Biology Department

Program Review Self-Study

2011-2012

Evergreen Valley College

Division of Math, Science and Engineering

"Good teaching is more a giving of right questions than a giving of right answers." *--Josef Albers (1888-1976) German-born American artist and educator*



**EVERGREEN VALLEY COLLEGE**

**DIVISION OF MATH, SCIENCE and ENGINEERING**

**Biology Program Review Self-Study**

CRITERIA 2011-2012

Department/Program Name: Biology

Last Review: 2006

Current Year: 2011-2012

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**Evergreen Valley College’s Mission:**

With equity, opportunity and social justice as our guiding principles, Evergreen Valley College’s mission is to empower and prepare students from diverse backgrounds to succeed academically and to be civically responsible global citizens.

We meet our mission through a wide spectrum of educational experiences, flexible methodologies, and support services for our students.

**Strategic Initiatives**

1. Student-Centered: We provide access to quality and efficient programs and services to ensure student success. Areas of focus are:

* Increase Visibility
* Develop Strategic Partnerships
* Building Campus Community

2. Community Engagement: We create a trusting environment where everyone is valued and empowered. Areas of focus are:

* Student Access: Completion of Educational Goals
* Employee Development
* Transparent Infrastructure

3. Organizational Transformation: We will transform the college image and enhance partnerships with community, business and educational institutions. Areas of focus are:

* Access
* Curriculum and Programs
* Services

**Evergreen Valley College Commitments to Action**

**Student Centered Transformation**

|  |  |  |  |
| --- | --- | --- | --- |
| Vision | Area of Focus | Success Metrics | Commitments to Action |
| *Provide access to quality and efficient programs and services to increase retention and meet student goals.* | **Access** | * Grow enrollment by 5% * Increase community education/distance education offerings by 3% * Increase the number of students from immigrant and underrepresented groups | * Aggressive marketing and outreach to prospective student populations. * Use data from the MAAS report and other institutional data to develop a comprehensive plan to outreach to target student populations. |
| **Curriculum and Programs** | * Expand occupational and vocational program offerings to meet and/or exceed offerings at other local community colleges in the area * Increase the number of CSU/UC articulation agreements to facilitate student transfer to 4-year institutions | * Conduct comprehensive program reviews in every academic area/discipline. * Pursue the development of a University Center on the EVC campus. * Use data from the MAAS report and other institutional data to develop a comprehensive plan to expand academic and vocational course offerings. |
| **Services** | * Increase course completion rate by 10% * Increase degree completion rate by 5% * Increase transfer rates by 5% * Decrease number of students on probation by 10% * Increase retention rates by 10% | * Improve current and develop new intervention programs designed to help students succeed. * Provide students with opportunities to engage in a vibrant and active campus life. (Student who feel connected to the campus are more likely to stay and be retained!) * Use data from the MAAS report and other institutional data to develop a comprehensive plan to expand service offerings. |

**Organizational Transformation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Vision** | **Area of Focus** | **Success Metric** | **Commitment to Action** |
| *Create an environment where people feel empowered* | **Value Diversity** | * Reduce tension between groups (race, gender, faculty, classified) * Use employment engagement survey (2 times – before and after) | 1. Identify and implement new training and development 2. Give sensitivity and cultural training 3. Have cross-cultural celebrations 4. Provide an All-College Hour with cultural program 5. Improve employee relations |
| **Leadership Development & Training  at all Levels** | * Increase key training for  --leadership  --diversity  --technology  by 30% | 1. Implement a leadership program for everyone 2. Gather and analyze data to determine needs for training programs |
| **Transparency and Communication** | * Inform college community of steps in the process by 20% | 1. Make resource allocation & funding processes open 2. Create an employee portal (Intranet viewable on www) 3. Provide resources to revamp college website—ongoing |

**Community Engagement**

|  |  |  |  |
| --- | --- | --- | --- |
| Vision | Area of Focus | Success Metrics | Commitments to Action |
| *Improve marketing & enhance community, business and educational partnerships* | **Bring College to the Community** | Increasing approved offerings:   * *Distance Ed.     25%* * *Offsite by* | 1. 1.Launch offsite class offerings  *(HS, Community Center, etc.)* 2. Train faculty on new WebCT software |
| **Increase Visibility** | Increase Community Participation:   * *Community Events  from*         *To* | 1. Initiate brand campaign 2. Increase EVC’s participation in community events & organizations 3. Hire & train students as EVC ambassadors |
| **Develop Strategic Partnerships** | Create New Joint Ventures:   * 2 major Businesses * 3 K12 Voc Programs * 3 New Transfer Agreements | 1. Develop & execute a Professional Ed Program 2. Initiate 3 New Voc Ed Programs 3. Launch promotional campaign on Transfer Agreements |

**Summary of the Department/Program**

***1. Provide a brief summary of your program.***

The Biology Program began in 1975 with the opening of Evergreen Valley College. Today, we offer a wide range of courses in animal biology, plant biology, human biology, environmental science and oceanography. The staff and faculty in the Biology Program are dedicated to challenging our students with a high quality education. Most of our students are exploring biology for their general education requirements. Many are preparing to enter allied health careers such as nursing and others are planning to major in Biology and transfer to a four year college or university.

***2. How does your program define effectiveness, and what measures have you chosen to gauge it?***

Our department defines effectiveness in terms of the currency and quality of our courses, adequacy of our funding and our equipment. To measure our effectiveness, we look at comparable courses that students can receive at a university level. We also compare our equipment and classroom supplies to see if they adequately support our courses and do we have the budget necessary to support those courses and meet the inflation costs to offer those classes.

All of our courses currently have student learning outcomes.

We measure effectiveness with student retention and success rates and we have maintained a student retention rate of at least 80% and a student success rate of at least 60% from fall 2006 to spring 2011. We also awarded 129 associate degrees since 2008.

Even though we have historically operated with an inadequate budget and a lack of modern equipment, which has been worsened because of recent state budget cuts, our students still compare favorably to the state chancellor’s statistics of retention and success statewide.

***3. Please summarize the results of any measures you have applied. What do these results mean for your program?***

In addition to looking at statistics of retention and success, the assessment of student learning outcomes is beginning spring 2012. The department will continue to assess the learning outcomes and adjust and adapt the courses, curriculum and programs based on our findings.

***4. Where would you like your program to be in three years from now?***

The Biology Program has rapidly grown in course offerings during the past 10 years. Specifically, we offer many more general biology classes than previously. In addition, the number of anatomy and physiology courses has doubled in the past 10 years. Biology classes are expensive to offer with the cost of laboratory equipment and materials. The faculty and staff highly recommend the purchase of replacement/new equipment. We also recommend an additional full-time faculty position to lead the general biology courses and teach human anatomy for pre-nursing students.

In three years we would like to have greater diversity in our course offerings. The first step in this is the development and offering of forensic biology. Another goal is the restoration of the field biology course offerings that because of budget cuts have not been offered for the past 2 years. Multi-year planning would allow us to incorporate a variety of classes and allow students to plan so they know when courses are being offered.

**PART A: Overview of Program**

***1. Identify your program’s Commitments to Action (CTAs) for this year.***

The Biology Department CTA’s are as follows:

|  |  |  |
| --- | --- | --- |
|  | **Student-Centered** |  |
| Area of Focus | Individual Commitments to Action | Metrics |
| Access | Modernize biology laboratory equipment and keep current in technology | Lab techs will give annually updated reports |
| Access | Maintain laboratory equipment in working order | Lab techs will give annually updated reports |
| Access | Update and maintain models and materials | Students and lab techs will inform department of maintenance needs |
| Curriculum and Program Development | Provide Associate of Science transfer to students | Will have transfer ready at end of 2012-13 |
| Curriculum and Program Development | Complete revising of Biology Majors sequence | Finished when approved ACCC |
| Curriculum and Program Development | Work on creating multi-year scheduling for biology | Determined complete by department faculty |
| Student Services Offerings | Increase biology tutors | More tutors will be available, including night |
| Student Services Offerings | Increase hours offered in biology skills lab | Increase in hours for Lab Lead |

|  |  |  |
| --- | --- | --- |
|  | **Community Engagement** |  |
| Area of Focus | Individual Commitments to Action | Metrics |
| Visibility | Publish a brochure for our department | Brochure created by Lisa Hays |
| Visibility | Create a website for EVC Biology | Site will be approved by webmaster |
| Strategic Partnerships | Add service learning projects to courses | Faculty will report back to department |
| Bring the College to the Community | Advertise updated natural science field courses | Flyers, website and brochure |

|  |  |  |
| --- | --- | --- |
|  | **Organizational Transformation** |  |
| Area of Focus | Individual Commitments to Action | Metrics |
| Community Building | Department members participate in college committees | Reports given during Division Meetings |
| Employee Development | Attend conferences or workshops | Lab techs will give annually updated reports |
| Transparency and Communication | Work closely with the counseling department | Courses will be ready for transfer |
| Transparency and Communication | Work closely with the special programs | Reports and updates given to department |

***2. Please explain how your program’s CTAs are aligned with the goals of the College. How does your program help the College fulfill its Mission, Strategic initiatives, and Commitments to Action?***

The mission of the college is to empower and prepare students from diverse backgrounds to succeed academically. Our Biology Department Commitments to Action are supporting that mission. Our classrooms are very diverse with students representing cultures from around the globe. We support the college in providing them a wide spectrum of educational experiences, flexible methodologies and support service. Students succeed in our biology courses because we offer a variety of teaching strategies, a low student-teacher ratio, and hands-on experiences in the laboratory courses. We also have a Biology Skills Lab where students can spend time with tutors in areas of biology, physiology, anatomy and microbiology. This peer teaching is a key element to our student success.

Over the past few years, the Biology Department has increased its offering of Associates of Arts degrees. We now provide three AA degrees to our biology students: Biology, General Studies with an emphasis in Natural Science, and General Studies with an emphasis in Health Science. In addition, by the end of the 2011-12 academic year, the Biology Department will also award an Associate of Science degree. Offering these degrees to our students shows our commitment to the College Strategic Initiatives. We are guiding students to complete their educational goals and continuing our partnerships with educational institutions in our area.

The Biology Department Commitments to Action are also aligned with the College’s goal to increase visibility in our community. One of our departmental goals includes publishing a brochure to be used in outreach programs. We will also be working on a more informative website so students can investigate the courses, faculty, and degrees offered in the Biology Department. Although we are a small department with only 6 full-time faculty, we offer over 20 different course titles each year to our students and help them reach their academic goals.

***3. Please State at least three recent accomplishments for your program which show how it contributes to the College’s success.***

Since the last program review for the Biology Department, three associate degrees were developed and approved by the college, the district, and the State Chancellor’s Office for California Community Colleges. The three degrees are:

* Associate of Arts in Biology
* Associate of Arts in General Studies, emphasis in Natural Science
* Associate of Arts in General Studies, emphasis in Health Science

The degree Associate of Arts in Biology is intended for biology major students, who intend to pursue a career in the biological sciences or related professions. The courses included in the program are currently articulated with most four-year colleges and universities.

The degree Associate of Arts in General Studies, emphasis in Natural Science, is intended for students who have a general interest in the sciences, but have not yet decided on a career tract or specialization. It allows students who have taken a broad range of sciences classes and have completed their general education requirements to obtain an associate degree. Prior to the inception of this degree, there were few or no opportunities for a degree available to these students. The courses included in the program are currently articulated with most four-year colleges and universities.

The degree Associate of Arts in General Studies, emphasis in Health Science, is intended for students who intend to pursue a career in the allied health professions. One major career tract served by the Biology Department is nursing. Prior to the inception of this degree, students who had completed all the general education and prerequisite requirements for two-year registered nursing programs had no opportunity for an associate degree unless they were accepted into and successfully completed a two year-nursing program. The General Studies degree with an emphasis in Health Science provides pre-nursing students with the opportunity to obtain an associate degree while they are awaiting acceptance into a nursing program. This degree in particular has contributed to the double-digit increase in the college’s graduation rate, first reported in 2009 (<http://www.evc.edu/announcements/09/EVC-/GradRates.pdf>).

The contribution of the three degrees to the total number of degrees offered by the college, the number of degrees awarded by the college, and the number of students graduating are significant factors in determining a college’s success. This is reflected in the funding formula used by the State Chancellor’s Office to determine each college’s funding allocation.

***4. State the goals and focus of this department/program and explain how the program contributes to the mission, comprehensive academic offerings, and priorities***

***of the College and District.***

**Evergreen Valley College’s mission** is to empower students to expand their human potential and to succeed in a global, multicultural society. We prepare students of all ages and backgrounds for balanced and productive lives, so they can ultimately improve the workforce and quality of life in our communities.

We meet our mission through a wide spectrum of educational experiences, flexible methodologies, and support services for our students:

**The mission of the Biology Department** is to provide students with a high quality education, emphasizing theory, practical knowledge, and laboratory/field skills that prepare them for transfer to four year institutions or professional programs. The Biology Program is a vital part of Evergreen Valley College’s effort to provide its student community with access to a challenging and quality instruction that will fulfill their educational, vocationalt, and life-long learning goals.

The Biology faculty are committed to creating a safe, encouraging, but challenging learning environment open to all students regardless of gender, race, ethnicity, or culture. Our three academic pathways (non-major transfer, major transfer & allied health preparation) provide all students with appropriate options for their individual interests. Each Biology faculty member spends generous amounts of time with students to clarify coursework, serving as role models, offering educational and career advice, and preparing letters of recommendation.

The Biology Department contributes to the ITSS priority of the college and district by providing internet hybrid and on-line courses using the Moodle course management system.

The Biology Department cooperates with EVC’s special programs including the Disabilities Support Program, the Distance Learning Program, the ENLACE Program, the Honors Program, and the Service Learning Program.

Examples of department participation in these programs

:

* Disabilities Support Program
* The Disabilities Support Program assists students with learning or physical disabilities in the connection with their academic work.
* The Biology faculty works with DSP personal to provide students with additional support for success in their classes including providing exams in advance to the DSP center, providing additional time for exams and assignments under the aegis of the DSP program, as well as physical accommodations in lab and lecture.
* ENLACE Program
  + The Enlace Program of Evergreen Valley College was created as a non-traditional approach to Latin@ student success; a holistic approach sensitive to the experiences, strengths, and needs of Latin@ students. ENLACE combines a culturally and linguistically responsive teaching and counseling pedagogy with structured community participation.
  + The Biology Department in cooperation with ENLACE offers two UC/CSU transferrable science courses: Wildlife Biology (without lab) and Environmental Science (with lab).
  + The Biology Department in cooperation with ENLACE offers an annual high school science conference at Evergreen Valley College.
* Service Learning Program
  + The Service Learning Program engages students in community volunteer work as a part of and related to their academic studies.
  + The Biology Department offers several courses (Environmental Science, Human Heredity, Wildlife Biology) in which service learning is either an optional or required part of the curriculum.
  + Members of the Biology faculty have served on the advisory board for the Service Learning Program.

***5. Identify current student demographics. If there are changes in student demographics,***

***state how the program is addressing these changes.***

**Ethnicity**

The Biology Program has not observed any major changes in ethnicity over the past five years with the exception of the category named Other/Unknown. The other/unknown category jumped from less than 2% to 15%. The majority of our students, 60% – 70%, participating in our Biology courses, classify themselves as Asian and Hispanic. The largest group of students is Asian followed by the Hispanic group.

The Biology Department continues to encourage all students to pursue science-related careers. We actively recruit students through efforts coordinated with guidance counselors, outreach services, and publicize our program offerings at EVC events like Kindercaminata, Day on the Green, and ENLACE Orientation.

Figure 1. Ethnicity in Biology Classes 2006-2011.

**Gender**

Looking at Figure 2, gender data comparison is quite consistent for the year 2006 through 2011. Female representation continues to outnumber males almost two to one. This may be due in part to the large number of biology courses that support entry into the health allied fields (Nursing and Dental Hygiene) which has traditionally been filled by females.

Figure 2. Gender in Biology Classes 2006-2011.

***6. Identify enrollment patterns of the department/program in the last 6 years and analyze the pattern.***

Figure 3 shows that enrollment in Biology has increased over six years. The Enrollment correlates with the number of sections offered indicating that the growth in the number of biology courses and sections has been driven by student demand. Moreover, most classes still have waitlists and fill to capacity. Classes are rarely canceled in the Biology Department.

Figure 3. Total enrollment in Biology classes 2006-2011

***7. Identify department/program productivity (WSCH/FTEF).***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fall Term | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| WSCH | 5418 | 5083 | 5353 | 6348 | 5997 | 6596 |
| FTEF | 9.0 | 9.3 | 9.3 | 9.7 | 9.8 | 10.1 |

Table 1: WSCH and FTEF for 2006-2011 in the Biology Program

***8. Identify student success rate and patterns within the department/program paying particular attention to our college’s target groups.***

Figure 4 : Biology student retention rate percentage and success rate percentage from Fall 2006-Spring 2011

We have maintained a student retention rate of at least 80% and a student success rate of at least 60% from fall 2006 to spring 2011. This is consistent with the statewide program retention and student success rates reported by the State of California, California Community Colleges, Chancellor's Office: <https://misweb.cccco.edu/mis/onlinestat/ret_sucs_de.cfm>

Figure 5: Student **retention** percentage according to ethnicity from Fall 2006 – Fall 2010

Figure 6: Student **success rate** percentage according to ethnicity between Fall 2006 and Fall 2010

From the information found in Figures 5 and 6, it appears that retention and success rates appear to be inequitable. More work and information are needed to understand the lack of equity in these measures.

***9. If the program utilizes advisory boards and/or professional organizations,***

***describe their roles.***

None

**PART B: Curriculum**

***1.* *Identify all courses offered in the program and describe how the courses offered***

***in the program meet the needs of the students and the relevant discipline(s).***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course No.** | **Course Title** | **Student Need/Discipline Relevance** | | | | | | **Last Updated** |
|  |  | GE Life Science with lab | GE Life Science without lab | CSU Trans-ferable | UC Trans-ferable | EVC AA/AS Degree | Course content or area |  |
| Biol-001 | General Principles of Biology | yes | - | yes | yes | yes | majors general biology course | 2005 (2012 update in progress) |
| Biol-002 | Organismal Biology | - | - | yes | yes | yes | majors general biology course | 2009 |
| Biol-003 | Cell and Molecular Biology | - | - | yes | yes | yes | majors general biology course | 2009 |
| Biol-020 | Human Biology | yes | - | yes | yes | yes | non-majors intro to human biology | 2007 |
| Biol-021 | General Biology | yes | - | yes | yes | yes | non-majors general biology | 2007 |
| Biol-025 | Forensic Biology | - | pending | pending | pending | pending | non-majors intro to forensic biology | 2012 (in progress) |
| Biol-030 | Introduction to Molecular Biology Skills Lab | - | - | no | no | yes | intro to lab skills in molecular biology | 2007 |
| Biol-033 | Biotechnology and Society | - | - | yes | yes | yes | intro to biotechnology's impact on society | 2010 |
| Biol-034 | Biotechnology Laboratory Methods | - | - | yes | yes | yes | intro to biotechnology lab methods | 2007 |
| Biol-061 | Human Heredity | - | yes | yes | yes | yes | non-majors intro to human heredity | 2010 |
| Biol-062 | Plants and Human Welfare | - | yes | yes | no | yes | non-majors intro to plant biology and human uses | 2010 |
| Biol-063 | Ecology | - | yes | yes | yes | yes | non-majors into to ecology | 2010 |
| Biol-064 | Marine Biology | yes | - | yes | yes | yes | non-majors intro to marine biology | 2009 |
| Biol-065 | Wildlife Biology | - | yes | yes | yes | yes | non-majors intro to wildlife biology | 2005 (Update scheduled for 2012) |
| Biol-071 | Human Anatomy | yes | - | yes | yes | yes | introduction to human anatomy required for nursing program | 2009 |
| Biol-072 | Human Physiology | yes | - | yes | yes | yes | introduction to human physiology required for nursing program | 2005 (Update scheduled for 2012) |
| Biol-074 | General Microbiology | yes | - | yes | yes | yes | introduction to microbiology required for nursing program | 2008 |
| Biol-080 | Biology Field Course | - | - | yes | no | yes | non-majors field courses (repeatable) | 2009 |
| Biol-099 | Directed Study in Biology – Biotechnology Boot Camp Seminar | - | - | yes | no | yes | small group independent study | 2008 |
| Envir-010 | Environmental Science | yes |  | yes | yes | yes | non-majors intro to environmental science | 2010 |
| Ocean-010 | Oceanography | - | yes | yes | yes | yes | non-majors intro to oceanography | 2007 |

Table 2: Course offerings in the Biology Program

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

We regularly update all of our courses and curriculum and maintain course articulation with UCs and CSUs.

Currently, we are revising the general microbiology curriculum towards the health field. This is important because the primary audience for this course is students majoring in allied health fields.

We have revised the majors biology series and developed Biol 004A and 004B to retain articulation with San Jose State University.

***3. All course outlines in this program should be reviewed and, if appropriate***

***revised every six years. If this has not occurred, list the courses and present a***

***plan for completing the process. (Curriculum currency.)***

All course outlines are updated or revised as needed or every six years, whichever comes first. The primary responsibility for updating or revising each course is assigned to one member of the biology tenure/tenure-track faculty who teaches the course or otherwise has expertise in the area. Draft updates or revisions are reviewed by the department faculty, and the division curriculum committee including the division dean before being submitted to the college curriculum committee for review and approval.

All courses are currently updated except for Biology 65 (Wildlife Biology) which will be finished in Fall 2012.

***4. Identify and describe innovative pedagogy your department/program developed/offered to maximize student learning and success. How did they impact student learning and success?***

* Distance Education: On-line and Internet hybrid courses to increase student participation, retention and matriculation.
* Internet Addresses combined with computer related assignments to compliment in-class activities.
* Field Studies or Field Trips for experiential outdoor learning utilizing a combination of multisensory learning pedagogy: while in the field students acquire knowledge via observations, lectures, daily journal responses and oral presentations.
* Supplemental Instruction (SI) for the ENLACE environmental science 10 course. SI is an academic assistance program that utilizes peer-assisted study sessions. SI sessions are regularly-scheduled, informal review sessions in which students compare notes, discuss readings, develop organizational tools, and predict test items. Students learn how to integrate course content and study skills while working together. The sessions are facilitated by “SI leaders”, students who have previously done well in the course and who attend all class lectures, take notes, and act as model students.
* Several courses incorporate field trips or field exercises as an integral part of the curriculum.
* The department has offered Honors courses and courses with Honors contract options.
* Service-learning is a required or optional component in several courses offered by the department.
* The human anatomy skills lab supports instruction in both human biology (Biol-020) and human anatomy (Biol-071), and human anatomy features human cadaver dissection.

These teaching pedagogies deepen student understanding and mastery of course material. The different activities or teaching settings engage different learning modalities and can serve to strengthen student commitment to their coursework, which leads to greater student retention and success rates.

***5. Discuss plans for future curricular development and/or programs (degree &certificates included) modifications. Use the Curriculum Mapping form to lay out your plan.***

* The department offers an associate of arts degree in Biology is to provide a lower division science foundation for those interested in pursuing Biology as a major field of study.
* Recruitment of an additional Full-time Biology faculty member
* Increase course offerings with Supplemental Instruction

During Spring 2012, the Biology Department will design the Program Learning Outcomes and the accompanying curriculum map.

***6. Describe how your program is articulated with the High School Districts, CCOC (if applicable), and/or other four year institutions. (Include articulation agreements, common course numbering etc.)***

Evergreen Valley College and the faculty of the Division of Math/Science/Engineering participate in an annual East Side Union High School District Science Fair at Evergreen Valley College.  The EVC SACNAS chapter provides financial support to transport approximately 200 high school juniors & seniors to the EVC campus for an orientation, Math, Science and Engineering Departments overview and workshops related to coursework/EVC programs and its connection with career opportunities.    
  
Evergreen Valley College allows admission of high school students that meet specific criteria.  This includes completion of the EVC Admission application, R-40 Form and signature of high school principal.  All applications and forms may be found on-line at [www.evc.edu](https://webmail.sjeccd.edu/owa/redir.aspx?C=43e25b34ccdc4fbfb0035dc10d6762c8&URL=http%3a%2f%2fwww.evc.edu).  
  
Lastly, Evergreen Valley College maintains Transfer Admission Agreement (TAA) with various universities and or colleges.  A TAA is a "contract of understanding" between a community college and a university guaranteeing that a student will be admitted to the university when the conditions of the contract have been met. In order to initiate a TAA, a student must:  
  
          o See a counselor to determine eligibility.  
          o See the Transfer Center Director in the Transfer/Career Center.  
          o Make sure official transcripts from any other college they have attended are in their file, before they begin the TAA process.  
  
The contract basically outlines the courses a student will be taking prior to transfer and the required GPA. If the student meets the conditions of the contract, they will be admitted to the University.  Evergreen Valley College has Transfer Admission Agreements with:  
  
    University of California Campuses:  
  
        \* UC Davis  
        \* UC Irvine  
        \* UC Riverside  
        \* UC San Francisco  
        \* UC Santa Barbara  
        \* UC Santa Cruz  
  
    California State Universities:  
  
        \* Cal State East Bay  
        \* CSU Monterey Bay  
        \* San Francisco State  
        \* San Jose State  
        \* Sonoma State  
  
    Private Universities:  
  
        \* Menlo College  
        \* National Hispanic University  
        \* Santa Clara University  
  
    Out-of-State:  
  
        \* Hawaii Pacific University

***7. If external accreditation or certification is required, please state the certifying***

***agency and status of the program.***

Not applicable

**PART C: Student Learning Outcomes**

***1.* *On the course level, list all the courses that have current student learning***

***outcomes (included in the course outline) and provide link to the course outlines***

***for review purpose. Provide a plan and timeline to include student outcomes for***

***the courses that do not have one.***

All of the following courses have updated student learning outcomes:

|  |  |  |
| --- | --- | --- |
| **Course No.:** | **Course Title:** | **Updated:** |
| Biol 001 | General Principles of Biology | 2012 |
| Biol 002 | Organismal Biology | 2009 |
| Biol 003 | Cell and Molecular Biology | 2009 |
| Biol 004A | General Principles and Cellular Biology | 2012 - new |
| Biol 004B | Organismal Biology and Biodiversity | 2012 - new |
| Biol 020 | Human Biology | 2007 |
| Biol 021 | General Biology | 2007 |
| Biol 025 | Forensic Biology | 2012 |
| Biol 030 | Introduction to Molecular Biology Lab Skills | 2007 |
| Biol 033 | Biotechnology and Society | 2010 |
| Biol 034 | Biotechnology Laboratory Methods | 2007 |
| Biol 061 | Human Heredity | 2010 |
| Biol 062 | Plants and Human Welfare | 2010 |
| Biol 063 | Ecology | 2010 |
| Biol 064 | Marine Biology | 2009 |
| Biol 065 | Wildlife Biology | 2005 |
| Biol 066 | Botany | 2010 |
| Biol 071 | Human Anatomy | 2009 |
| Biol 072 | Human Physiology | 2012 |
| Biol 074 | General Microbiology | 2008 |
| Biol 080 | Biology Field Program | 2009 |
| Biol 099 | Biotechnology Boot Camp Seminar | 2008 |
| Env 10 | Environmental Science | 2010 |
| Ocean 10 | Oceanography | 2007 |

Table 3: Courses and date of most recent course update

Course outlines and student learning outcomes for each of these courses may be found at the following link (must be accessed through the SJECCD local network):

\\Do\_data\_whse\r&p\Curriculum\Course Outlines\6 - Final

***2. On the program level, list all programs (and degrees) that have current student***

***learning outcomes and provide the culture of evidence.***

**Program Learning Outcomes**

**AA in General Studies with Emphasis in Health Science**

Evergreen Valley College offers Associate in Arts degree in General Studies with emphasis in Health Science. The associate degree provides a course of study for students interested in allied health careers. Students will learn to apply scientific methods to explore human structure and function, and health aspects of microbiology. The program satisfies transfer GE requirements

and includes courses for students planning careers in health science fields.

The program learning outcomes consists of two components – subject specific and supporting subjects’ outcomes. The outcomes for the supporting subjects are broader in nature and are realized and emphasized by the strategic mission of the Evergreen Valley College. The subject specific outcomes are realized through training, theoretical and experimental, offered by the program.

**Outcomes for General Supporting Subjects:**

Upon completion of the program, students should be able to:

1. Identify, define, and solve problems
2. Make ethical choices and act responsibly
3. Critically evaluate information
4. Function effectively in a team, exercise initiative, and perform in a leadership role
5. Recognize broad societal issues and concerns
6. Serve society with sensitivity and accountability
7. Interact effectively with diverse cultures
8. Adapt to change and recognize the value of life-long learning
9. Write, speak, and listen effectively

**Outcomes for Core Specific Subjects**

Upon completion of the program, students should be able to:

1. Use library databases and the Internet to efficiently find information relevant to health science.
2. Use appropriate terminology to express physical measurements, describe biological processes, identify body structures, and name chemical entities.
3. Apply scientific principles to solve practical problems in microbiology, physiology, and chemistry.
4. Analyze and interpret experimental or clinical data.
5. Demonstrate proper use of the light microscope to view cells and tissues.
6. Describe homeostatic mechanisms, controls, and specific functions of the human body.
7. Describe relationships between microbes and hosts, as well as between different taxonomic groups of microbes.
8. Assess physical, chemical, and antibiotic measures to control or prevent microbial growth.
9. Identify and describe common microbes, diseases caused, their modes of transmission, and means to reduce their transmission.
10. Describe components of innate and adaptive immune systems and how protection against infection is provided.
11. Describe the biology of DNA and microbial genetics.
12. Explain how gases, liquids, solids, and solutions behave.
13. Predict chemical reactivity, bond types, and molecular polarity from the period table of elements.

**AA in General Studies with Emphasis in Natural Science**

Evergreen Valley College offers the Associate in Arts degree in General Studies with an emphasis in Natural Science. This AA degree provides a course of study for students interested in environmental science, environmental studies or the natural sciences. Students will learn to apply scientific principles and methods to the investigation of physical and biological aspects of the environment, including interactions twixt human and natural ecosystems. The program satisfies transfer General Education requirements and includes courses for students intending to pursue more advanced study (bachelors degree and beyond) or careers in fields related to the natural sciences, including science education.

The program learning outcomes consist of two major components – area specific and supporting subject outcomes. The supporting-subject outcomes are interdisciplinary in nature and are an integral part of the strategic mission and GE requirements of the Evergreen Valley College. The area-specific outcomes are realized through discipline related coursework and training - both theoretical and experimental - offered by the degree program.

**General Supporting-Subjects Outcomes:**

Upon completion of the program, students should be able to:

1. Identify, define, and solve problems;
2. Make ethical choices and act responsibly;
3. Critically evaluate information;
4. Function effectively in a team, exercise initiative, and perform in a leadership role;
5. Recognize broad societal issues and concerns;
6. Serve society with sensitivity and accountability;
7. Interact effectively with diverse cultures;
8. Adapt to change and recognize the value of life-long learning; and
9. Write, speak, and listen effectively.

**Area Specific Outcomes:**

Upon completion of the degree program, students should be able to:

1. Use library databases and the Internet to efficiently find information relevant to environmental issues and the natural sciences;
2. Define and apply terminology appropriate for the expression of scientific measurements, and the explanation of biological and physical environmental processes. and for communication with knowledgeable colleagues and the lay public;
3. Apply scientific principles to solve practical problems in ecology, natural history, and environmental science and studies;
4. Collect, analyze and interpret laboratory and field data;
5. Properly use common scientific laboratory and field equipment, such as balances, microscopes, pH meters, refractometers, spectrophotometers, transects lines and grids;
6. Relate fundamental concepts and properties of matter (atoms, molecules, potential, kinetic and activation energies, physical states of matter, H-bonding) to critical biological (photosynthesis, aerobic metabolism) and physical (nuclear energy, acid rain, “global warming,”) processes;
7. Describe biogeochemical cycles and the mechanisms responsible for them;
8. Use taxonomic guides and dichotomous key to identify plants and animals in the field;
9. Relate land form and structures to features on topographic maps and bathymetric charts;
10. Describe trophic relationships, and the flow of energy and cycling of matter in ecosystems;
11. Apply evolutionary theory to ecological processes and specify how ecological processes contribute to evolution;
12. Describe and apply fundamental environmental principles such as the Laws of Thermodynamics, competitive exclusion principle, rule of diminishing returns, and the tragedy of the commons;
13. Explain the relationship between human demographic factors and their environmental impacts, and analyze the Malthusian or non-Malthusian influences of arguments related to human populations.
14. Explain the central role of energy in natural and human systems, distinguish between renewable and non-renewable energy resources, and identify factors necessary for energy sustainability; and
15. Prepare written, oral and poster presentations appropriate for both professional and lay audiences on selected topics in the natural sciences.

**AA in Biology**

Evergreen Valley College offers an Associate in Arts degree in biology. The associate degree program provides a lower division science foundation for those interested in pursuing biology as a major field of study. This major prepares an ideal academic preparation for students considering careers in research, teaching, medical fields, biotechnology, or other related fields require a foundation in biological sciences.

The Biology Program learning outcomes consist of two components – subject specific and supporting subjects’ outcomes. The outcomes for the supporting subjects are broader in nature and are realized and emphasized by the strategic mission of the Evergreen Valley College. The subject specific outcomes are realized through training, theoretical and experimental, offered by the Biology Program.

**Outcomes for General Supporting Subjects:**

Any graduate of the Biology Program should be able to:

1. Identify, define and solve problems.
2. Make ethical choices and act responsibly.
3. Critically evaluate information.
4. Function effectively in a team, exercise initiative, and perform in a leadership role.
5. Recognize broad societal issues and concerns.
6. Serve clients and society with sensitivity and accountability.
7. Interact effectively with diverse cultures.
8. Adapt to change, recognize the value of life-long learning.
9. Write, speak, and listen effectively.

**Outcomes for Core Specific Subjects:**

Any graduate of the Biology Program should be able to:

1. Employ the scientific method to pose testable hypotheses and make predictions.
2. Design and implement controlled experiments or observational studies to test predictions.
3. Collect, quantify, summarize, interpret, and present biological data.
4. Critically assess biological arguments.
5. Use computers to access multimedia lessons and conduct internet searches for information on biological phenomena.
6. Write scientific papers and laboratory reports.
7. Use scientific terms appropriately.
8. Describe the importance of evolution as a guiding principle in biology.
9. Explain and apply general biology principles to include biochemistry, cell and molecular biology, organismal biology, genetics, evolutionary biology, and ecology.
10. Integrate the concepts and systems of homeostasis.
11. Compare and contrast the cells, tissues, organs, and organ systems of plant and animal organisms.
12. Apply general chemistry principles to biological processes and systems.

|  |  |
| --- | --- |
| AA in General Studies (Health Science) (2GEN.AA.3) | |
| Degree Date | # of Stud received |
| 12/1/2008 | 2 |
| 5/1/2009 | 32 |
| 7/1/2009 | 7 |
| 12/1/2009 | 8 |
| 5/10/2010 | 20 |
| 7/1/2010 | 14 |
| 12/1/2010 | 10 |
| 5/1/2011 | 29 |
| 7/1/2011 | 4 |
|  |  |

AA in Biology

|  |  |  |
| --- | --- | --- |
| 5/1/2008 | 1 | 2BIOL.AS.1 |
| 5/1/2009 | 1 | 2BIOL.AA.1 |
| 6/1/2009 | 1 | 2BIOL.AS.1 |

***3. List or describe all assessment mechanisms you are using to evaluate SLOs. Provide results of analysis.***

Student learning outcomes are currently evaluated with formal midterm and final examinations, and, as appropriate, via final projects or presentations (written or oral). In addition, student learning and progress are monitored by means of quizzes, in-class or homework assignments, or laboratory exercises and reports (in courses with labs). However, no systematic assessment of SLOs has been developed for the biology program. Therefore, aside from the individual performances of students in the program's various courses there exists no assessment analysis for which to provide results.

In 2012, the Biology faculty will be developing standardized SLO assessment measures for each course. These assessment measures will include, but not necessarily be limited to, the use of standardized questions developed for each course. These questions will be integrated into the final exams administered in all sections of each course. The results from these questions and any other assessment measures will be collected and form the basis for an analysis of how effectively students are attaining course and program SLOs. Conclusions drawn from these analyses will be employed when updating existing or developing new courses, with the objective of improving course content, the biology curriculum and pedagogy.

The Biology faculty will require adequate support from both the college and the district to conduct this analysis and perform the subsequent evaluation. Such support must include, but not be limited to training in the development of proper SLO evaluation measures, the means for easily collecting and scoring the SLO related questions, and the tools and support needed for data analysis.

**PART D: Faculty and Staff**

***1. List current faculty and staff members in the program, areas of expertise, and***

***how positions contribute to the program success.***

|  |  |  |
| --- | --- | --- |
| **Name** | **Area of Expertise** | **How does position contribute to the program success** |
| Lisa Hays | Physiology | Prepare students for nursing and allied health careers |
| Jack Baker | Biology, Biochemistry, Zoology and Ecology | Teaches majors general biology, and human biology, environmental science, marine biology, ecology, human genetics and field courses for non-majors. |
| Janice Toyoshima | Human anatomy, cell & molecular biology, biotechnology education | Teaches a prerequisite course for many allied health majors.  Also teaches a course for biology majors and an introductory course in biotechnology. Reviewer for NSF grants. |
| May Chen | Microbiology, Physiology and General Biology | Teaches microbiology and physiology to students interested in the health professions. Teaches general biology for non-majors |
| Al Gonzalez | General biology and Environmental Science Education | Prepare students for matriculation into higher education and completion of general education science requirements. Also, the ENLACE bio/science coordinator, assist with Chicano/Latino student recruitment into Biology Program. Faculty advisor for the EVC SACNAS student chapter. |
| Elisabeth Stauble | General biology and genetics | Teaches general biology for both biology majors and non-majors. Teaches genetics class. |
| Robert Blumenkrantz | None | Buys and prepares materials to support Biology labs. Maintains inventory of lab supplies and manages lab budget. |
| Joaquin Li | Microbiology, biology, inorganic chemistry | Prepares and organizes classroom materials essential for teaching students, such as media, microbiological culture reagents and science related materials. |

***2. List major professional development activities completed by faculty and staff in***

***this department/program in the last six years and state proposed development and***

***reasoning by faculty in this program.***

Lisa Hays – Keep current in scholarly reading, attend @ONE workshops for distance education, purchase and learn how to use software for on-line courses.

Jack Baker- Hazardous Communication Training & Hazardous Waste Handling Training at EVC, April, 2011, Moodle Training, iPad training, Professional Development Day meetings and workshops, diversity training (HR and Academic Senate) journal reading

Janice Toyoshima- 2007 Annual meeting of the Human Anatomy and Physiology Society in San Diego, Industry Initiatives in Science and Math Education in Santa Clara (2008), Bio- Link Summer Fellows Program in Berkeley (2010), National Biotechnology Education Conference in Santa Clara (2010), Quality Education for Minorities (QEM) Network Conference in Las Vegas (2010), Green Chemistry workshop in Santa Clara (2010), and 2011 Annual Meeting of the Human Anatomy and Physiology Society in Victoria, British Columbia.

May Chen - Hazardous Communication Training & Hazardous Waste Handling Training at     EVC, April, 2010; Angel, Moodle, and Calibrated Peer Review (CPR) training, Professional Development Day meetings and workshops

Al Gonzalez- Moodle Bootcamp, Academic Senate VP (2005), 2003 Summer Institute for on- line pedagogy, Service Learning Program participant (2002-present), Chemical Safety Awareness (2003) & Hazardous Waste Handler (2003), Participant College Board AP Reading Scoring the Environmental Science Exam at Clemson University in Clemson, SC (2004), EDIT 10 Computers in Education, New Approaches and Techniques for Teaching Science at the University of San Diego (2004)

Elisabeth Stauble – Hazardous Communication Training & Hazardous Waste Handling Training at EVC, Moodle Training, Professional Development Day meetings and workshops, EDIT010 computers in Education (on-line course for teaching on-line courses), reading science and teaching journals.

Robert Blumenkrantz- Hazardous Communication Training & Hazardous Waste Handling training at EVC, April, 2011

Joaquin Li- Hazardous Communication Training & Hazardous Waste Handling Training at EVC, April, 2011

***3. Identify current schedule for tenure review, regular faculty evaluation, adjunct faculty evaluation, and classified staff evaluation.***

**A. Current schedule for tenure review**

Non-tenured faculty members in the past six years have been evaluated by following the procedure described in Article 20 of the *Faculty Association Collective Bargaining Agreement* (*FACBA*). During the first year of employment with the District, a non-tenured faculty member will have a tenured member as his/her mentor, who shall assist the new non-tenured member to successful performance of his/her assignment. At the beginning of the non-tenured member‘s first semester a Tenure Review Committee (TRC) is formed according to the selection procedure delineated in section 20.2.2 of the *FACBA*.

In the first three years of service for non-tenured faculty, a Pre-evaluation Conference is convened by the end of the ninth week of the non-tenured faculty member‘s first semester, and by the end of the fifth week of the non-tenured member‘s third and fifth semesters. The faculty member‘s classes are then visited and student evaluations are conducted and collected by the TRC members. The non-tenured faculty member also designs a *Growth and Development Plan* according to *FACBA* 20.8.2. A Progress Review Conference is convened by the end of the fourteenth week of the non-tenured faculty member‘s first, third and fifth semesters to review the information from the TRC members, student evaluations and the faculty‘s *Growth and Development Plan*. A Post-Evaluation Conference is convened by the fourth week of the non-tenured faculty member‘s second, fourth, and sixth semesters to review and finalize the non-tenured faculty member‘s *Growth and Development Plan.*

In the fourth year, the Pre-Evaluation, Progress Review Evaluation, and the Post- Evaluation Conferences are all completed by the end of the non-tenured faculty member‘s seventh semester. At the fourth year, the TRC chair drafts a *Summary Evaluation Report* based on the classroom observations, administrator and student evaluations, job description and the non-tenured faculty member‘s *Growth and Development Plan* and a tenure recommendation is submitted to the College President.

**B. Regular faculty evaluation**

The department is to evaluate tenured faculty members according to the *Faculty Association Collective Bargaining Agreement* (*FACBA*). Each term the Dean is to send an email to all the tenured faculty members and ask them to have at least one of their classes visited by another faculty member who will collect the student evaluations. The student evaluations are then summarized and kept on file in the dean‘s office. If the dean detects a problem, a conference will then be convened by the dean with the faculty member. If the dean does not detect any problems, a regular conference with the faculty member and the dean will still take place at least once every three years to go over the student evaluations and to discuss issues and concerns related to the faculty members teaching.

**C. Adjunct faculty evaluation**

Adjunct faculty are to be evaluated according to the procedure as spelled out in Article 19 of the *FACBA*. An evaluation committee is formed, which usually consists of the Dean of the Division and two peer faculty members. At least one, and usually all, of the committee members observe the performance of the adjunct faculty member. During the observation, student evaluations are conducted and collected by the committee member. The adjunct faculty member is given a written summary of these evaluations and a post evaluation conference is held with the adjunct faculty and the evaluation committee.

**D. Classified staff evaluation**

Classified staff are periodically evaluated in accordance with the schedule set forth in Article 16.2 of the CSEA contract, as follows:

**Probationary New-Hire Classified Employees**

Probationary new-hire classified employees are evaluated three times during the first year (twelve months) of employment. The first two evaluations take place after the third and sixth months of employment, and a final evaluation after eleven months, using the full progress report form.

**Probationary Promotional Classified Employees**

Classified employees promoted to a higher classification (pursuant to Article 15.4 of the CSEA contract) serve a probationary period of at least six months. Probationary promotional classified employees are evaluated at the end of the third and fifth months of employment in the new classification.

**Permanent Classified Employees**

After the probationary period, all classified employees are evaluated annually, on the employee‘s anniversary date of hire.

***4. Describe the departmental orientation process (or mentoring) for new full-time and adjunct faculty and staff (please include student workers such as tutors and***

***aides).***

**A. The Departmental Orientation Process for New Faculty**

In addition to the orientation process given by the school, the department also has a mentor program. For each of the new faculty members, in his/her first semester of service, the Department appoints a tenured faculty member as the mentor for the new faculty member. The mentor serves as a guide and supporting person, assisting the new member in the school environment and answering questions related both to students (such as admission and registration procedures, adding and dropping classes, etc.) and faculty (such as tenure procedure, teaching assignments, and committee work).

**B. The Departmental Orientation Process for Adjunct Faculty**

Most of our adjunct faculty members have been teaching for us for several years. For new adjunct faculty, when he or she is hired to teach a particular class, we provide the learning objectives for the class and the syllabus used by our current faculty members. We also describe in detail how our classes are conducted, together with student matters such as adding and dropping students, attendance policy, etc.

**C.** **The Departmental Orientation Process for Staff (including student workers**

**such as tutors and aides)**

**Staff:**  The former staff member trains the new employee. Instructors provide suggestions and information for class requirements.

**Student workers:** They are provided an environment conducive to work study. They are given basic training and awareness of laboratory safety, as related to proper handling of laboratory glassware and used sterilized microbiological media.

**PART E: Facilities, Equipment, Materials and Maintenance**

***1. Identify and discuss the facilities, equipment, equipment maintenance, and materials allocated to the program. Identify and explain additional facility needs and rationale.***

The Biology Department is comprised of six laboratories and several prep and storage areas. Two of the labs are equipped with gas, air and vacuum outlets; three of the labs are equipped with gas and air outlets; and one lab is equipped with gas outlets. Three of the labs have fume hoods and one lab has a biological hood. One lab is dedicated to the teaching of Anatomy and has an adjacent room equipped for cadaver dissection. One lab is dedicated to the teaching Microbiology. One lab used for the study of Botany and is adjacent to a small greenhouse. The other three labs are fit to be used for a variety of Biology courses. All labs are equipped with a computer and a data projector.

BIOLOGY COURSES WITH LABS:

* General Principles of Biology
* Organismal Biology
* Human Biology
* General Biology
* Marine Biology
* Human Anatomy
* Human Physiology
* General Microbiology
* Environmental Science

EQUIPMENT:

* Microscopes
* Dissecting Microscopes
* Microscope with projection camera
* Combination Hot Plates/Magnetic Stirrers
* Analytical Balances
* pH meters
* Water baths
* Centrifuges
* Spectrophotometers
* Incubators
* Explosion proof refrigerators
* Sliding door refrigerators
* Articulated skeletons
* Unarticulated skeletons
* Cadavers
* Refrigerated cadaver storage unit
* Cadaver dissecting table
* Anatomical Models
* Zoological models
* Botanical models
* Physiology Power Lab Hardware and Software connected to old Mac computers
* Lap top computers
* Audiometers
* Laboratory carts
* Autoclave
* Glassware washer

MATERIALS:

* Glassware (beakers, flasks, pipettes, graduated cylinders of varying size)
* Pipette aids
* Test tubes
* Test Tube racks
* Petri dishes
* Blank microscope slides and cover slips
* Prepare microscope slides
* Microscope bulbs
* Thermometers
* Dissecting trays
* Dissecting tools
* Dissecting materials
* Chemicals
* Solutions
* Reagents
* Buffers
* Blood
* Blood sera
* Blood testing supplies
* Lancets
* Face Masks
* Sleeve protectors
* Gloves
* Lab aprons
* Safety goggles

WASTE:

* Hazardous waste (once a semester pickup) currently paid for by District Office
* Biomedical waste (once a semester pickup) paid for by Biology Department

EQUIPMENT MAINTAINANCE:

* Microscope serviced once a year
* Autoclave serviced three times a year and as needed

NEEDED EQUIPMENT:

* Autoclave (1)—current autoclave is showing age and is not dependable
* Microscopes (110)—microscopes in 3 2/3 labs are over thirty-five years old and not adequate
* Spectrophotometers (6)--do not have enough to meets needs of classes
* Analytical Balances (5)—do not have enough to meet needs of classes
* Combination Hot Plates/Magnetic Stirrers (6)—do not have enough to meet needs of classes
* DI Water Systems (1)—do not have
* Ice Machine (1)—use of ice is greater than ice trays in two refrigerator/freezers can supply
* Anatomical models—need to replace worn and broken models, particularly eye, knee, shoulder
* Laptops (14)
* Power Labs (7)
* pH meters (3)—do not have enough to meet needs of classes

NEEDED SUPLLIES:

New sets of prepared slides—most slide in use are thirty years old and fading and breaking

MISC NEEDED:

New White Boards for labs

Light switches near entrance doors—currently the switches are only by inside door which requires crossing dark classroom to turn lights on and off.

Biology’s equipment is aging if not old and is well worn. Most of the microscopes and many of the models are as old as the college, over thirty years old. The microscopes and models are heavily used by multiple sections of several courses. There has not been enough money to buy new equipment or to properly replace what we already have. This has lead to the necessity of using broken and damaged equipment and models. Since much of the equipment is the same age, the Biology Department will be in trouble when the equipment becomes unusable. Equipment and materials should be replaced and updated in stages so that the need to replace a vast amount of equipment and material does not become a reality. There should be a dedicated budget to do this.

There is no dedicated budget for Biology equipment repair. This means that when a piece of equipment, particularly refrigerators, ovens, incubators and the autoclave, has a problem we do not know if there is money to have it repaired. This causes uncertainly and delays and can easily result in the disruption of classes. This is especially true with the autoclave and Microbiology.

***2. Describe the use and currency of technology used to enhance the department. Identify projected needs and rationale.***

During lectures and laboratories our faculty members use multiple technologies to enhance student learning. Most lectures include Powerpoint presentations, animations, and internet websites to offer the students a multi-media experience in the classroom. Our lecture hall and laboratory rooms are supported with faculty desktop computers, data projectors, video players, sound systems and wireless Internet access. The software is updated regularly by our Media Services department and all equipment is repaired upon request.

Our laboratories are outdated. Although the classrooms have the technology listed above, the equipment used by students in their laboratory experiments is old. Most of the microscopes are originals from the beginning of the college in 1975. Physiology students gather EKG data on 18 year old PowerMacs that Media Services refuses to maintain (see Figure 1). They also perform lab simulations on 10 year old laptops that are breaking down and also no longer repairable (see   
Figure 2).



Figure 1: 1996 PowerMac used in Physiology courses to measure electrocardiograms and lung volumes.



Figure 2: Laptops from 2001 used to perform physiology simulations for experiments the department cannot afford to offer to students

Students heading to allied health careers will never see an Apple PowerMac like the ones they use in their physiology laboratory course. They will never use software on a Pentium processor found on the laptops used to run simulations for real experiments that the College cannot afford to provide. To give students a true look at their future job place, it is important that we keep our technology current just as the companies in the Silicon Valley.

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

The Biology Department has a partnership with the Bio-Link Depot. This is an NSF-funded ATE center for biotechnology. Surplus laboratory items are donated to non-profit organizations. In Northern California, the Depot serves over 200 teachers and 85,000 students.

**PART F: Future Needs**

***1. Current Budget***

***A. Identify the budget currently allocated for the department through the division budget (fund 10). Discuss its adequacy in meeting your program’s needs.***

Evergreen Valley College Detail by Cost Center

2011-2012 Adopted Budget

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0400 - Biological Studies

Fu Lo CCtr User Objct ID-Line Description Budget

511 - Instructional Salaries, Regular Sal Sch. $589,910

513 - Instructional Salaries, Nonregular Sch. $234,646

522 - Instructional Aides, Reg. Full-time Sch. $116,838

524 - Instructional Aides, Non-reg. Full-time $1,000

531 - STRS $48,669

532 - PERS $12,763

533 - OASDI/Medicare $17,491

534 - Health & Welfare $194,314

535 - State Unemployment Insurance $12,438

536 - Workers Compensation $12,720

17 21 0400 22500 54100 13936 - 26 Lottery - Instructional Supplies (Biology) $13,000

541 - Instructional Supplies $13,000

551 - Personal Services $435

10 21 0400 00000 55200 13784 - 8 Biological Studies $120

10 21 0400 00000 55210 13784 - 7 Nat. Sci. Field $3,500

552 - Travel & Conference $3,620

0400 - Biological Studies $1,257,844

The current budget is not adequate to support the desired number of full time instructors.

The current budget is not adequate to provide the desired hours for the Biology Skills Lab.

***B. Identify an external (fund17) funding the department receives, and describe its primary use.***

17 21 0400 22500 54100 13936 - 26 Lottery - Instructional Supplies (Biology) $13,000

541 - Instructional Supplies $13,000 (this amount is also included in Part A)

Fund 17 money is used for the Biology Lab supplies budget. It is the total amount of money available to supply all of the Biology classes with everything that they require for their labs. The amount of Biology supplies budget has not changed in over ten years. Due to inflation and the rising prices of scientific laboratory supplies, the buying power of this budget has been greatly reduced. This has lead to the necessity of making due with less. This has prevented the necessary replacement of aging and worn equipment. And this has also prevented trying new labs and new technologies.

In 1975 when EVC opened, the budget for the Department was $9,000. Over 35 years later, it is at $13,000. We cannot offer high quality laboratory courses to our students with a small budget for supplies and equipment. In comparison, Mission College in Santa Clara offers a similar number of Biology courses and has a budget of $23,000.

***C. Explain any grants or other external funding sources (partnerships) for which your program is benefiting from.***

The Biology Department’s Natural History Field Study program will be reactivated during the 2011-2012 intersession with the Cambios (translated to “Change”) Title V funding.

***2. Explain any grants or external funding sources for which your program would be a good candidate. Do you have plans to apply for such sources?***

* Alfred Gonzalez plans to submit a request to the Cambios Project Steering Committee for the allocation of funds to rejuvenate and conduct the Natural History Field Studies Program beginning 2012-2013.
* The undersecretary of the USDA visited EVC on 10/26/11 and had a roundtable discussion regarding funding for our college. Biology faculty were a part of that discussion and we will continue to communicate with the USDA.

***3. Please describe any unmet needs for your program and how you plan to address them. Are any additional resources needed to accomplish your program’s CTAs?***

The biggest weakness of our program is the need for new equipment. Without a modernized lab for each course, we cannot provide an outstanding education to our science students. Our students transfer to colleges and programs where they will be lacking the skills needed to use the modern laboratory equipment found elsewhere. Students know that the College is deficient in having updated devices for gathering data in class and wish that EVC would give them a high quality laboratory experience like other colleges they have attended.

With the new biology curriculum for non-majors, there is an even greater demand for new, high tech machinery. We want to stay current in our field and in science that will mean expenses greater than is expected in other departments.

***4. What faculty positions will be needed in the next six years in order to maintain or build the department? Please explain. What staff positions will be needed in the next six years in order to maintain or build the department? Please explain.***

Faculty:

Originally the department had 6 professors in 1975. We STILL have only 6 full time tenure-track faculty members.

The biology department has seen substantial growth since 1975. In 2011, in spite of course reductions due to budget cuts, we are still offering 36 % more course sections with no increase in the full-time faculty. This expanding course load has meant greater opportunities for biology students at EVC but it has also far exceeded the teaching load that can be taught by the department's current tenure/tenure-track faculty. As a result, most semesters the department has been forced to rely on a 7-8 adjunct faculty. While our adjunct faculty members have been well-qualified and have done commendable jobs teaching they are not as accessible as, nor are they responsible for performing all the other duties expected of the tenure/tenure-track faculty. This situation will be further compounded by a scheduled increase in our non-majors general biology course (Biol-021). This general education life-science with a lab course is a mainstay at many colleges and will become so at EVC. However, it will also create still more demands on the existing biology faculty.

Therefore, the biology department needs to hire a faculty member dedicated to this course and to non-majors general-education instruction. The department needs a new faulty member to keep the course current and relevant to the needs of our students, to teach multiple sections of the course, and to coordinate with the adjunct faculty we will likely still need even with an additional faculty hire. Without a new hire the department will be faced with prospect of either offering a large, multi-section course that will be almost completely dependent on adjunct instructors, or assigning a current faculty member to oversee the course which would result in their present teaching load being turned over to adjunct faculty instruction.

The biology department was able to hire a new faculty member Fall 2011 however that was a replacement for the department's microbiology faculty member who transferred to SJCC. The replacement of the microbiology position was critical but resulted in no increase in the number of tenure/tenure-track faculty members and did not address our needs for a faculty member with an emphasis in non-majors general biology.

The department is also in need of an additional biology faculty position in order to accommodate the health science/medical/nursing majors.  Specifically, we need a faculty member who can teach anatomy. Looking at the occupational forecast of California within the next decade there is a need to prepare students for careers in biology. Table 4 is data from the California Employment Development Department. Anatomy is required for most of these occupations with the fastest job growth.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Occupation | Estimated Year - | Employment | | Employment Change | |
| Projected Year | Estimated | Projected | Number | Percent |
| Biomedical Engineers | 2008 - 2018 | 3,100 | 5,600 | 2,500 | 80.6 |
| Information Security Analysts, Web Developers, and Computer Network Architect | 2008 - 2018 | 35,000 | 52,600 | 17,600 | 50.3 |
| Biochemists and Biophysicists | 2008 - 2018 | 4,800 | 7,100 | 2,300 | 47.9 |
| Medical Scientists, Except Epidemiologists | 2008 - 2018 | 26,200 | 38,500 | 12,300 | 46.9 |
| Personal and Home Care Aides | 2008 - 2018 | 346,500 | 504,700 | 158,200 | 45.7 |
|  |  |  |  |  |  |
| Table 4: Occupations with Fastest Job Growth (% change) | |  |  |  |  |
| http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing | |  |  |  |  |

Table 5 is also data provided by the California Employment Development Department. It lists the highest paid occupations in California at the beginning of 2011. These are also careers that require students to take biology courses. Our department can prepare students to transfer into universities that offer these higher education opportunities.

|  |  |  |  |
| --- | --- | --- | --- |
| Occupation | Year | Time Period | Hourly |
| Mean |
| Anesthesiologists | 2011 | 1st Qtr | $112.32 |
| Obstetricians and Gynecologists | 2011 | 1st Qtr | $104.34 |
| Surgeons | 2011 | 1st Qtr | $102.33 |
| Chief Executives | 2011 | 1st Qtr | $96.63 |
| Physicians and Surgeons, All Other | 2011 | 1st Qtr | $93.44 |
|  |  |  |  |
| Table 5: High Wage Occupations in California |  |  |  |
| http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing | |  |  |

Staff:

The Biology Program needs additional hours for the Biology Skills Lab leader. The difference in cost for the employer is intended to summarize the estimated cost of an increase in hours for the Instructional Assistant, Lab Lead for Biology. Currently our Instructional Assistant works 24 hours per week 9 months per year. The Nursing department adds 5 hours per week so the lab can be open on Fridays. This totals to 29 hours per week. The cost of benefits will not increase for the employer. The differences in cost for the employer are salary, Pers contributions, and additional taxes such as workers compensation. Table 14 represents the differences in cost for the employer with an annual work schedule of 29 hours per week (9 months), 40 hours per week (9 months), and 40 hours per week (11 months).

|  |  |  |  |
| --- | --- | --- | --- |
| **Estimated Employer Cost** | | | |
|  | Current Part-Time (29 hours) 9 Months | Projected Full-Time (40 hours) 9 Months | Projected Full-Time (40 hours) 11 Months (Include Summer) |
| Annual Salary | $34,169.29 | $41,745.60 | $51,022.40 |
| Pers Ntaxed Instr. Normal | $3,732.31 | $4,559.87 | $5,573.18 |
| Tax Benefits | $3,215.33 | $3,928.26 | $4,801.20 |
| **Total Annual Cost** | $41,116.93 | $50,233.73 | $61,396.78 |

Table 6: Estimated cost for Instructional Assistant in Biology Skills Lab

***5. Does your program require any additional facilities, equipment, and/or supplies over the next six years (above and beyond the program’s current budget)?***

The Biology Department’s first Commitment to Action (CTA) is access for students. The current budget of $13,000 does not give our students access to a high quality experience in their biology laboratory courses. The Biology Program needs to keep current in technology along with maintenance of equipment currently used in the classrooms.

Our CTAs will not be accomplished without new equipment, models and tools needed to observe science in the classroom. Below are the items needed to replace aging pieces and new items the faculty/staff feel are necessary to give students a working biology classroom.

A prioritized list of equipment needs for the Biology Program is provided in Appendix A. Appendix A includes the item plus cost of tax and shipping.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Future Needs for Biology Department** | | | |  |
| **ITEMS** | **#NEEDED** | **UNIT PRICE** | **TOTAL PRICE** | **NEW** | **REPLACEMENT** |
| Autoclave | 1 | $53,000.00 | $53,000.00 |  | X |
| Microscopes | 110 | $775.00 | $85,250.00 |  | X |
| Spectrophotometers | 6 | $1,620.00 | $9,720.00 | X (3) | X (3) |
| Analytical Balances | 5 | $350.00 | $1,750.00 | X |  |
| HotPlates/Stirrers | 6 | $350.00 | $2,100.00 | X |  |
| DI Water System | 1 | $7,500.00 | $7,500.00 | X |  |
| Ice Machine | 1 | $7,500.00 | $7,500.00 | X |  |
| Anatomical Models |  |  | $50,000.00 |  | X |
| Laptop Computers | 14 | $800.00 | $11,200.00 |  | X |
| Power Labs w/ Laptops | 7 | $4,400.00 | $26,400.00 |  | X |
| pH meters | 3 | $975.00 | $2,925.00 | X |  |
| Test Tube racks autoclavable, non-metallic, non-rust | 30 | $20.00 | $600.00 |  | X |
| Hot stir plate with built in digital display thermometer | 1 | $1,000.00 | $1,000.00 | X |  |
| Dispenser VWR up to 15 ml or 25 ml | 1 | $329.00 | $329.00 | X |  |
| Large refrigerator for storing media and reagents | 1 | $8,600.00 | $8,600.00 |  | X |
| Allocate reserve funds to purchase new parts for the autoclave annually | 1 | $2,000.00 annually | $2,000.00 annually |  | X |
| Watering hose bib for greenhouse | 1 | $55.00 | $55.00 | X |  |
| **NEEDED BIOLOGY MATERIALS** |  |  |  |  |  |
| New and replacement sets of prepared slides |  |  | $25,000.00 |  | X |
| **MISC. NEEDED** |  |  |  |  |  |
| Replacement white boards for labs | 24 |  | $9,400.00 |  | X |
| Light switches near lab entrance doors | 6 |  |  | X |  |

Table 7: Future equipment and materials need for the Biology Department

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Future Needs for Biology Skills Lab** | |  |  |
| **Model Name** | **Model Number** | **Company** | **Costs** | **Current Condition** |
| Complete Dual-Sex Muscular Torso Anatomy Model | AW-GD1001T | Anatomywarehouse.com | $799.00 | Broken/Pieces Missing - Over 14 years old |
| Somso Lymphatic System Model | 81 V 3155 | Wards | $1,859.00 | Do not have in S-202 |
| Muscular Head Model | 81 V 3135 | Wards | $2,369.00 | Do not have in S-202 |
| Somso Skin Model | 81 V 3105 | Wards | $599.00 | Do not have in S-202 |
| Endocrine System Activity Model | 82 V 1225 | Wards | $139.95 | Do not have in S-202 - Broken - over 14 years old/model fell apart |
| Somso Comprehensive Hand Model | 81 V 3443 | Wards | $829.00 | Do not have in S-202 |
| 3B mini joint with cross section model set | 81 V 3122 | Wards | $184.00 | Do not have in S-202 |
| Somso Ear Model | 81 V 5108 | Wards | $489.00 | Broken - Over 14 years old |
|  |  |  |  |  |
| **Computer Software** |  |  |  |  |
| A.D.A.M. Interactive Anatomy Online – 12 Month Student Edition. A.D.A.M. Interactive Anatomy dramatically enhances the study of human anatomy, physiology and related topics. Incredibly detailed graphics, precision accuracy and advanced functionality makes A.D.A.M. Interactive Anatomy the perfect resource for students studying anatomy, allied health, nursing or other medical related courses. | N/A | A.D.A.M. Education | $99.00 One year Single User Online Access Student Edition | Our current software is not compatible with the upgrades we have had to our operating system throughout the years. It has been over 12 years since new software has been purchased. This might be something we would like to purchase with a site license. The students have been requesting an interactive online studying tool. |

Table 8: Future equipment and software needs for the Biology skills lab

**PART G: Additional information**

***Please provide any other pertinent information about the program that these questions did not give you an opportunity to address.***

To make program reviews more substantive and meaningful for the faculty and staff that prepare them more data needs to be available, and available in easily accessible and dissectible form. For example, it is impossible to draw significant conclusions about enrollment trends, or retention and success rates with the data currently available from the district or the college.

To make these program reviews significant and purposeful they need to be incorporated into administrative decisions in a transparent and documented form. Past reviews have largely been ignored in decisions made at the college and district levels rendering those exercises a frustrating and wasteful use of faculty and staff time. The most important change; the most significant development that needs to be instituted in program reviews is not a revision of the process at the department level, the development of a new document format, or even formulating assessment metrics (as important as all those may be) but in seeing the reviews actually used to make policy, hiring and budget decision at the college and district levels.

**PART H: Annual Assessment: Program Faculty and PR Committee**

***Please attach copies of any Annual Reviews that you have completed in the last six years (if applicable)***

Not applicable.

**PART I: Resource Allocation Table**

|  |  |
| --- | --- |
| **Item Title** | **Response** |
| Productivity (WSCH/FTEF) | *Coming soon* |
| Student Success Rate (Retention Rate) | 68% success rate, 87% retention rate |
| Number of class sections offered | 29 (Spring 11) + 35 (Fall 11) = 64 total offered  *21 (Fall 75) + 26 (Spring 76) = 47 opening of college in 1975* |
| Changes in enrollment | 25% from Fall 2008 to Fall 2011 |
| Program’s Current Budget (Fund 10) | $1,244,844 |
| Current External Funding (Fund 17) | $13,000 *($9,000 in 1975)* |
| Future Needs: Faculty | 1 full-time faculty: $58,000 |
| Future Needs: Staff | Additional hours for Skills Lab: $9,000 |
| Future Needs: Facilities | $ 264,245 |
| Future Needs: Supplies | $25,000 |

Table 9: Resource allocations for Biology Program

Appendix A: Prioritized list of equipment needed for Biology Program. This list was given to the Vice President of Academic Services in Spring 2012.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Instruction and Student Services 11-12 Equipment Request** | | | | | | |
| **Priority** | **Item** | **Number** | **Unit Cost** | **Tax & Shipping** | **Total Cost** | **Faculty Requestor** |
| 2 | Autoclave | 1 | $53,000.00 | $7,950.00 | $60,950.00 | Chen |
| 1 | Microscopes | 46 | $775.00 | $5,347.50 | $40,997.50 | All |
| 1 | Spectrophotometers | 12 | $1,620.00 | $2,916.00 | $22,356.00 | Stauble and Baker |
| 1 | Analytical Balances | 10 | $350.00 | $525.00 | $4,025.00 | Stauble and Baker |
| 2 | Hot Plates/Stirrers | 12 | $350.00 | $630.00 | $4,830.00 | Stauble and Baker |
| 1 | DI Water System | 1 | $7,500.00 | $1,125.00 | $8,625.00 | All |
| 1 | Ice Machine | 1 | $7,500.00 | $1,125.00 | $8,625.00 | All |
| 2 | Anatomical Models | 5 | $800.00 | $600.00 | $4,600.00 | Toyoshima |
| 1 | Laptop Computers | 56 | $800.00 | $6,720.00 | $51,520.00 | Hays |
| 1 | Bio Pacs w/ Laptops | 7 | $4,400.00 | $4,620.00 | $35,420.00 | Hays |
| 2 | pH meters | 12 | $975.00 | $1,755.00 | $13,455.00 | All |
| 1 | Test Tube racks autoclavable, non-metallic, non-rust | 30 | $20.00 | $90.00 | $690.00 | Chen |
| 2 | Hot stir plate with built in digital display thermometer | 8 | $1,000.00 | $1,200.00 | $9,200.00 | Chen |
| 1 | Dispenser VWR up to 15 ml or 25 ml | 2 | $329.00 | $98.70 | $756.70 | Chen |
| 1 | Large refrigerator for storing media and reagents | 2 | $8,600.00 | $2,580.00 | $19,780.00 | All |
| 1 | Watering hose bib for greenhouse | 1 | $55.00 | $8.25 | $63.25 | Baker |
| 1 | Complete Dual-Sex Muscular Torso Anatomy Model for Biology Skills Lab | 1 | $799.00 | $119.85 | $918.85 | Toyoshima |
| 1 | Electrophoresis Boxes | 24 | $348.00 | $1,252.80 | $9,604.80 | Stauble |
| 1 | Power sources for electrophoresis | 12 | $225.00 | $405.00 | $3,105.00 | Stauble |
| 1 | Earth Series DVD | 1 | $600.00 | $90.00 | $690.00 | Gonzalez |
| 1 | *Staphylococcus aureus* slides | 20 | $5.00 | $15.00 | $115.00 | Chen |
| 1 | *Bacillus subtilis* slides | 20 | $4.50 | $13.50 | $103.50 | Chen |
|  |  |  |  | **TOTAL** | **$300,430.60** |  |