



Southwestern Program Review Biology Program

Process

Program Review is a continuous process of collecting, evaluating, and using information to determine if and how well performance matches learning or service outcomes which occurs on at least a triennial basis. We gather evidence of student learning; discover the degree to which courses, programs, and administrative and educational support services accomplish intended outcomes; and probe the achievement of institutional projects, core themes, and mission. Southwestern conducts program reviews of all programs and services on a quadrennial basis (every 4 years) and uses the results of the assessments to enhance and improve current programs and services.

Resources

Program Review detailed instructions
[Report Documentation](#) – myLakerLink on the Resource Center tab
Reports – must be on campus or access network to process reports
[Course Completion Report](#)
[Course Completion by Course Report](#)
[Course Completion by Degree Report](#)
[Course Enrollments Report](#)
[GL Unit Costs by Fund by Unit Report](#)
[Graduates by Major Report](#)
[OLMIS](#) – Employment Opportunities
Persistence Report – being developed
[Student Enrollment Report – Enrollments, FTE, Billing Credits](#)
Transfer Reports – being developed

Program review consists of the following elements

- ✓ [Program Description and Goals / Philosophy](#)
- ✓ [Program Narratives](#)
- ✓ [Student Learning Outcomes](#) including measures and criterion for achievement
- ✓ [Operational Data](#) analysis
 - I. [Enrollments](#)
 - II. [Financial Viability](#)
 - III. [Efficiency of Delivery](#)
 - IV. [Instructional Effectiveness](#)
 - V. [Program Student Success](#)
 - VI. [Program Relevance](#)
 - VII. [Graduate Student Success](#)
- ✓ [Projects](#) planned based on evidence
- ✓ Association with core themes and other planning, processes/projects
- ✓ Activity [Timeline](#)

All reports are available within myLakerLink and are located on the Resource Center tab. Links to all reports are located within each section title of this document. Program Review requirements for certain sections include multiple reports with additional links to the reports located within the specific section of the report.

PART A: Program Review Narratives

Program Description and Goals / Philosophy

The Biology Program (biology and anatomy & physiology) provides educational opportunities for all students in the SWOCC community, particularly in fulfilling the science and laboratory requirements for the AA/OT, OTM, ASOT-BUS, AS, and AGS degrees. The Biology Program also meets the following Science student learning outcomes:

- Apply foundational knowledge and models of a natural or physical science to analyze and/or predict phenomena.
- Understand the scientific method and apply scientific reasoning to critically evaluate arguments.
- Interpret and communicate scientific information via written, spoken, and/or visual representations.
- Describe the relevance of specific scientific principles to the human experience.
- Form and test a hypothesis in the laboratory or field using discipline-specific tools and techniques for data collection and/or analysis.

Administration

- **Faculty / Staffing:** The Biology faculty consists of 1.5 full-time faculty with an additional .5 faculty assigned to General Science. Beginning 2015-2016 budget year, the .5 General Science faculty position will be incorporated into the biology budget, bringing the biology faculty full-time load to 2.0. This current program review focuses on all biology courses (except BI 234 Microbiology which will be reviewed with Chemistry) plus GS 108 Oceanography. However, the overall biology review will also break into two separate analyses. One analysis will be most of the biology classes (BI 101/102/103, 140, 142, 149, 199, 201/202/203) and GS 108. The second analysis will be the anatomy & physiology courses (BI 231, 232, 233). This review calculates 4.14 Faculty FTE.
- **Professional Development:** The full-time faculty members participates in self-directed reading, scholarship, professional organizations, and research.
- **Support Services used (or identified need):** The Tutoring Center on the Southwestern Oregon Community College Coos Bay Campus provides support services for students needing additional help with the Biology program. Coaledo 5 is a student study room appropriate for study groups, tutoring sessions, or mini seminars.
- **Advisory Committee (activities and membership):** N/A
- **Community Relationships / Partnerships:** Bob Fields has worked in an advisory capacity on Coos Watershed projects. He works with University of Oregon's Oregon Institute of Marine Biology in articulation conversations on marine biology and with Oregon State University in articulation conversations on natural resources. Fields coordinates lectures with the Oregon Shores Conservation Coalition and on its CoastWatch program. Bob also participates with Cape Arago Audubon Society functions.
- **Program Accreditation (if applicable):** N/A

Curriculum

- **Degrees/Certificates offered and changes since last review:** Biology has offered an AS Marine Biology Emphasis, yet this degree has not been articulated with a university. Beginning fall 2015 the AS Marine Biology Emphasis has been designed to transfer to the University of Oregon based on a focused AAOT degree where students can complete their degree at Oregon Institute of Marine Biology, majoring in marine biology.
- **Course list and changes since last review, including new and revised courses:** All Biology course outlines (including anatomy & physiology) and student learning outcomes have been updated in 2014-2015. BI111 Marine Habitats of the Oregon Coast has been changed from its pilot-status number of BI199 because the pilot has been offered for three terms. These biology and anatomy & physiology course outlines will now be placed on a regular, four-year, full rotation update.
- **Career Pathway/Program of Study Efforts:** N/A
- **Delivery Methods/Instructional Methodology:** Traditional instruction is supplemented with hybrid online resources and curriculum and with face-to-face lectures and lab instruction, practice, and assessments. Online instruction also includes online lectures with lab instruction, practice, and assessments.

The only online biology courses offered are BI 101, 102, 103, 149. A comparison of 2014-2015 biology face-to-face and online courses reveals that out of 446 students, 186 (42%) took face-to-face biology classes while 260 (58%) took online biology courses. The completion rate for face-to-face classes is 86.55%, and the completion rate for the online classes is 78.85%

- **Articulation/Transferability:** In the past, SWOCC biology courses have not been recently reviewed to verify alignment with Oregon universities. This review needs to occur as well as the discussion to convert BI 101/102/103, BI 201/202/203, and BI 231/232/233 to 5-credit courses rather than the current 4-credit courses.
- **Dual Credit offerings:** Currently SWOCC has BI 101/102/103; BI 111, 142; GS 108 dual credit articulation agreements with North Bend High School, Myrtle Point High School, and Brookings Harbor High School. Bob Fields is the Biology dual credit mentor and has worked with three high school faculty.

- **Course scheduling issues:** Biology course scheduling is complex because of competing science lab availability, one full-time biology instructor's full schedule, Related to scheduling is the difficulty of incorporating effective biology labs into online courses.
- **Instructional Materials (textbook, software issues):** The full-time biology instructor selects the BI 101/102/103 textbooks used by both full- and part-time biology instructors—this allows for more consistent instruction. The full-time biology instructor coordinates and supervises the development of online biology courses. The textbooks are available in the College Bookstore and from online sources, and are generally easily and readily available for students.

Students

- **Special Populations:** The biology program special populations include Forestry and Marine Biology which require BI 201/202/203, and first-year Nursing requires BI 149 Introduction to Human Genetics. The genetics classes have been designed principally to be online courses to accommodate nursing students' complex schedules. The anatomy & physiology program special population includes EMT-Paramedic and Nursing.
- **Recruitment:** The biology program and the anatomy & physiology program do not actively recruit.
- **Advising:** To facilitate accurate advising, the Biology program needs advising sheets for Marine Biology. It would also be helpful to develop advising guides to determine appropriate placements into BI 101/102/103 or BI 201/202/203.
- **Student Satisfaction:** Evaluations of a full-time professor who teaches classes in the biology program have been exceptional, with an average score of 4.6 out of 5 on evaluations for nine separate biology courses (including some online courses) over two terms. Part-time faculty evaluations are conducted on a regular basis. Evaluations of a full-time professor who teaches classes in the anatomy & physiology program have an average score of 4.15 out of 5 on four sections.
- **Student Assessment Methods:** Student learning outcomes for biology courses are assessed through lecture and reading quizzes, study guide homework assignments, projects, lab exercises, lab reports, unit exams, final exams,

Facilities/Budget

- **Budget Changes over past 4 years:** The combined science budget has had an increase of 1.7% between the years 2009-2013. The year 2011 shows a significant 13.6% increase in the science budget, but it has steadily decreased the next in 2012 and 2013. We still haven't been able to determine the reason for that increase other than possible faculty salary adjustments.
- **Instructional Materials (software, supplies, etc.):** The biology program in the last few years has acquired the following materials: 14 dissecting scopes, 2 storage cabinets, 4 physiographs, 5 iPads, and anatomical models (brain, skeleton, bone box, larynx, skulls). Through grants we have purchased new tables and chairs for the science lecture room Coaledo 3. Also incorporated into the classroom are 7 wall-mounted computers, projectors, and white boards with 25 electronic tablets for interactive collaborative learning stations.
- **Equipment lists and needs:** Anticipate future needs of the health/science building and program growth.
- **Facilities lists and needs:** Anticipate future needs of the health/science building and program growth.
- **Student fees; N/A**

Progress of Planned Projects

- Describe progress made for each project activities planned for prior year.

NOT REQUIRED FOR 2013-2014 PROGRAM REVIEW

PART B: Program Outcomes Data Review

Student Learning Outcomes - Measures – Criteria

Outcome 1	Measureable Criteria	Measurement Tool	Courses	Time Frame	
Apply foundational knowledge and models of a natural or physical science to analyze and/or predict phenomena.	All students will be able to correctly answer test questions they answered previously on homework.	Test Question: Draw and explain how the chemical structure of water molecules results in the physical property of water as a polar solvent.	BI 201	Fall 2015	Fall 2015
<p>Results: Total number of students = 47. On the exam, 18 students correctly incorporated a diagram of the water molecule with charge distribution, as well as a verbal explanation of the hydration of an ionic compound (or other polar molecule) and its solubility.</p> <p>15 students received partial credit, because either their diagram or explanations were incomplete. 13 students received no credit; only 2 of those ventured no guess at all.</p> <p>Analysis: The question is included on the first homework (a pre-lecture assignment). Students submit homework answers, and during lecture the homework question and appropriate response is discussed. (Quality of answers on homework turned in by students is highly variable.) Test results show the current strategy does not prepare all students to provide a complete diagram and explanation.</p> <p>Plan: After homework is collected, I will make copies of the most complete student responses, in an effort to model the depth of understanding necessary to learn and then explain the ideas.</p>					

Outcome 1	Measureable Criteria	Measurement Tool	Courses	Time Frame
Apply foundational knowledge and models of a natural or physical science to analyze and/or predict phenomena.	70% of students will correctly structure physiological responses from a clinical case and present it in flow chart form as part of a group project.	Clinical Cases Project flow chart creation for Cases 1 and 2	BI 233	Summer 2015

Results: 14 students in five separate groups provided flow charts of the abnormal signs and symptoms that were in presented in a simulation case of a patient. All five groups (14 students) submitted flow charts that had some correct connections of physiologic response as part of the flow chart. 100% of the students submitted flow charts with some correct concepts.

Analysis: Although this standard of “some correct concepts” may seem too easy, this is a skill that very few lay people would be able to accomplish and most students in the A&P sequence have to develop their understanding of cause and effect, human anatomy and physiology, and how to precisely communicate this complex information in order to be successful.

Plan: Continue the preparatory and developmental flow chart activities in BI 231 and BI 232 (prerequisite courses) to further develop this skill. Also, develop a rubric that will guide students in assessment of the quality of flow charts.

Outcome 2	Measureable Criteria	Measurement Tool	Courses	Time Frame
Understand the scientific method and apply scientific reasoning to critically evaluate arguments.	70% of students will submit a research project that contains statistical analysis of their student conducted research.	The correct usage of mathematical mean, standard deviation, and p-value to evaluate research data. This will be presented in the poster created to summarize the student research project.	BI 232	Summer 2015

Results: 14 students in 4 separate groups conducted research, analyzed it and presented it as a scientific poster. The scientific poster included an analysis of data with mathematical mean, standard deviation, and p-value as part calculated and discussed. All groups calculated the data correctly and presented it correctly in their project.

Analysis: Statistical evaluation of numerical data, along with validity assessment, requires a higher level learning approach (Bloom's) which is important to develop as students progress towards their upper division coursework and/or allied health program training.

Plan: Continue to instruct students on data analysis and reflection on the level of confidence that the data supports the hypothesis. A rubric to guide student assessment might continue to improve this skill so that students can be expected to perform this function in additional situations.

Outcome 3	Measureable Criteria	Measurement Tool	Courses	Time Frame
Interpret and communicate scientific information via written, spoken, and/or visual representations.	85% of students will participate in creating an illustration, creating a group presentation, and presenting it.	Lab 1 system presentation	BI 231	Fall 2015

Outcome 3	Measureable Criteria	Measurement Tool	Courses	Time Frame
Interpret and communicate scientific information via written, spoken, and/or visual representations.	Each laboratory group (up to four students) will complete and <u>explain</u> large diagrams of the structures and biochemical pathways of photosynthesis.	Instructor engages each group in discussion of steps in the light-dependent and light-independent reactions of photosynthesis.	BI 101, BI 201	Fall 2015

Results: All groups are able to construct the diagrams, and to learn parts of the processes. Successful students assist others in peer-to-peer learning. Only about half of students are able to successfully translate their experience into detailed explanations.

Analysis: The most common error (or obstacle) for students is copying diagrams directly from the text without comprehension or analysis.

Plan: This exercise works best for the students who are already very successful. The peer to peer discussion helps them reinforce their own understanding. However, underprepared students tend to learn or memorize facts without understanding.

To improve the efficacy of the students' discussion, some leading questions will be prepared prior to the exercise as a pre-lab exercise.

The next step is to expand this analysis to include performance on related exam questions.

Outcome 3	Measureable Criteria	Measurement Tool	Courses	Time Frame
Interpret and communicate scientific information via written, spoken, and/or visual representations.	85% of students will participate in creating an illustration, creating a group presentation, and presenting it.	Lab 1 system presentation	BI 231	Fall 2015

Results: 34 of 34 students in two sections of BI 231 created and gave a short presentation regarding anatomy and physiology of a selected system.

Analysis: Although this is a more of a formative assessment, students who start the term creating and giving presentations are more likely to fully participate in group work throughout the rest of the year of study.

Plan: Continue to implement student-lead learning projects in lecture and in lab. Continue to reinforce participation guidelines and quality guidelines so they can monitor their development of this skill.

Outcome 4	Measureable Criteria	Measurement Tool	Courses	Time Frame
Describe the relevance of specific scientific principles to the human experience.				

Results:

Analysis:

Plan:

Outcome 5	Measureable Criteria	Measurement Tool	Courses	Time Frame
Form and test a hypothesis in the laboratory or field using discipline-specific tools and techniques for data collection and/or analysis.	All lab groups (up to 4 students) will design a plausible experiment to test the effect of concentration of acid on activity of an enzyme, and draw conclusions from the data. .	Laboratory exercise on enzyme/substrate interaction and graphing of results.	BI 201, BI 101	Fall 2015

Results: Year to year only about 50% of students are able to design the experiment and communicate results graphically on their first try.

Analysis: We have a pre-lab discussion of enzymes and their activity under different reaction conditions, and students are led through set-up of control experiments.

For the activity on which the current outcome is being measured, students are asked to apply the learned methods and appropriate logic to design an experiment to test the effect of acid on reaction rate and explain the results graphically.

The most commonly observed mistakes are:

1. Misunderstanding the quantity of acid (number of drops of vinegar) vs. the pH scale.
2. Confusion about the laboratory apparatus.
3. Difficulty in drawing a graph and drawing conclusions.

Plan: The best course of action is to isolate this activity and model the process of using results to draw conclusions. It is clear that I need to develop strategies to reinforce the logical sequence used in science.

PART C: Program Operational Data Review

I Enrollments

Exhibit I.A: Total Enrollments – Program

Exhibit I.B: Number of Students in Major, if applicable

Exhibit I.C: Student Demographics (optional)

- **Analysis:** *Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps*

The total enrollments in the overall biology program have decreased on average 3.3%. All science programs have increased slightly .25% over five years. However, the general biology program has increased .74% over five years while anatomy & physiology has decreased annually 7.98% over five years. The highest enrollment year is 2010-2011.

The average annual science enrollment for the last five years is 1917 students; the average annual overall biology enrollment for the last five years is 932 students; the average annual biology enrollment for the last five years is 658 students; and the average annual anatomy & physiology enrollment for the last five years is 243 students. The year 2010 has the highest enrolled students with 2040 sciences students, 676 biology students, and 281 anatomy & physiology students. The year 2013 has the lowest enrolled students with 1785 total science students and 184 anatomy & physiology students. Biology student enrollments dropped only 2% between 2010 and 2013; Anatomy & physiology students decreased 35% between the same period. (The 2014 year shows promise with increased enrollments: biology enrollments are at 729 students which shows an 8% increase since the 2010 high while anatomy & physiology enrollments with 210 students remains 25% lower than the 2010 high).

Both the biology and the anatomy & physiology programs make up 49% of science enrollments. The overall biology enrollments consists of 73% biology students and 27% anatomy & physiology students.

- **Plan:** *Respond to the data evidence – how will the data results be utilized to enhance and improve program enrollments, list specific planned projects*
 1. Continue to identify and implement retention strategies to reach full course capacity.
 2. Continue to develop curriculum and recruit for AS Marine Biology Emphasis.

II. Financial Viability

Exhibit II.A: Student FTE

Exhibit II.B: Billing Credits

Exhibit II.C: Cost / FTE

- **Analysis:** *Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps*
FTE and billing responds directly to enrollment in science classes. The science budgets are complicated. For instance half of a biology instructor's salary is paid through general science. General sciences classes are taught in physics, chemistry, geology, and biology with a limited budget supplemented through other science budgets. Physics does not have a full-time physics instructor; rather a full-time mathematics instructor and part-time instructors teach physics. Although microbiology is listed as a biology class, the instructor and budget come from chemistry. There is not a clear demarcation of budget. For that reason, the data for the financial viability includes the actual budgets for biology, chemistry, general science, geology, and physics.

The average science annual student FTE is 219.23 with overall biology average annual student FTE at 116.02. The average annual biology student FTE is 79.09 (70% of overall biology), and the average annual anatomy & physiology student FTE is 32.5 (29% of overall biology). Just as the year 2010 had the highest student enrollments, the year 2010 also had the highest student FTE: science has 233.69 student FTE, biology has 80.02 student FTE, and anatomy & physiology has 37.6 student FTE. The student FTE between the high 2010 year and the low 2013 year shows that biology student FTE increased by .53 while for anatomy & physiology the student FTE dropped by 13.08.

The annual average science annual billing credits is 6294.8 with overall biology annual billing credits at 3332.6. The average biology annual billing credit is 2238.8 (70% of overall biology), and the average anatomy & physiology annual billing credit is 969.6 (30% of overall biology). Again, 2010 is the year of the most billing credits: science at 6778 billing credits, biology at 2389 billing credits, and anatomy & physiology at 1124 billing credits. The year 2013 reflects the low levels of billing credits: science at 5734 billing credits, biology at 2001 billing credits, and anatomy & physiology at 736 billing credits.

- **Plan:** *Respond to the data evidence – how will the data results be utilized to enhance and improve the financial viability of the program, list specific planned projects*
 - 1.
 - 2.

III. Efficiency of Delivery

Exhibit III.A: Average Class Enrollments

Exhibit III.B: Student FTE to Faculty FTE Ratio (1 Faculty FTE = 45 Workload Credits)

Exhibit III.C: Course Capacity Percentage (section enrollment is what percent of section capacity)

- **Analysis:** *Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps.* Average class enrollments for all science classes are 16.35 students per class. Biology class average enrollments are at 18.26 students, nearly 2 more (1.92) students per class than the average science class (an 11.7% increase in students per class). Anatomy & physiology class average enrollments are at 13.32 students, nearly 3 fewer (3.03) students per class than the average science class (an 18.5% decrease in students per class).

Average student FTE to faculty FTE ratio for all science classes is 30.44. Biology average student FTE to faculty FTE ratio is 27.5. Anatomy & physiology average student FTE to faculty FTE ratio is 23.94.

Average course capacity (fill rate) for all science classes is 63.4%. Biology average course capacity is 71.6%. Anatomy & physiology course capacity (fill rate) is 65.8%.

- **Plan:** *Respond to the data evidence – how will the data results be utilized to enhance the efficiency of delivery associated with the program, list specific planned projects*
 - 1.
 - 2.

IV. Instructional Effectiveness

Exhibit IV.A: Course Retention – completion rate

- **Analysis:** *Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps*
Average course retention-completion rate for all science is 78%. Biology average course retention-completion rate is 80.4%. Anatomy & physiology retention-completion rate is 80.2%.
- **Plan:** *Respond to the data evidence – how will the data results be utilized to enhance and improve instructional effectiveness of the program, list specific planned projects*
 - 1.
 - 2.

V. Program Student Success

~~Exhibit V.A:~~ Program Persistence from Persistence Report (being developed)

~~Exhibit V.B:~~ Program Completers (Graduated) (unduplicated student count)

~~Exhibit V.C:~~ Program Awards (all certificates and degree, duplicated)

~~Exhibit V.D:~~ Transfer Rate (student who did not graduate yet transferred) from Transfer Report (being developed)

~~Exhibit V.E:~~ Transfer Figures from Transfer Report (being developed)

- **Analysis:** Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps
N/A
- **Plan:** Respond to the data evidence – how will the data results be utilized to enhance students success within the program, list specific planned projects
N/A

VI. Program Relevance

Exhibit II.A: OLMIS Reports Demonstrate Employment Opportunities - **OLMIS DATA:** <http://www.qualityinfo.org/olmisj/OlmisZine>

Exhibit II.B: Advisory Committee Recommendations

- **Analysis:** Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps
OLMIS is not applicable.
- **Plan:** Respond to the data evidence – how will the data results be utilized to ensure program relevance of the program, list specific planned projects
 - 1.
 - 2.

VII. Graduate Student Success: Oregon 4 Year Completion Data, Wage Match Data, Placement

Exhibit VI.A: 4 Year Achievement (if available)

Exhibit VI.B: Wage Information (if available)

Exhibit VI.C: Placement Rates (if available)

- **Analysis:** *Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps*
- **Plan:** *Respond to the data evidence – how will the data results be utilized to enhance and improve graduate student success within the program, list specific planned projects*

PART D: Systemic Program Review

Systemic Program Enhancements and Projects Not Addressed in Program Outcomes or Operational Data Analysis Data

Address systemic issues:

Proposed Systemic Project(s): Research and investigate alternative strategies and make appropriate changes.

Systemic Program Viability Analysis

- **Program Demand:** Review of overall 4-year trend of enrollments in discipline courses 15.02%

Science .25%

>10 Growing Strong (20 pt.)
 5-10% Growing (17 pt.)
 0-5% Maintaining (14 pt.)
 5-0% Dropping (10 pt.)
<-5% ??? (5 pt.)

Biology .74%

>10 Growing Strong (20 pt.)
 5-10% Growing (17 pt.)
 0-5% Maintaining (14 pt.)
 5-0% Dropping (10 pt.)
<-5% ??? (5 pt.)

Anatomy & Physiology -7.98%

>10 Growing Strong (20 pt.)
 5-10% Growing (17 pt.)
 0-5% Maintaining (14 pt.)
 5-0% Dropping (10 pt.)
 <-5% ??? (5 pt.)

- **Program Outcomes Assessment:**

Assessment Category	No Evidence (1 pt.)	In Development <30% (2 pt.)	Implemented in Some Areas 30-80% (3 pt.)	Fully Implemented 81-100% (4 pt.)	TOTAL SCORE
Science					
Development of course outcomes				x	4
Mapping course to program outcomes				x	4
Multiple Assessment measures documented and mapped to program outcomes			x		3
Course Assessment data collected and analyzed			x		3
Assessment Data used to improve course teaching / learning and is documented			x		3
Total					17

Assessment Category	No Evidence (1 pt.)	In Development <30% (2 pt.)	Implemented in Some Areas 30-80% (3 pt.)	Fully Implemented 81-100% (4 pt.)	TOTAL SCORE
Biology					
Development of course outcomes				x	4
Mapping course to program outcomes				x	4
Multiple Assessment measures documented and mapped to program outcomes				x	4
Course Assessment data collected and analyzed				x	4
Assessment Data used to improve course teaching / learning and is documented			x		3
Total					19

Assessment Category	No Evidence (1 pt.)	In Development <30% (2 pt.)	Implemented in Some Areas 30-80% (3 pt.)	Fully Implemented 81-100% (4 pt.)	TOTAL SCORE
Anatomy & Physiology					
Development of course outcomes				x	4
Mapping course to program outcomes				x	4
Multiple Assessment measures documented and mapped to program outcomes				x	4
Course Assessment data collected and analyzed				x	4
Assessment Data used to improve course teaching / learning and is documented			x		3
Total					19

- **Program Size:** Review of unduplicated student FTE (all terms) in discipline courses in prior year

Science 219.23

>50 FTE (20 pt.)

30-50 FTE (17 pt.)

20-30 FTE (14 pt.)

15-20 FTE (10 pt.)

10-14 FTE (7 pt.)

<10 FTE (5 pt.)

Biology 79.09

>50 FTE (20 pt.)

30-50 FTE (17 pt.)

20-30 FTE (14 pt.)

15-20 FTE (10 pt.)

10-14 FTE (7 pt.)

<10 FTE (5 pt.)

Anatomy & Physiology 32.5

>50 FTE (20 pt.)

30-50 FTE (17 pt.)

20-30 FTE (14 pt.)

15-20 FTE (10 pt.)

10-14 FTE (7 pt.)

<10 FTE (5 pt.)

- **Proposed Productivity:** Percent of students in all discipline classes for a year that earned C or better compared to number of students enrolled in same classes at end of second week

Science 78%

>95% (20 pt.)

90-95% Growing (18 pt.)

80-90% Maintaining (16 pt.)

70-80% Dropping (14 pt.)

60-70% (10 pt.)

<10% (5 pt.)

Biology 80.4%

>95% (20 pt.)

90-95% Growing (18 pt.)

80-90% Maintaining (16 pt.)

70-80% Dropping (14 pt.)

60-70% (10 pt.)

<10% (5 pt.)

Anatomy & Physiology 80.2%

>95% (20 pt.)

90-95% Growing (18 pt.)

80-90% Maintaining (16 pt.)

70-80% Dropping (14 pt.)

60-70% (10 pt.)

<10% (5 pt.)

- **Program Cost:** Cost of program per student FTE in prior year

Science \$2191.45

< \$1000/FTE (20 pt.)

\$1-2000/FTE (17 pt.)

\$2-3000/FTE (14 pt.)

\$3-4000/FTE (10 pt.)

\$>4000/FTE (5 pt.)

Biology \$2191.45

< \$1000/FTE (20 pt.)

\$1-2000/FTE (17 pt.)

\$2-3000/FTE (14 pt.)

\$3-4000/FTE (10 pt.)

\$>4000/FTE (5 pt.)

Anatomy & Physiology \$2919.45

< \$1000/FTE (20 pt.)

\$1-2000/FTE (17 pt.)

\$2-3000/FTE (14 pt.)

\$3-4000/FTE (10 pt.)

\$>4000/FTE (5 pt.)

- **OVERALL PROGRAM VIABILITY SCORE:**

Science 73

Biology 75

Anatomy & Physiology 69

PART E: Program Project Timeline – All Projects

Activity Timeline that includes core theme association, staff lead responsibility, start and projected end dates, association with other planning activities (academic master plan, technology plan, facilities plan), association with instructional projects.

Project	Person Responsible	Activity Year	Budget Request (for 2015 activities only)	Core Theme/ Objective	Associated Plans	Associated Projects
1. Microscope Repairs and Updates	D. Brouse	2015-2016	\$5302.50	Learning & Achievement	AMP	
2. Human Anatomy and Physiology Society Conference	D. Brouse	2015-2016	\$1847.00	Learning & Achievement	AMP	
3. Microbe identification equipment	D. Brouse	2016-2017	\$4152.50	Learning & Achievement	AMP	
4.						
5.						
6.						
7.						
8.						

Southwestern Oregon Community College does not discriminate on the basis of race, color, gender, sexual orientation, marital status, religion, national origin, age, disability status, gender identity, or protected veterans in employment, education, or activities as set forth in compliance with federal and state statutes and regulations.

Science Program Operational Data

Grades: No Q, No X

Discipline: BI, CHEM, G, GS, PH

Subjects: BI, CHEM, G, GS, PH

Other Criteria: **XXXX**

PART C: Program Operational Data Review

Base Criteria: Activity codes- LDC

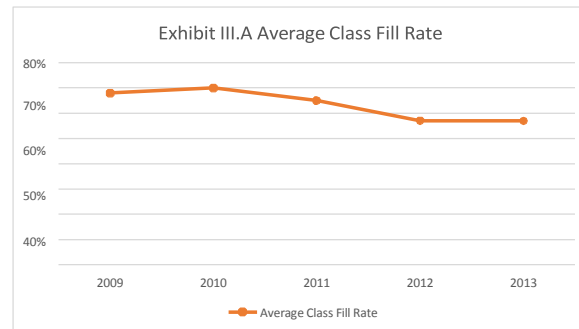
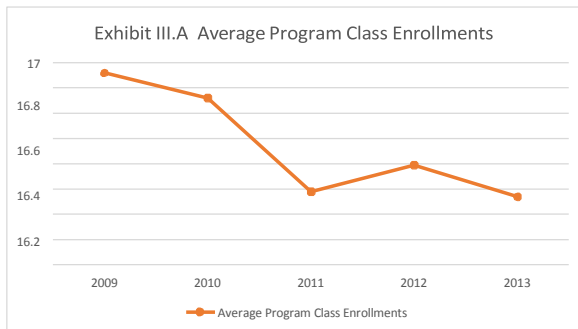
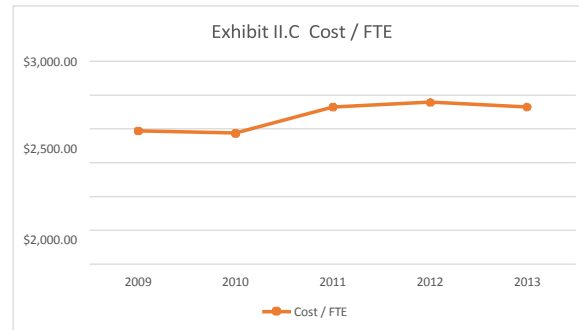
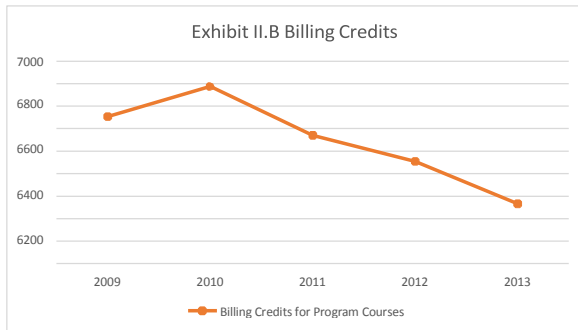
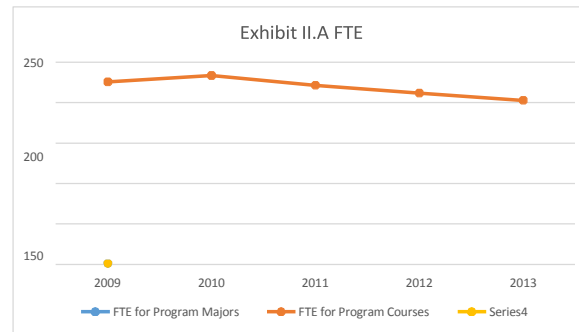
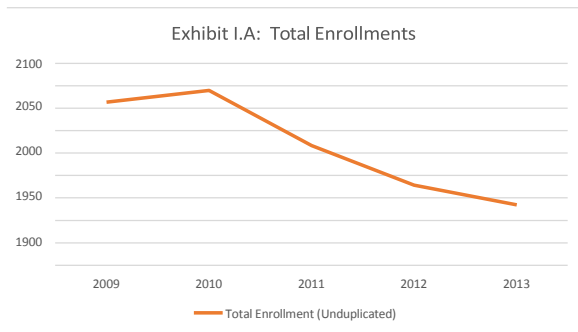
I Enrollments	Source*	2009	2010	2011	2012	2013
Exhibit I.A: Total Enrollments (all terms)	CER	2014	2040	1917	1829	1785
II. Financial Viability		2009	2010	2011	2012	2013
Exhibit II.A: FTE						
Exhibit II.A: FTE for program courses	CER	225.82	233.69	221.51	212.16	202.97
Exhibit II.B: Billing Credits						
Exhibit II.B: Billing Credits for program courses	CER	6510	6778	6342	6110	5734
Exhibit II.C: Cost / FTE						
Actuals: Cost for GL Unit XXXX (including FT and PT Faculty)	<i>Budget</i>	\$445,611.00	\$453,091.00	\$514,781.00	\$508,591.00	\$471,687.00
Student FTE (from II.A above)	<i>II.A</i>	225.82	233.69	221.51	212.16	202.97
Calculated Cost per Student FTE	<i>Calculated</i>	\$1,973.30	\$1,938.85	\$2,323.96	\$2,397.20	\$2,323.92
III. Efficiency of Delivery		2009	2010	2011	2012	2013
Exhibit III.A: Course Enrollments						
Average Class Enrollments	CER	16.92	16.72	15.98	16.19	15.94
Fill rate	CER	68%	70%	65%	57%	57%
Exhibit III.B: Student FTE to Faculty FTE Ratio						
Student FTE for Program Courses (II.A above)	<i>II.A</i>	225.82	233.69	221.51	212.16	202.97
Faculty FTE (FT and PT Faculty)	<i>Deans</i>	7.46	6.99	7.21	7.36	7.01
Calculated: Student FTE / Faculty FTE	<i>Calculated</i>	30.27	33.43	30.72	28.83	28.95
IV. Instructional Effectiveness		2009	2010	2011	2012	2013
Exhibit IV.A: Course Retention – completion rate	CCR	78%	79%	77%	80%	76%

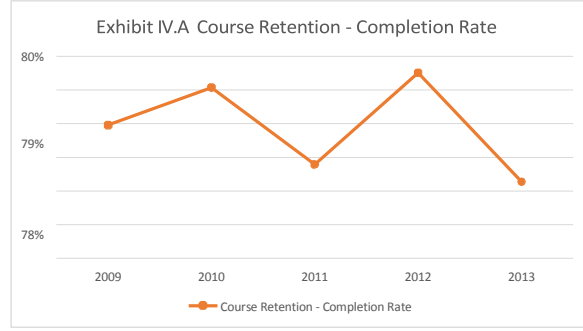
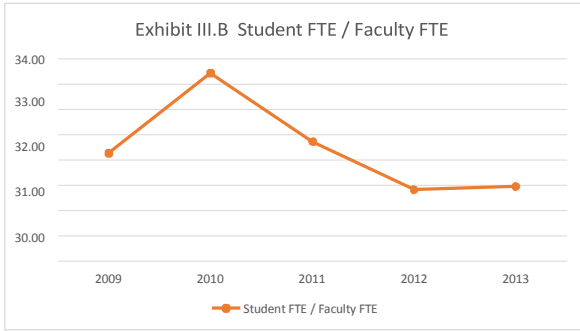
*SourceLegend

CER = Course Enrollment Report
 CCR = Course Completion Report
 GBM = Graduates by Major Report
 SER = Student Enrollment Report
 Calculated = Calculated by Excel

Average total enrollments	1917
Average enrollment changes	0.25%
Average student FTE	219.23
Average billing credits	6294.8
Average student/faculty FTE	23.94
Average class enrollment	16.35
Average fill rate	63.40%
Average retention-completion	78%
Average cost per student	\$2,191.45

Science Program Operational Data





All Biology Program Operational Data

Grades: No Q, No X

Discipline: BI

Subjects: BI

Other Criteria: **XXXX**

PART C: Program Operational Data Review

Base Criteria: Activity codes- LDC

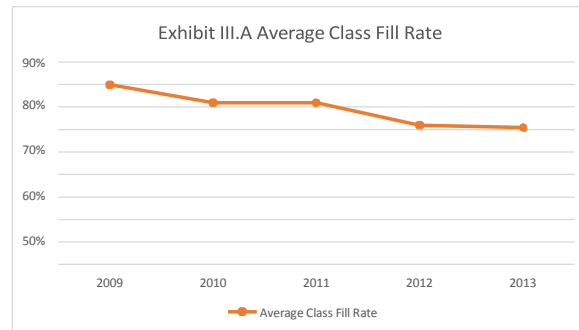
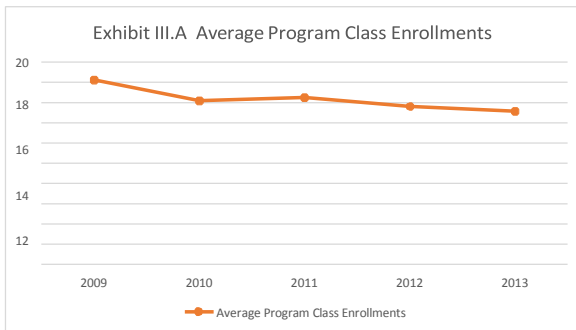
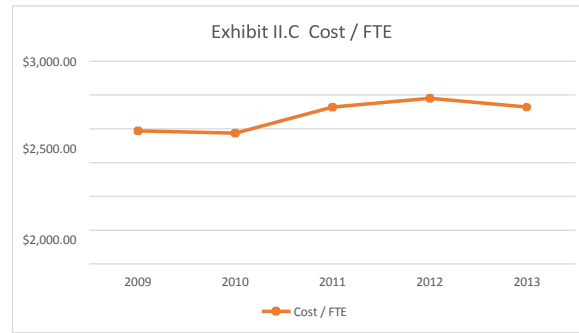
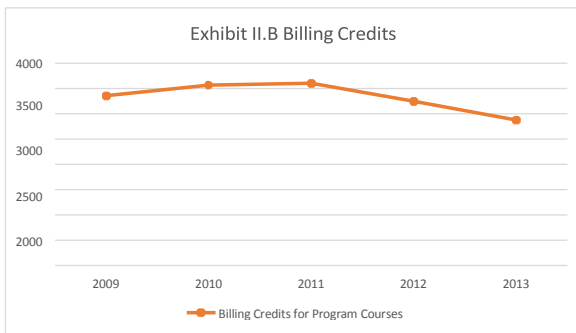
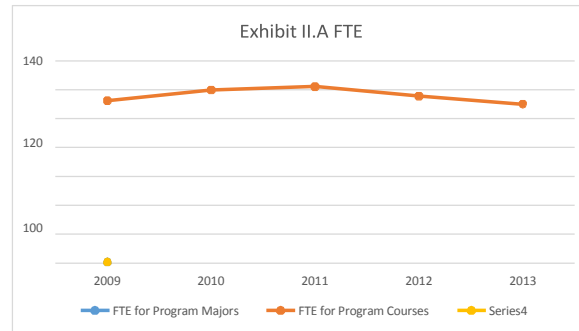
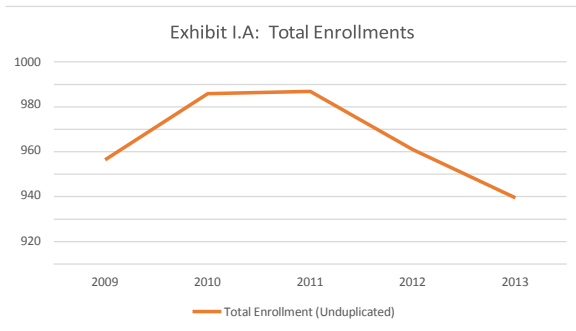
I Enrollments	Source*	2009	2010	2011	2012	2013
Exhibit I.A: Total Enrollments (all terms)	CER	913	972	974	922	879
II. Financial Viability		2009	2010	2011	2012	2013
Exhibit II.A: FTE						
Exhibit II.A: FTE for program courses	CER	112.38	119.84	122.28	115.65	109.98
Exhibit II.B: Billing Credits						
Exhibit II.B: Billing Credits for program courses	CER	3361	3570	3605	3250	2877
Exhibit II.C: Cost / FTE						
Actuals: Cost for GL Unit XXXX (including FT and PT Faculty)	<i>Budget</i>	\$445,611.00	\$453,091.00	\$514,781.00	\$508,591.00	\$471,688.60
Student FTE (from II.A above)	<i>II.A</i>	225.82	233.71	221.51	207.16	202.97
Calculated Cost per Student FTE	<i>Calculated</i>	\$1,973.30	\$1,938.69	\$2,323.96	\$2,455.06	\$2,323.93
III. Efficiency of Delivery		2009	2010	2011	2012	2013
Exhibit III.A: Course Enrollments						
Average Class Enrollments	CER	18.26	16.2	16.51	15.63	15.16
Fill rate	CER	80%	72%	72%	62%	61%
Exhibit III.B: Student FTE to Faculty FTE Ratio						
Student FTE for Program Courses (II.A above)	<i>II.A</i>	112.38	119.84	122.28	115.65	109.98
Faculty FTE (FT and PT Faculty)	<i>Deans</i>	4.14	4.1	4.3	4.25	4.32
Calculated: Student FTE / Faculty FTE	<i>Calculated</i>	27.14	29.23	28.44	27.21	25.46
IV. Instructional Effectiveness		2009	2010	2011	2012	2013
Exhibit IV.A: Course Retention – completion rate	CCR	85%	86%	87%	86%	87%

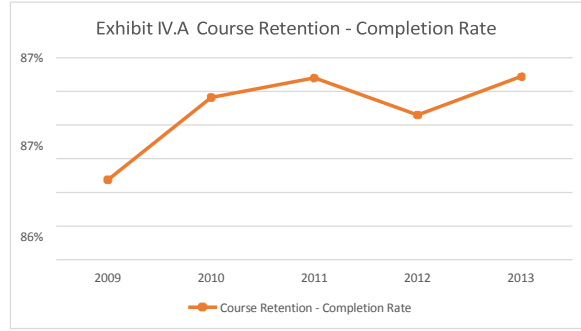
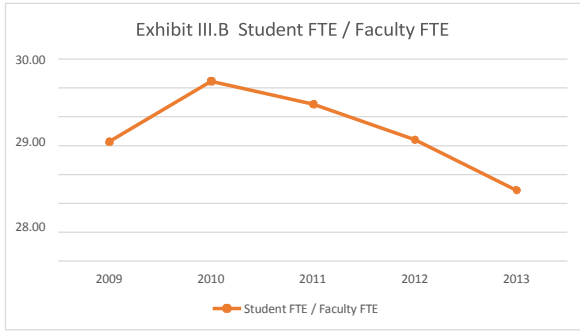
*Source Legend

CER = Course Enrollment Report
 CCR = Course Completion Report
 GBM = Graduates by Major Report
 SER = Student Enrollment Report
 Calculated = Calculated by Excel

Average total enrollments	932
Average enrollment changes	-3.30%
Average student FTE	116.02
Average billing credits	3332.6
Average student/faculty FTE	27.5
Average class enrollment	16.35%
Average fill rate	69.40%
Average retention-completion	86.20%

All Biology Program Operational Data





Biology Program Operational Data

Grades: No Q, No X

Discipline: BI (exclude BI 231, 232, 233, 248) GS 108

Subjects: BI, GS

Other Criteria: **XXXX**

PART C: Program Operational Data Review

Base Criteria: Activity codes- LDC

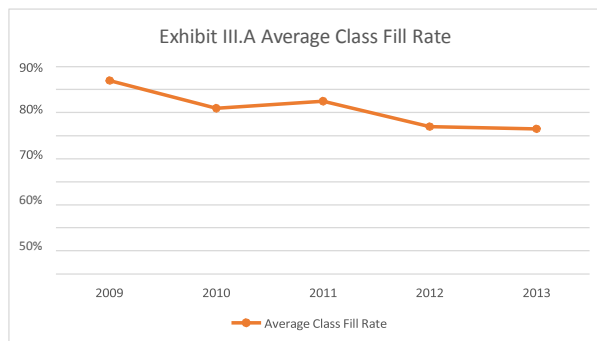
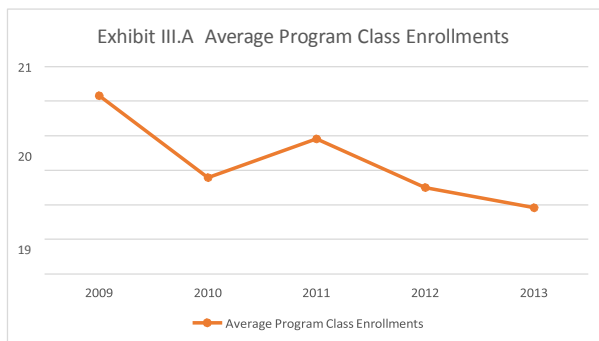
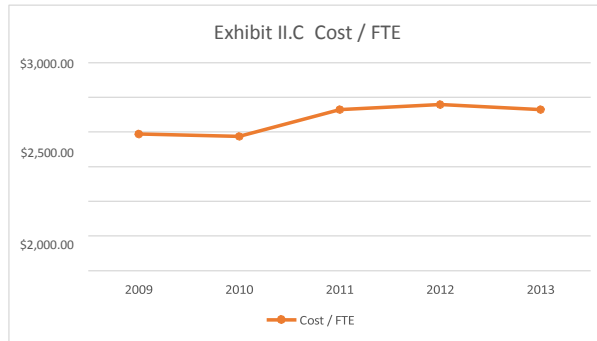
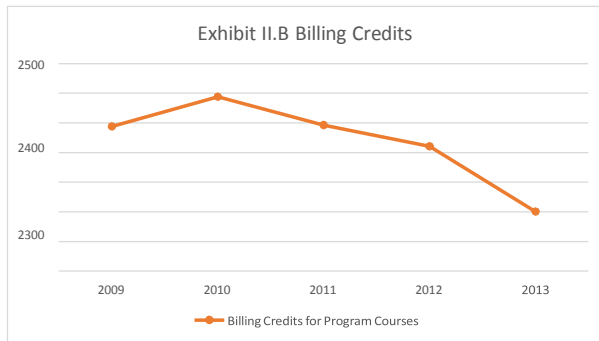
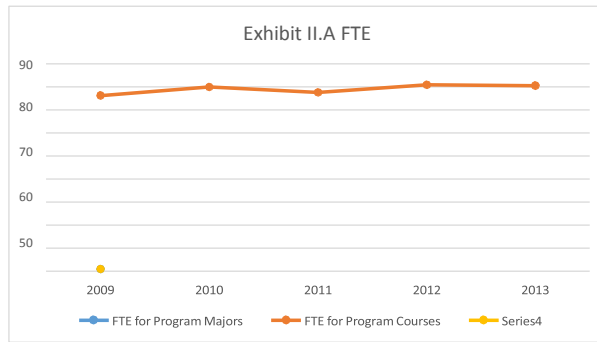
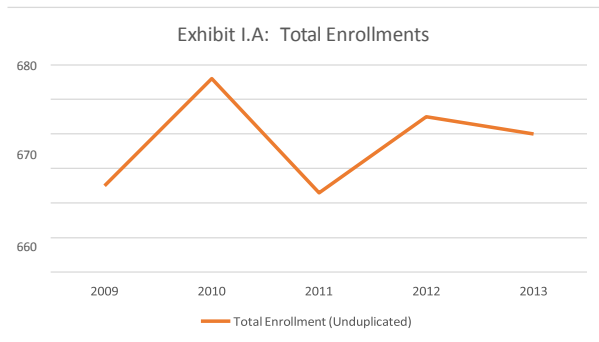
I Enrollments	Source*	2009	2010	2011	2012	2013
Exhibit I.A: Total Enrollments (all terms)	CER	645	676	643	665	660
II. Financial Viability		2009	2010	2011	2012	2013
Exhibit II.A: FTE						
Exhibit II.A: FTE for program courses	CER	76.27	80.02	77.7	80.93	80.55
Exhibit II.B: Billing Credits						
Exhibit II.B: Billing Credits for program courses	CER	2289	2389	2293	2222	2001
Exhibit II.C: Cost / FTE						
Actuals: Cost for GL Unit XXXX (including FT and PT Faculty)	<i>Budget</i>	\$445,611.00	\$453,091.00	\$514,781.00	\$508,591.00	\$471,687.00
Student FTE (from II.A above)	<i>II.A</i>	225.82	233.69	221.51	212.16	202.97
Calculated Cost per Student FTE	<i>Calculated</i>	\$1,973.30	\$1,938.85	\$2,323.96	\$2,397.20	\$2,323.92
III. Efficiency of Delivery		2009	2010	2011	2012	2013
Exhibit III.A: Course Enrollments						
Average Class Enrollments	CER	20.16	17.79	18.91	17.5	16.92
Fill rate	CER	84%	72%	75%	64%	63%
Exhibit III.B: Student FTE to Faculty FTE Ratio						
Student FTE for Program Courses (II.A above)	<i>II.A</i>	76.27	80.02	77.70	80.93	80.55
Faculty FTE (FT and PT Faculty)	<i>Deans</i>	2.58	2.59	2.85	3.02	2.52
Calculated: Student FTE / Faculty FTE	<i>Calculated</i>	29.56	30.90	27.26	26.80	31.96
IV. Instructional Effectiveness		2009	2010	2011	2012	2013
Exhibit IV.A: Course Retention – completion rate	CCR	79%	81%	80%	81%	81%

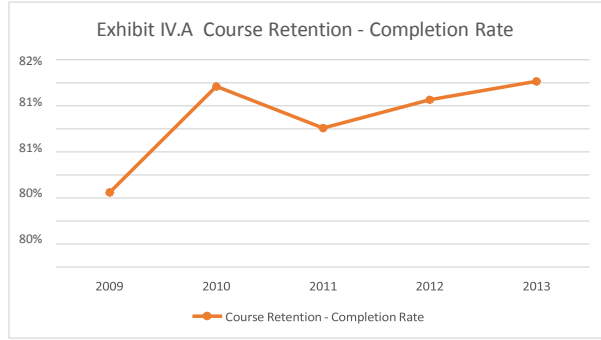
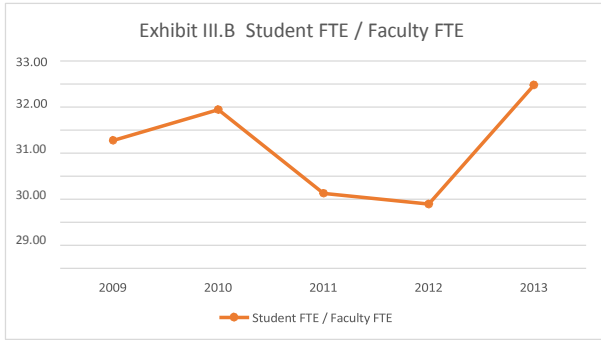
*Source Legend

CER = Course Enrollment Report
 CCR = Course Completion Report
 GBM = Graduates by Major Report
 SER = Student Enrollment Report
 Calculated = Calculated by Excel

Average total enrollments	658
Average enrollment changes	0.74%
Average student FTE	79.09
Average billing credits	2238.8
Average student/faculty FTE	29.3
Average class enrollment	18.26
Average fill rate	71.60%
Average retention-completion	80.40%

Biology Program Operational Data





Anatomy and Physiology Program Operational Data

Grades: No Q, No X

Discipline: BI 231, 232, 233

Subjects: BI

Other Criteria: **XXXX**

PART C: Program Operational Data Review

Base Criteria: Activity codes- LDC

I Enrollments	Source*	2009	2010	2011	2012	2013
Exhibit I.A: Total Enrollments (all terms)	CER	263	281	271	216	184
II. Financial Viability		2009	2010	2011	2012	2013
Exhibit II.A: FTE						
Exhibit II.A: FTE for program courses	CER	35.21	37.6	36.22	28.93	24.52
Exhibit II.B: Billing Credits						
Exhibit II.B: Billing Credits for program courses	CER	1052	1124	1072	864	736
Exhibit II.C: Cost / FTE						
Actuals: Cost for GL Unit XXXX (including FT and PT Faculty)	<i>Budget</i>	\$445,611.00	\$453,091.00	\$514,781.00	\$508,591.00	\$471,687.00
Student FTE (from II.A above)	<i>II.A</i>	225.82	233.69	221.51	212.16	202.97
Calculated Cost per Student FTE	<i>Calculated</i>	\$1,973.30	\$1,938.85	\$2,323.96	\$2,397.20	\$2,323.92
III. Efficiency of Delivery		2009	2010	2011	2012	2013
Exhibit III.A: Course Enrollments						
Average Class Enrollments	CER	15.47	14.05	12.9	12.71	11.5
Fill rate	CER	73%	73%	66%	61%	56%
Exhibit III.B: Student FTE to Faculty FTE Ratio						
Student FTE for Program Courses (II.A above)	<i>II.A</i>	35.21	37.60	36.22	28.93	24.52
Faculty FTE (FT and PT Faculty)	<i>Deans</i>	1.24	1.51	1.45	1.23	1.37
Calculated: Student FTE / Faculty FTE	<i>Calculated</i>	28.40	24.90	24.98	23.52	17.90
IV. Instructional Effectiveness		2009	2010	2011	2012	2013
Exhibit IV.A: Course Retention – completion rate	CCR	79%	80%	81%	81%	80%

*Source Legend

CER = Course Enrollment Report
 CCR = Course Completion Report
 GBM = Graduates by Major Report
 SER = Student Enrollment Report
 Calculated = Calculated by Excel

Average total enrollments	243
Average enrollment changes	-7.98%
Average student FTE	32.5
Average billing credits	969.6
Average student/faculty FTE	23.94
Average fill rate	65.80%
Average retention-completion	80.20%
Average class enrollment	13.32

Anatomy and Physiology Program Operational Data

