We need additional full-time faculty (see Figure 5 on page 7) with expertise to teach specialized courses (i.e., BIOL 111, 145, and 365) as well as to offer more Biology sections, coordinate adjunct faculty, develop lab curricula, and continue SLOAC in earnest. All sections of some essential courses are taught by adjunct faculty which can lead to wide ranges in grading practices for the same course. Moreover, adjunct faculty are not paid for the extra time required for SLO assessment and program development. This can cause disparate curricula.

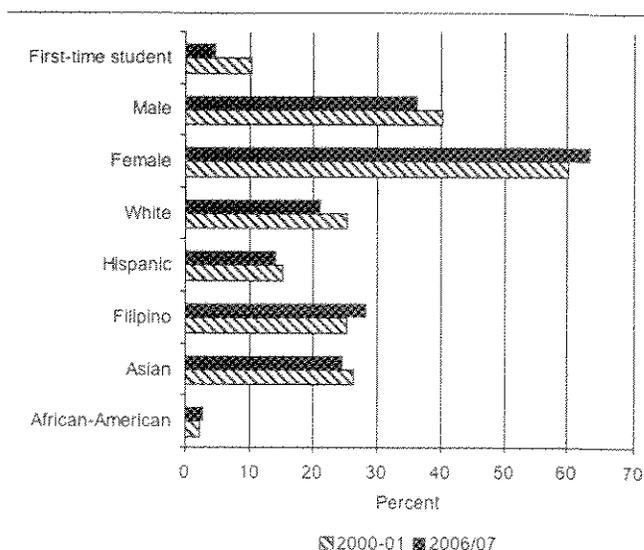
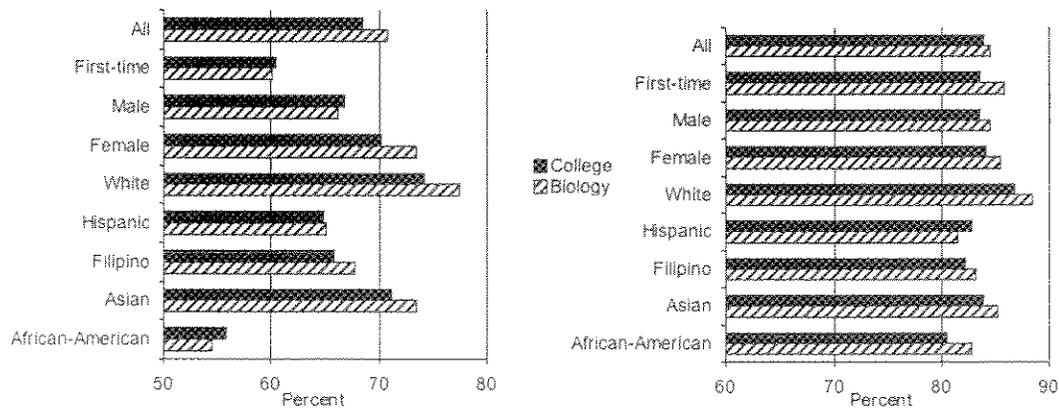


Figure 3. Comparison of student enrollment in Biology, 2000 and 2006.



a. Success rates in Biology and Skyline College.

b. Retention rates in Biology and Skyline College.

Figure 4. Success and retention in Biology and the College, 2004/5 through 2006/7.

### Facilities Equipment Material and Maintenance

1. Describe the use of technology in the program. Discuss if technology is current and comparable to other college and business or industry.

Biology requires a great deal of discipline-based technology. Recent advances in the biological sciences have raised the requirements for this technology. However, we have stayed abreast with four-year schools and industry. Our students are doing modern DNA/protein analyses and spectrophotometry, cell cultures, and using computers to capture, analyze, and present their experimental data.

Students use computers to analyze data in BIOL 215 and 230. Faculty set up programs so students learn to use applications required in upper division work (e.g., spreadsheets, graphing, and databases) while they also learn to analyze their individual experimental results. There is no regular program to update or buy new software and hardware.

## PART C: Resources

### Faculty and Staff

1. List major development activities completed by faculty and staff in this program in the last six years and state what development is needed or proposed by faculty in this program.

A short courses designed to train workers in entry-level positions in biotechnology was developed. The larger Bay area biotechnology companies are starting to outsource their manufacturing/packaging facilities, but are increasing their research and development. We will need to develop the biotechnology program to meet the needs of this change. In the past year the new biology laboratories were occupied which required developing new lab protocols; and development of the allied health laboratories is in progress.

Biology majors undertake a capstone project involving independent research. Students have presented their work at scientific meetings.

The Biology faculty is currently designing a series of lectures focusing on current environmental issues, such as global warming, biofuels, overpopulation, sea level changes. We anticipate that the bulk of the lectures will be provided by the Biology Faculty and that guest speakers will be asked to speak on their specialty.

We need two full-time faculty to continue development.

2. Describe the orientation process for new faculty and staff (include student workers such as tutors and aides)

Although our most recent hire was over seven years ago our policy is that Hiring-Committee members make a commitment to mentor and assist new faculty members. Part-time faculty are mentored by the lead instructor (full-time person who also teaches that course). We have one staff position, Biology Lab Technician, in the Department. Our policy is that the technician and faculty are a team whose job it is to provide the best possible learning environment for students. As new laboratory techniques in the Biological Sciences advance they are incorporated into classes and faculty provide encouragement and opportunities for

the technician to master these techniques.

Student tutors, lab assistants, and stockroom assistants are recruited from among successful and interested students. BIOL 101 student lab assistants are trained by the course instructor. Ms. Carter trains the stockroom assistants.

3. *If recruitment of new and/or diverse faculty is needed, suggest recruitment techniques.*

Our only new faculty are part-time, recruited from local graduate programs and biotechnology companies.

### **Facilities, Equipment, Materials and Maintenance**

1. *Discuss the effectiveness of the facilities, equipment, equipment maintenance, and materials for the program to meet its goals and focus. Include if they impact success and if they are accessible to all students.*

The equipment and materials have been purchased using grants, gifts, bond monies and our regular budget. The equipment is adequate for now but we will need a steady equipment budget to maintain currency in teaching and technology. Materials are used primarily for Biology but other programs as diverse as Anthropology program also used our materials.

2. *List projected needs.*

Animal tissue culture facilities  
Exhibits (e.g., replacement of models, posters, 35-year old slide collection)  
Replace broken Sorvall centrifuge  
Documentation equipment, camera attachment for microscopes  
Consumable supplies

3. *Describe the use of technology in the program and discuss if technology is current and comparable to other college and business or industry.*

Biology requires a great deal of discipline-based technology. Recent advances in the biological sciences have raised the requirements for this technology. Using a Department of Defense grant and bond monies for equipment, we have managed to stay abreast of four-year schools so our students are prepared for transfer. The equipment does become dated and a technology plan to replace the equipment and evaluate new equipment needs to be put into place.

4. *If appropriate, describe the support the program receives from industry. If the support is not adequate, what is necessary to improve that support?*

Periodically, we have obtained laboratory consumables such as pipettes and Petri dishes from local biotechnology companies. We cannot rely on the timeliness of these donations when developing weekly and biweekly laboratory schedules for our classes. The faculty communicates with scientists at local companies and at universities to develop new laboratory experiments. Because of the timing of donations from local companies, we often get large amounts of materials that are then difficult to store. We could solicit local companies for plasticware, but we lack adequate storage space for these items.

### **Budget Request**

1. *What resources (staff, facilities, equipment and/or supplies) will be needed in the next six years?*

Biology is quite efficient, with a >97% fill rate. We have not replaced the 1.5 faculty lost over the past six years or dealt with long-term replacement or substitution for a recently disabled faculty. Unlike the College, increased Biology section increases the productivity (Figure 5). We need faculty to staff class sections, in order to meet the needs of students and increase College enrollment.

We need additional lab support. Our Lab Technician's job has grown considerably. She has a greater workload than her counterparts in the District (Figure 6).

We also need a stable budget for consumable supplies and equipment replacement and repair.

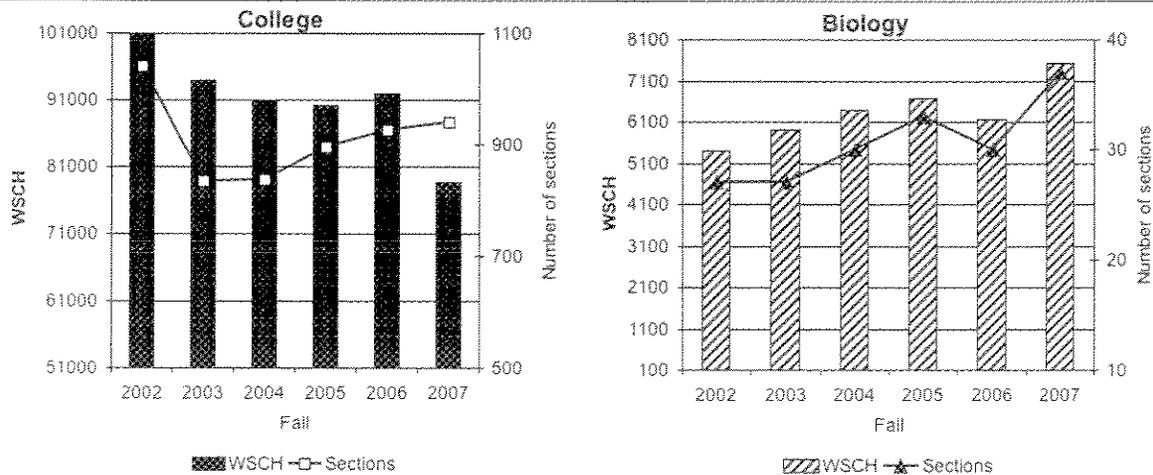


Figure 5. Productivity of Biology and the College.

- If appropriate, discuss methods the program could share resources with other programs in the College and District.

We regularly share consumables with Cañada & CSM. It is not practical to share equipment because of size and damage in transport. Many of the materials that are used in the biology laboratories are used in multiple sections different ways. For example, our DNA gel boxes are heavily used in majors and nonmajors courses.

#### PART D: Leadership and Governance

- What leadership roles do the faculty and staff of your program hold in the college?

Our primary responsibility and mission is teaching biology. To this end, the majority of our time is occupied with the duties of teaching, developing laboratory experiments, managing open labs so extra time is available to students, and spending time with students. In addition to our primary duties, we have had three Academic Senate Presidents, a District Senate President, committee chairs, and SLOAC representation.

- How do the faculty and staff in your program participate in the governance processes of the college/district?

Faculty serve on College committees including standing committees of the Senate and special focus committees such as Scholarship and SLOAC.

- How do the faculty and staff in your program exercise initiative/leadership in improving practices and services related to the program?

We develop courses, articulate our courses with four-year schools, and develop lab experiments using modern biology for students. We offer BIOL 690 to provide students with real-world research experience—and are not paid for BIOL 690.

We are always available to discuss trends in Biology education with College Administration. There have been several unsettling events during the past few years where College Administration made unilateral changes. Degree requirements are a faculty responsibility. We ask that faculty initiate, discuss, and decide on these changes. Course textbook selection is a faculty decision. If a change appears to be warranted, it is appropriate to ask a faculty member to lead and complete the text change. It is not appropriate for administration to initiate textbook selections. We understand that hiring adjunct faculty is an administrative decision. However, we do ask to be part of the process. After an adjunct faculty is hired, a faculty assessment should be provided in the first time term, and the lead faculty should be the first, not the last, to answer questions from adjunct faculty.

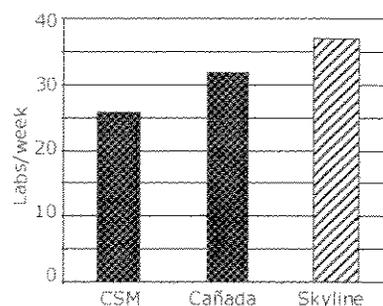


Figure 6. Number of lab classes per week Spring 2008.

## Skyline College Program Review

### Worksheet for Enrollment, Performance and WSCH/FTE

Report the previous 3 Fall semesters with the most recent on the right

#### Weekly Student Contact Hours–WSCH

	2005	2006	2007
WSCH	6677	6160	7544

Please comment on program enrollment and expected trends.

Our average WSCH comprise 7.4% of the College WSCH (Figure 7). The average fill rate in Biology is > 97%, compare to 84% for the College. Because of our high fill rate, we can contribute to college enrollment by offering more sections of Biology. In order to accomplish this we will need more full time faculty and full time lab support personnel.

We note at this time that College enrollment may suffer when we turn students away from Biology classes. Almost all biology courses are full and have wait lists. We are forced to turn away many students that show up on the first day of class trying to add. We believe that a study of classes that close early will point at BIOL 240, 250, and 260. These are required pre-nursing courses, and students in them take their GE courses at Skyline. An important question for the College is: if a student can't get into these three courses, will they take all of their classes at another college?

#### FTE and WSCH/FTE (LOAD)

	2005	2006	2007
FTE	9.10	8.90	10.07
WSCH/FTE	734	692	749

Please comment on the programs success and retention rate. Include factors that affect the rates and how college services are used to provide multiple avenues for student success.

Our load averaged 28% higher than the College and is consistently the highest in the College (Figure 8). Our average load (725) is well above the breakeven point (500-525) identified by California Community College Chief Instructional Officers.

#### Retention and Success

	2003/04	2004/05	2005/06
Retention	88%	83%	82%
Success	75%	71%	66%

Please comment on the programs success and retention rate. Include factors that affect the rates and how college services are used to provide multiple avenues for student success.

Retention and success in Biology are equal to that of the College (Figure 9 on page 9). The drop in retention and success during the Fall 2006 may be due to (1) overfilling some classes by as much as 15%, (2) courses being taught by an adjunct faculty with no full-time faculty managing the course, and (3) logistical difficulties during construction. We work closely with the MESA Center and College Library to provide support for students.

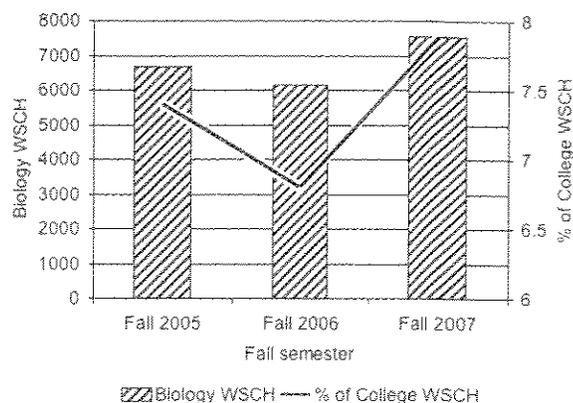


Figure 7. WSCH in Biology.

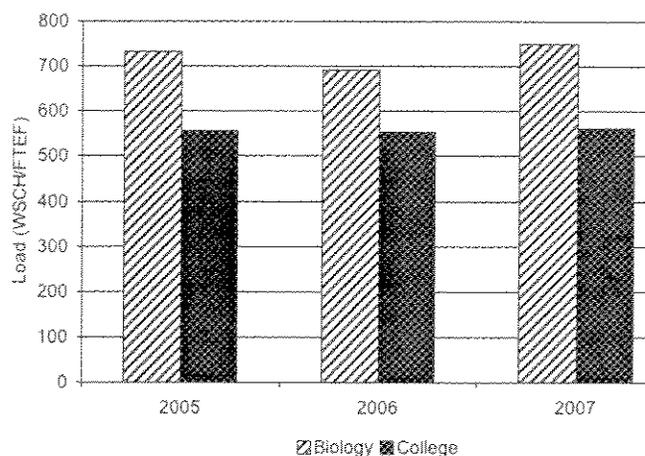
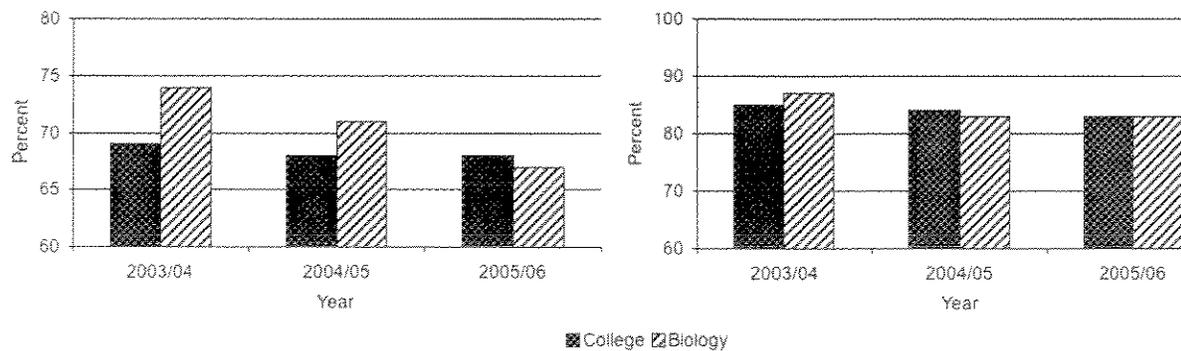


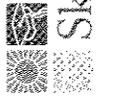
Figure 8. Biology load compared to College load.



a. Success rates in Biology and the College.

b. Retention rates in Biology and the College.

**Figure 9.** Effectiveness of Biology and the College.



# Program Review

## Course Outline & Prerequisite Checklist

Discipline: **Biology**

Semester: Spring 2008

COURSE OUTLINE, PREREQUISITE, & STUDENT LEARNING OUTCOMES CHECKLIST											
1	2	3	4		5	6	7	8	9	10	11
			Review Date	Transfer							
Prefix & Number	Title		CSU	UC & CSU	G.E.	Prerequisites, Corequisites, Recommendations	SLOs				
BIOL 101	Man in a Biological World	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	Yes	Yes	Yes	Yes	Feb 2008
BIOL 110	Principles of Biology	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 111	Natural History of California	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 130	<i>Human Biology</i>	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 140	Animals, People and Environment	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 145	Plants, People and Environment	2/2002	✓	✓	✓	R: Eligibility for ENGL 836		No	No	No	*
BIOL 150	Introduction to Marine Biology	2/2008	✓	✓	✓	R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 215	Organismal Biology	2/2008	✓	✓	✓	P: Math 120/123, or placement test score R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 230	Introduction to Cell Biology	2/2008	✓	✓	✓	P: BIOL 215 and CHEM 210 R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 240	General Microbiology	2/2008	✓	✓	✓	P: Successful completion of a college-level laboratory science course. R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 250	Human Anatomy	2/2008	✓	✓	✓	P: College Biology course with grade of C or higher R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008

\* Due to our current understaffing, we do not have faculty with content expertise to review this course.

**COURSE OUTLINE, PREREQUISITE, & STUDENT LEARNING OUTCOMES CHECKLIST**

1 Prefix & Number	2 Title	3 Review Date	4 Transfer		5 G.F.	6 Prerequisites, Corequisites, Recommendations	7 Validated	8 SLOs	9 Assessment Plans	10 Implementation	11 Reviewed
			CSU	UC & CSU							
BIOL 260	Introduction to Physiology	2/2008	✓	✓	✓	P: BIOL 250 and college Biology and college Chemistry courses with grade of C or higher R: Eligibility for ENGL 836; one college-level biology course	x	Yes	Yes	Yes	Feb 2008
BIOL 365	Intertidal Interpretation	2/2002	✓				x	No	No	No	*
BIOL 415	Introduction To Biotechnology Manufacturing	2/2008	✓	✓		R: Eligibility for ENGL 836 & READ 836 or ENG 846, or ESOL 400 or equivalent, and eligibility for MATH 110, 110 or equivalent R: Eligibility for ENGL 836	x	Yes	Yes	Yes	Feb 2008
BIOL 422	Foundations of Biotechnology	2/2008	✓				x	Yes	Yes	Yes	Feb 2008
BIOL 426	Genetic Engineering	2/2008	✓				x	Yes	Yes	Yes	Feb 2008
BIOL 430	Introduction to Immunology	2/2008	✓				x	Yes	Yes	Yes	Feb 2008
BIOL 432	Fermentation Technology	2/2008					x	Yes	Yes	Yes	Feb 2008
BIOL 665	Selected Topics in Biology	2/2008	✓				x	Yes	Yes	Yes	Feb 2008
BIOL 675	Honors Colloquium in Biology	2/2008	✓	✓		Corequisite: Concurrent enrollment in any non-honors biology level 100 or 200 course	x	Yes	Yes	Yes	Feb 2008

**Faculty Signatures**

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*Sandra Hsu*  
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*Christine Case*  
Christine Case  
*Nick Kapp*  
Nick Kapp

*Mae Williams*  
Mae Williams

Date Submitted: March 31, 2008

APPENDIX C  
SKYLINE COLLEGE

INSTRUCTIONAL AND STUDENT SERVICES PROGRAM REVIEW

RESPONSE SHEET

**Discipline: Biology**

Thank you for your time and effort in preparing this Program Review. Your Executive Summary, with recommendations, has been sent to the Planning/Budget Committee and the Board of Trustees.

**College President**

*Comments:*

\_\_\_\_\_  
*Signature*

Separate boxes for each

**College Vice Presidents**

*Comments:*

\_\_\_\_\_  
*Signature*

**Curriculum Committee**

*Comments:*

\_\_\_\_\_  
*Signature*

Original to remain with self-study  
Copies to Planning/Budget Committee & Program Review preparer

## Appendix D Skyline College

### Evaluation of the Program Review Process

To improve the Program Review process your help and suggestions are instrumental. We ask that all parties responsible for preparation of this review have input into the evaluation. After completion of the Program Review process, please take a few moments to complete and return this evaluation to the chair of the Curriculum Committee.

Estimate the total number of hours to complete your Program Review: 300 hours

1. Was the time frame for completion of Program Review adequate? If not, explain.  
Yes, *because* we used the summer preceding the Program Review year. There really is quite a bit of work with the Outline & prerequisite checklist and implementing our SLOAC.

2. Was the instrument clear and understandable? Was it easy to use? If not, explain and offer suggestions for improvement.

A little confusing: The same question was asked twice. There are two kinds of technology in education, i.e., discipline-based equipment and computer use. The meaning of *technology* is not readily apparent in the questions.

#### **Part B. Facilities Equipment Material and Maintenance**

1. Describe the use of technology in the program. Discuss if technology is current and comparable to other college and business or industry.

#### **Part C. Facilities Equipment Material and Maintenance**

3. Describe the use of technology in the program and discuss if technology is current and comparable to other college and business or industry.

3. Were the questions relevant? If not, please explain and offer suggestions.

The "Leadership and Governance" section doesn't seem relevant to the *program*. The Program Review is an assessment of the state of curriculum and instruction not faculty participation of governance. The section can be replaced by Question 1 under resources which emphasizes program-related professional activities.

4. Did you find the Program Review process to have value? If not, please explain and offer suggestions.

The process had value to us.

5. Was the data you received from administration complete and presented in a clear format? Would you like additional data?

Data were inconsistent with previous data (i.e., no current fill rates). Data in pdf format are difficult to use because tables cannot easily be pasted into a spreadsheet for calculations. During the summer 2007 we had to request data because Fall 2006 data were not online.

6. Please offer any comments that could improve and/or streamline Program Review.

Send relevant College and Department data in Excel during the Spring semester preceding the Program Review year.