

**Substantive Change Proposal**

**Biotechnology Laboratory Technician: Certificate of Achievement and Quality Control Microbiology Certificate of Achievement**

**Submitted by:**

**Santa Ana College**

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**Accrediting Commission for Community and Junior Colleges**

**Western Association of Schools and Colleges**

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**Clear and Concise Description of Change**

The Biotechnology Laboratory Technician Certificate of Achievement (General option) and the Quality Control Microbiology Certificate of Achievement (QC Microbiology option) are part of a series of stackable certificates, comprised of courses intended to develop and ensure proficiency in specific laboratory-based skills involving biology and chemistry, which will provide new students and incumbent workers with opportunities to advance in the growing biotechnology industry while exposing them to various aspects of the industry through coursework and internships. The major goal of the biotechnology certificate program is to provide students with theoretical information and practical skill sets that result in advancement opportunities in the biotechnology sector. The certificate program covers the areas of basic laboratory skills that would be utilized in entry-level industry jobs (e.g., biomanufacturing, bioprocessing) as well as university research labs in preparation to work in pharmaceutical and biological companies. Design and analysis of vectors used for bioprocessing will also be created by the students, allowing them to develop skills used for research, product synthesis, and an understanding and knowledge of upstream processing in the industrial setting. The last area the certificates will cover is quality control and quality assurance microbiology. This field is in highest demand by employers in Orange County and the state, and it is applicable to industries from biologics and pharmaceuticals to medical devices, food safety and environmental monitoring. All of these area and skill sets were identified by BioLink, a next-generation National Advanced Technological Education (or ATE) Center of Excellence for Biotechnology and Life Sciences, as the job skills necessary for a biotechnology technician and by the Santa Ana College industry/university advisory committee as essential for employment or transfer to a university.

**Relationship to the Mission**

Santa Ana College is part of the Rancho Santiago Community College District (RSCCD), one of the largest community college districts in California.

**The mission of the Rancho Santiago Community College District** is to provide quality educational programs and services that address the needs of our diverse students and community.[[[1]](#endnote-2)](http://www.rsccd.edu/Trustees/Pages/Mission-Goals.aspx)

In fall 2014, RSCCD served 40,653 students (excluding positive attendance academy courses): 25,710 credit and 14,943 non-credit students.[[[2]](#endnote-3)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/enrollmenttrendsfall2014final.pdf) The District is represented by two comprehensive colleges, consisting of a total of four centers and approximately 40 sites under the aegis of Santa Ana College, encompassing a total of 193 square miles and comprising 24% of Orange County. The District service area and community are composed of six major cities within Orange County: Anaheim, Garden Grove, Orange, Santa Ana, Tustin, and Villa Park. Over one million residents live within RSCCD boundaries, and this number is projected to increase 6% by 2020. Moreover, a population increase of four percentage points by 2020 is projected for Santa Ana (SAC’s primary service area).[[[3]](#endnote-4)](http://www.sac.edu/Accreditation/2014SelfEval/Documents/Introduction/Demographic%20Information.pdf)

In addition, the second largest non-credit (adult education) program in the state is offered through the School of Continuing Education. Law enforcement professionals receive instruction through the Orange County Sheriff’s Regional Training Center, and two off-campus fire technology training centers provide students with hands-on experiences that simulate real-world conditions. The College currently includes 503,380 assignable square feet of space that also features a Digital Media Center, the first facility of its kind in Orange County, which combines education and business in the digital media industry. In fall 2014, SAC served 29,757 students (excluding positive attendance academy courses): 18,491 students enrolled in credit courses, while 11,266 students enrolled in non-credit.[3](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/enrollmenttrendsfall2014final.pdf)

Santa Ana College is celebrating 100 years of service to students and the community in 2015. The College offers a full complement of general education, transfer-level, pre-collegiate level, and career technical education classes leading to an Associate’s degree or career/technical certificate aligned to its mission and that of the Rancho Santiago Community College District:

**The mission of Santa Ana College** is to be a leader and partner in leading intellectual, cultural, technological, and workforce development needs of our diverse community. Santa Ana College provides access and equity in a dynamic learning environment that prepares students for transfer, careers, and lifelong intellectual pursuits in a global community.[[[4]](#endnote-5)](http://www.sac.edu/AboutSAC/Pages/mission.aspx)

The biology department program is a discipline which focuses on several aspects of the college mission, including “intellectual, cultural, technological and workforce development needs of our diverse community.” The purpose of the biology department is to prepare students for certification, pre-professional careers and a curriculum in a four-year institution leading to a baccalaureate degree in such areas as microbiology, biotechnology, teaching, and cell and molecular. Our students will also be prepared to enter graduate or professional programs of specialized study such as: medicine, nursing, physical therapy, kinesiology, dentistry, medical technology, osteopathy, veterinary medicine, agriculture, forestry, optometry and dental hygiene. The biology department offers preparation ranging from actual experience in the biotechnology field to working with equipment and theory thereof, to the design and understanding of basic investigative procedures and paradigm. The department strives to work collegially with other departments to coordinate successful and high rates of transfer into programs such as nursing. These opportunities are re-examined by the faculty in partial fulfillment of the needs regarding the direction of the student population as it changes: the returning student,Veterans, the professional who needs to re-invent their career focus to be competitive in today’s workforce, the working parent, as well as the traditional student and those seeking intellectual improvement.

**Rationale for Change and Labor Market Analysis**

California leads the nation in having the largest concentration of biotechnology firms, with the biomedical industry accounting for the largest number of firms. Subsectors of the biomedical industry include biopharmaceuticals; medical devices; instruments and diagnostics; and research, testing, and medical laboratories.[[[5]](#endnote-6)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biotechnology_in_CA_2013.pdf) Twenty-five percent of California’s biotech employment is present in the Los Angeles/Long Beach/Santa Ana Metropolitan Area, which includes the College’s project area and is a region that also ranks highly in the nation for biotech employment with respect to the following areas of emphasis[[[6]](#endnote-7)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/BioSci%20LA%20Details.pdf):

* + Medical Devices employment – 1st place in U.S. Metropolitan Areas
	+ Research, Testing, Medical labs – 3rd place in U.S. Metropolitan Areas
	+ Drugs and Pharmaceuticals – 5th place in U.S. Metropolitan Areas

Community colleges in the region with biotechnology programs must build their capacity to produce quality biotechnicians in order to meet the workforce need. A recent study of the sector for the state highlighted that the demand for biotechnicians far outpaced the supply: “community colleges in the state are under supplying the state’s labor market for entry-level biotechnology workers…In Los Angeles, Orange, and Ventura counties the supply of workforce ready students is not currently meeting demand for project openings.”[6](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/BioSci%20LA%20Details.pdf) For 2014, there are 276 estimated biotechnician job openings in Los Angeles and Orange County, but the projected number of biotech graduates is only 65, of which Orange County’s contribution would be 15. Orange County is producing only 5% of the biotechnicians in the region, and the need is estimated to grow: “Orange County is projected to grow in Professional, Scientific, and Technical Services employment by 23.8 percent from 2010 to 2020, the third largest growth in its major industry clusters. The county is capitalizing on its strengths in life sciences and advanced electronics as a formidable industry cluster.”[[[7]](#endnote-8)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/WIR-final-2013.pdf)

Biotechnology technician jobs are high-wage occupations. Community college training programs serve a key role in providing underrepresented and disadvantaged students access to high-wage, high-growth science technician occupations as shown in Table 1[6](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/BioSci%20LA%20Details.pdf) :

Table 1. Estimate of LA/OC Industry Demand for AS/CC Certificated Applicants

|  |  |
| --- | --- |
| **Occupation (SOC)** | **Median Hourly Wages** |
| Manufacturing Production Technicians (17-3029.09) | $29.12 |
| Biological Technicians (19-4021) | $20.63 |
| Chemical Technicians (19-4031) | $19.94 |
| Quality Control Analysts (19-4099.01) | $21.56 |
| Medical and Clinical Laboratory Technicians (29-2012) | $17.96 |
| Inspectors, Testers, Sorters, Samplers and Weighers (51-9061) | $17.01 |

(Source: Centers for Excellence for Labor Market Research, 2014)

Women make up half of the population, and the Hispanic population is projected to become the largest ethnic group in Orange County.[7](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/WIR-final-2013.pdf) To meet the workforce need and ensure equitable access to high-wage occupations in the region, community college biotechnology programs will need to expand outreach and recruitment to engage more people, especially those underrepresented in STEM occupations, such as Hispanics and women.

In addition to producing sufficient biotechnicians to fill job openings, the industry requires biotechnology graduates with a high level of knowledge, skills and abilities because of the high-stakes nature of the work (e.g., validate drug effectiveness, produce precision medical instruments, determine health results, confirm that food is safe). Students need to emerge from biotech educational programs with technical, academic and professional skills (e.g., teamwork, problem-solving, communication) that will enable them to perform effectively to industry standards, such as those delineated in the BioLink ATE Center’s report on bioscience core competencies.[[[8]](#endnote-9)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/common_core_skills_5_13_without_checklist.pdf) Biotechnology programs must replicate as closely as possible actual work conditions to ensure that students master biotechnology core competencies.

1. **Description of the Program**
	1. **Educational Purposes of the Change**

This certificate program is designed to prepare students for entry-level jobs as laboratory assistants, biomanufacturing technicians, research and development technicians, and for quality control biology and microbiology fields such as biotechnology, medical devices, pharmaceuticals, biological, food safety, and testing laboratories.

The certificates comprise a mix of courses that are a blend of skills-intensive biotechnology courses and UC/CSU transferable courses, some of which are required of biology majors. This blend will allow students who are job-oriented to acquire skills and theory-based knowledge needed to enter a growing and high-wage field but also take courses that can be applied towards a science/biology degree should they decide to pursue more education.

The major goal of the biotechnology certificate program is to provide students with information and skills which will provide employment and advancement opportunities in the biotechnology sector, which includes many industries from food processing to medical device manufacturing. The program goals include integrating existing courses and programs (e.g., biology and chemistry) with the biotechnology program to support the industry needs and provide students with multiple opportunities. Students may initially choose only to complete the certificate to obtain good-wage employment but may later use the completed coursework in biology and chemistry to complete a pathway to transfer to a four-year college or university as a STEM major. Similarly, a student majoring in biology may decide to take the biotechnology-specific skills courses in order to obtain employment in the field of interest while simultaneously pursuing their degree.

* 1. **Identification of Delivery Mode**

Coursework will be offered in lecture classes through traditional face-to-face as well as distance education format; laboratory classes will always be face-to-face with hands-on instruction and practice. Assignments, whether traditional face-to-face or in the distance education mode, will include lecture; discussions; research papers with technical writing assignments; individual and group projects; and community-based assignments. All hybrid and completely online instruction will utilize the selected District-designated online platform (i.e., Blackboard), and students will have access to the library, supplemental instruction as well as counseling services and other student support services. In order to address the needs of special populations such as single mothers, veterans, and returning students for career training, the department offers the technical information in a variety of formats to engage as many learning modalities as possible. SAC students prefer lectures delivered in person, but this same material is also available for their review in an online video format as well as posted lecture notes, reading assignments, and written and online practice activities. The student can receive instant feedback from the online activities and understand which areas require more time. All biology instructors have received training from the Distance Education Office on online instruction methods and have or will have received the Santa Ana College Online Teaching Certification by summer 2015. These resources are all provided to the students, so that they may practice and work with the theoretical concepts in the format that works best for them. These particular activities are for practice, so that the students feel confident before proceeding to the graded assignments. Courses are also offered weekends and evenings so that working students can attend and gain new skills for employment.

1. **Description of Planning Process**
	1. **Relationship to Planning, Evaluation and Mission**

With the mission of the biology department in mind to prepare students for certificates, careers or transfer to four-year institutions in such fields as biotechnology, the department worked with the regional Deputy Sector Navigator and local industry to plan a certificate program that would result in students prepared to enter the workplace as biotechnicians.In three industry/university advisory board meetings that began June 2012 and continued through November 2013 and January 2015, the department specifically concentrated on curriculum and skills development for the certificates. Industry and university representatives were shown the proposed curriculum for each course, and approval was obtained for each course and the planned certificates.[[[9]](#endnote-10)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biology%20Department%20Meeting%20Minutes%20September%202013.pdf), [[[10]](#endnote-11)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Division%20Curriculum%20Meeting%20Minutes%20October%202013.pdf), [[[11]](#endnote-12)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Curriculum%20Meeting%20Minutes%20December%202013.pdf) The most important identified competencies were lab skills, theoretical understanding, technology incorporation, soft skills, laboratory mathematical applications and proper documentation.

* 1. **Assessment of Needs and Resources**

During the planning of the course curriculum, SAC faculty assessed the equipment, reagents, facilities and faculty required for the proposed certificates. The Dean of Science, Math and Health Sciences identified a lab space with adjoining teaching space for the proposed classes and equipment. Because of the specific nature and high cost of the equipment needed to run such a program, SAC faculty have worked hard to acquire all the equipment to date from donations from industry or from funding acquired from the successful acquisition of grant funding. The biology department already had one full-time faculty member on staff with industry experience in this area. It was determined that one additional faculty member with industry experience in this field was required. An additional faculty request was made, and the District agreed to hire a faculty member with a background in biotechnology to begin during the fall 2014 semester.

* 1. **Anticipated Effect on the College**

The biology department anticipates that this will help develop the College further as a leader in Career Technical Education programs. The department will enhance already existing relationships and partnerships with local industry, which will help students obtain employment. In addition, the department is currently working to set up articulation pathways with local high schools to help get more students into the exploration of STEM careers.

**4. Intended Benefits**

Students who complete each certificate will obtain a Certificate of Achievement in Biotechnology, will have obtained proficiency in basic and more advanced laboratory skills, and will have been exposed to various aspects of the industry through school-sponsored events and coursework. Additionally, students will have the opportunity to obtain real-life experience through internship opportunities. The certificate meets the need on the emerging and growing biotechnology sector in Orange County.

**5. Preparation and Planning Process**

SAC biology faculty members have been working since 2006 in close conjunction with community college faculty all over Southern California to develop local regional biotechnology programs. The Deputy Sector Navigator and Sector Navigator have been instrumental with support in this area. This support has included program knowledge, labor market data, industry contacts and professional development support.

Santa Ana College and our collaborators met with a biotechnology advisory committee in June 2012, November 2013 and January 2015 to discuss curriculum. This advisory committee was comprised of local area industry and university representatives. The committee recommended developing stackable certificates that would provide new students and incumbent workers with skills to enter and advance in this growing industry. Since that meeting, local area community colleges have worked together to research and plan for the implementation of such a certificate. The certificates will be comprised of courses intended to develop and ensure proficiency in specific lab-based skills as well as more traditional basic biology and chemistry courses.

SAC faculty researched program models on the BioLink website. BioLink is the next-generation National ATE Center of Excellence for Biotechnology and Life Sciences, a national ATE Center located in San Francisco, California. Salt Lake Community College’s (SLCC) STUDENTfacturED® program was identified as an intriguing option. STUDENTfacturED® is an applied-learning model and an NSF ATE-supported project, wherein students master biomanufacturing competencies by preparing products for high school and college biology and biotechnology programs.[[[12]](#endnote-13)](http://www.slcc.edu/studentfactured/) The faculty contacted Salt Lake Community College and discussed their interest in the program. SLCC shared their Regulations and Compliance curriculum, which provides all of the instructional and practical elements of operating a student-manned biotech services ‘company’. In summer 2014, Dr. Ngan-Winward, from SLCC, came to Orange County to train the faculty on the curriculum. Piloting an adapted version of SLCC’s model at the partner colleges is a key component of the proposed project. For the partner colleges’ Biology 194: Quality & Regulatory Compliance in Bioscience course, the SLCC curriculum has been adopted with minor modifications. However, for the core biotech courses—Biology 191, Biology 192, and Biology 193, which feature the ‘mini-company’ model, the types of supplies manufactured are different from those produced in the SLCC model, and the curriculum has been adapted to reflect the standard operating procedures specific to the equipment and procedures used in the College’s proposed biotechnology program.

Pending Commission approval, the College is planning to begin offering both options (i.e., the stacked biotechnology certificates) beginning fall 2015.

1. **Evidence of Adequate Resources**
2. **Support Services**

Santa Ana College endorses and maintains a culture of supporting student academic achievement in alignment with the mission of the College through its academic programs and student support services. Student Support Services offered at the College address the six Vision Themes, which serve as the basis of the Strategic Plan[[[13]](#endnote-14)](http://www.sac.edu/AcademicAffairs/IEA_Office/Documents/2014-2016%20Strategic%20Plan%20Update_approved9102014.pdf): Student Achievement, Use of Technology, Innovation, Community, Workforce Development, and Emerging American Community. Specific Academic and Student Support Services that are aligned to the stacked certificate in biotechnology include: the Distance Education program with all the services offered at the Distance Education office; the Career Center; the Testing Center for proctoring online quizzes; designated CTE counselors; the services offered in Academic Affairs as well as the Division of Science, Math, and Health Sciences; the Institutional Effectiveness and Assessment office with the coordinator; the Financial Aid office; the Health Center; Professional Development; the RSCCD Institutional Research Department; DSPS; EOPS; the Veterans Resource Center; the Learning Center; the Math Center; and the Biology Center.

1. **Sufficient and Qualified Faculty, Management, Support Staffing, and Evaluation**

The stacked certificates would require two full-time faculty with biology, biotechnology and industry experience to teach the necessary classes in support of the proposed certificates. There are currently two full-time faculty on staff that meet the required qualifications.

1. **Professional Development**

It is understood that with the development of the proposed certificates in biotechnology, the biology department will need to consider enhanced professional development opportunities, including conference attendance. The faculty have already been participating in ongoing professional development classes and workshops funded personally or through grant opportunities. Opportunities attended within the last year include training on Liquid Column Chromatography equipment, Biofuels production, and Regulatory and Compliance Issues in Industry. Faculty have attended seminars and workshops including the American Society of Microbiology Center for Undergraduate Education, BIOMAN (Biomanufacturing Conference), BioLinks (Biotech NSF ATE Center), and SoCalBio (Biotech and Biomedical Industry Group).With the newly enhanced Professional Development program at SAC[[[14]](#endnote-15)](http://www.sac.edu/facultystaff/professional-development/Pages/default.aspx), funds will be made available for professional activities within this new program. In addition, the Student Equity Plan[[[15]](#endnote-16)](http://www.sac.edu/committees/StudentSuccess/Documents/Josh%20Dorman/Student%20Equity%20Plan.pdf) contains elements that would support these endeavors, as the department has always encouraged the entry of students in the categories designated within the California statewide equity legislation.

1. **Facilities, Equipment, Supplies and Technology**
2. **Facilities, Equipment and Supplies**

Existing facilities will be used for the certificates in biotechnology in addition to some additional classrooms. The Dean of Science, Math and Health Sciences identified a lab space with adjoining teaching space for the proposed classes and equipment. Because of the specific nature and high cost of the equipment needed to run such a program, SAC faculty have worked hard to acquire all the equipment to date from donations from industry or from funding acquired from the successful acquisition of grant funding. Off-campus sites will be in the form of industry or university internships. The biology department has identified two local universities and three local companies willing to provide internships for our students. Existing equipment and supplies may also be utilized in addition to any other necessary programmatic requests which will be made through the College-wide Resource Allocation Request (RAR) process. All college units make requests through the department based on program review and student learning outcome assessment results. Requests are prioritized at the division level and are sent to the respective area (i.e., Academic Affairs, Student Services, Administrative Services). The Academic Affairs RAR includes facilities, equipment, technology, and personnel requests that are aligned to the college mission and Strategic Plan. Requests are prioritized and then sent to President’s Cabinet for consideration in conjunction with the requests from Student Services and Administrative Services.[[[16]](#endnote-17)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/CABINET%20PRIORITIZED%20RAR%20Academic%20Affairs%202013-2014%20FUNDED.pdf) Cabinet prioritizes RARs in accordance with college budget priorities, mission and direct tie to department/division-intended outcomes.

In addition, the College is currently in the process of planning for a new STEM building that will house an additional biology lab, which will allow for the biotechnology program to grow in the near future.

**B. Technology**

Technology is a critical and core component of Santa Ana College and is essential to how the College supports student learning programs and services. One of the defining elements explicitly stated in the College mission statement is the use of technology to assist in meeting the needs of the College’s diverse student population and community. In addition, technology is one of the six Vision Themes, all of which define the goals of the Strategic Plan.[13](http://www.sac.edu/AcademicAffairs/IEA_Office/Documents/2014-2016%20Strategic%20Plan%20Update_approved9102014.pdf)

Global technology-related services for students are also an important element in the existing biology program as well as the certificates of achievement in biotechnology:

* The Nealley Library provides resources, services and resources including DVDs, CDs and a variety of periodical databases, providing students 24/7 remote access. In addition, the Nealley Library provides Internet access to all patrons at several public access workstations. Library online researching tools are available to all enrolled students via District-provided wired or wireless access. Student may also check out library laptops.
* The College’s Learning Center, located in Dunlap Hall (temporarily relocated during construction on the campus at this time), provides students and faculty an array of resources, including technological, that assist students in acquiring skills for academic success.
* The Academic Computing Center has an array of technological services, resources, hardware and software available free to all SAC students.
* Other examples of technology infused resources and computer labs include Admissions and Records; academic divisional labs, Division offices, Career/Job Resources Center; Counseling; Transfer Center; MESA; Math Center; Student Services; Biology Center.

To support the College and to ensure that courses offered in the distance education mode meet all Commission and U.S. Department of Education requirements, the College’s Distance Education office, with a full-time DE coordinator and three full-time support personnel, have developed processes and requirements for Distance Education instruction. One requirement is that all faculty who teach in the distance mode must receive the SAC Online Teaching Certification. The current course management system, Blackboard, is used by faculty in traditional face-to-face courses as well as distance mode courses, with 24/7 access for students and faculty. To optimize the effective use of Blackboard, the Distance Education office offers training for students and assistance to faculty and students on a “drop-in” basis. The office also conducts training opportunities for faculty in all elements of the course management system. Additional information concerning Distance Education at Santa Ana College can be found later in this report in the section entitled **Policy on Distance Education and on Correspondence Education**.

1. **Sustainable Fiscal Resources**

The biology department has received several grants to purchase the equipment to support the proposed Biotechnology program, including two Perkins grants and funding through the ENGAGE (or Encouraging New Graduates and Gaining Expertise in Science, Technology, Engineering and Mathematics) in STEM grant initiative, a collaboration between Santa Ana College, Fullerton College, and CSU Fullerton, dedicated to increasing awareness, retention, and success of students in the areas of STEM fields and majors. The department is currently in the process of applying for three new grants, including a Careers Pathways grant, an NSF ATE grant and a CTE Enhancement grant. Any one of these grants would offset initial start-up costs. Long-term costs involve consumable reagents and supplies, available and sustained through the Division budget.

Fiscal resources in the RSCCD are sufficient to support student learning programs and services.[[[17]](#endnote-18)](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/FOUNDATION%20REPORTS/Rancho%20Santiago%20CCD%20Audit%20Report%202014.pdf) The RSCCD is a multi-college district with two colleges: Santa Ana College and Santiago Canyon College. The Budget Allocation Model, based on the SB 361 Model, divides resources among the colleges and district operations based on guidelines and procedures in strict compliance with federal and state laws and regulations. Santa Ana College’s budget is established by the District office based on established FTES targets, with the revenue generated at each college allocated based on the SB 361 budget model. The SAC Planning and Budget Committee then develops the annual budget priorities based on the College’s mission and Strategic Plan.[[[18]](#endnote-19)](http://www.sac.edu/AdminServices/budget/Documents/Budget%20Assumptions%20FY%2015-16%20Approved.pdf)The College’s planning reflects a realistic assessment of financial resources based on quarterly cash flow and budget comparison by quarter. [[[19]](#endnote-20)](http://www.sac.edu/AdminServices/budget/Documents/Fund%2011%2013Cashflow%20and%20budget%20comparison%20fd%2011%2013%20SAC%20123114.pdf), [[[20]](#endnote-21)](http://www.sac.edu/AdminServices/budget/Documents/FUND%2012cashflow%20and%20budget%20comparison%20fd%2012%20SAC%20123114.pdf)

The College has been successful in generating external support through federal and state grants as well (e.g., Federal Assistance Work Study, Federal Supplemental Education Opportunity; Workforce Investment Act; State Basic Skills Initiative; DSPS; EOPS; Matriculation; local grants such as Lumina and California Endowment grants). The Santa Ana College Foundation has also been supportive of new program innovations, awarding student scholarships whenever possible.

Additional grants may also be sought from the SAC Foundation, the College’s allocated Student Equity Funds, as well as externally.

1. **Comparative Analysis of Budget, Enrollment, Resources**

SAC has already shown it commitment to this program by providing career technical education monies through Perkins funding for equipment and through grant applications to support ongoing marketing, internship development, equipment, supplies and enrollment pathways. An additional full-time faculty member was hired last year to support this program. There are now two full-time instructors, both with university research and industry experience in the biotechnology field.

The budget for the current Biotechnology certificate program includes the following categories: contract instructors, classified employees, instructional aides, supply and equipment funds. A commitment by the College is ongoing to support all emerging technologies in the STEM fields, and plans are currently underway for a new STEM building which will afford expanded opportunities for the growth of the biotechnology program.

Current enrollment in the courses leading up to the proposed certificate program includes an average of 15 – 20 students. The department anticipates 20 – 24 students enrolled in courses for each of the certificates (once approved), as the program continues to grow and students become increasingly aware of these opportunities. The department is in the process of collaborating on a Career Pathways grant with Saddleback High School. Whether the grant is obtained or not, Saddleback High School and SAC are committed to working out a pathway for the students in the Project Lead the Way – Biotechnology program to articulate directly into the biotechnology certificate program. This would supply the SAC certificate program with an estimated 50 new students a year entering the program.

1. **Plan for Monitoring Achievement of Desired Outcomes**

As all programs at Santa Ana College undergo program review in order to monitor and increase student success and achievement, the biology department has been conducting cyclical program review, and a program review for the proposed biotechnology program will also be conducted as described in more detail below.

Every course at the College has identified course-level student learning outcomes. A program has Program Learning Outcomes, which are then mapped to the seven Institutional Learning Outcomes or ILOs (i.e., Communication Skills, Thinking and Reasoning, Information Management, Diversity, Civic Responsibility, Life Skills, Careers). Courses are assessed every semester; programs are assessed every year; and every four years, the department undergoes a capstone quadrennial review. Categories analyzed include: Goals Updates; Learning Outcomes; Data and Trends; Curriculum and Pedagogy; External Elements and Conclusions. Reports are currently placed on the Program Review Repository[[[21]](#endnote-22)](http://www.sac.edu/program_Review/Pages/default.aspx), and the department chair or designee presents the report to the Teaching Learning Committee for review, discussion of interdisciplinary implications and issues that affect College-wide strategic planning elements. For the certificates in biotechnology, course-level learning outcomes will also be mapped to the newly-developed program learning outcomes above. PLOs will then be mapped to the ILOs. In addition, as the College has an “ILO of the Year” (which the entire College participates in analyzing), the biotechnology program will analyze that ILO as well, so it may be aggregated into the division data and ultimately the College-wide data.

The program level outcomes for the biotechnology certificate program are based on the successful completion of the certificates. The program level outcomes for each biotechnology certificate option are as follows:

 Certificate of Achievement – Biotechnology Laboratory Technician Certificate: General

1. Students will know how to subclone a gene into a cloning or expression vector.
2. Students will have the knowledge and laboratory skills necessary to obtain entry-level jobs as a biotechnician.

 Certificate of Achievement – Biotechnology Laboratory Technician Certificate: QC Micro

1. Students will learn an overview of the processes of quality assurance and regulatory compliance used in the bioscience industry.
2. Students will know how to perform advanced aspects of aseptic technique.
3. Students will have the knowledge and laboratory skills necessary to obtain entry-level jobs in quality control and quality assurance microbiology.

Students will be asked to complete and submit the paperwork for the certificate during their last class in the program. The Graduate Office will track the certificates awarded and submit that information to the CTE Launchboard.

1. **Evaluation and Assessment of Student Success, Retention and Completion**

Student success will be monitored through certificate completion and internship evaluations by industry. Retention and completion rates will be monitored by tracking students who begin the introductory biotech and basic lab skills classes. The department will follow student progress through the Biology 192, Biology 193, Biology 194, and Biology 195 core series courses. Retention rates will be determined for the program as a whole. The department will indicate which certificate level each student completed. Certificate completion and certificates awarded will be tracked through the Graduate Office. It is recognized that some students will inevitably exit the program certificate completion as jobs present themselves and/or they successfully transfer to a university or professional program.

1. **Evidence of Approvals**
2. **Statement of faculty, administrative, governing board, and regulatory agency approvals**

The biotechnology stacked certificates were initiated by faculty working together at Santa Ana College, Fullerton College and Santiago Canyon College. The courses and certificates were developed by these faculty with the input and advise of industry representatives, university faculty, the Deputy Sector Navigator for Life Science in California, the BioLinks NSF ATE Center for Biotechnology, and the Northeast Biomanufacturing Center and Collaborative. The outline of the certificates and courses were presented to each of the biology departments at the individual community colleges. The SAC biology department approved the certificates and courses in September 2013.[9](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biology%20Department%20Meeting%20Minutes%20September%202013.pdf) The Division of Science, Math, and Health Sciences then approved the certificates and courses in October 2013[10](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Division%20Curriculum%20Meeting%20Minutes%20October%202013.pdf), followed by approval from the campus Curriculum and Instruction Council in December 2013.[11](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Curriculum%20Meeting%20Minutes%20December%202013.pdf)

1. **Legal Requirements**

Santa Ana College recently had its accreditation reaffirmed by ACCJC in February 2015.[[[22]](#endnote-23)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Santa_Ana_College_ACCJC-Letter-of-Reaffirmation_02_06_2015.pdf) The College has also sought and received necessary local approvals through the Academic Senate followed by the RSCCD Governing Board[[[23]](#endnote-24)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/12-09-13%20DOCKET.pdf), [[[24]](#endnote-25)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/RANCHO%20SANTIAGO%20COMMUNITY%20COLLEGE%20DISTRICT%20-%2012-09-13%20minutes.pdf), the Los Angeles Orange County Regional Consortium[[[25]](#endnote-26)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/LAOCRC%20Approval%20of%20Biotechnology.pdf), as well as by the CCCCO[[[26]](#endnote-27)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biotech%20Certificate%20Approval%20Letter%20by%20CCCCO.pdf), [[[27]](#endnote-28)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/QC%20Certificate%20Approval%20Letter%20by%20CCCCO.pdf) to offer the proposed certificates in biotechnology.

1. **Governing Board Action and Budget Details Supporting Change**

The RSCCD Governing Board took action to approve the proposed biotechnology stacked certificates of achievement in December 2013 as noted above. Funding to support the purchase of necessary equipment has been obtained through Perkins, SB 1070, NSF grant funding, SAC foundation funding, and industry equipment donations. The biology department is already receiving an instructional supplies budget from the Division of Science, Math, and Health Sciences to support the various courses that comprise the proposed stacked certificates.

**F. Curriculum Development and Requirements**

**1. Certificate Development and Requirements**

Faculty from Santa Ana College and Fullerton College have been working together since 2007 to develop biotechnology programs at both schools. In 2010, Santiago Canyon College joined this collaboration. The faculty engaged in professional development and researched other colleges’ biotechnology programs to identify the strongest practices and approaches. They also surveyed biotechnician employers in Orange County for information on employment projections and hiring needs and to identify the occupational skills prioritized in hiring decisions for new biotechnicians. Faculty were able to perform a gap analysis on the alignment of their programs with industry need and developed a plan to acquire the equipment as well as revise the curriculum to ensure that required occupational skills are taught in the programs.

Together, the faculty developed a biotechnology program consisting of stackable certificates that includes transfer-eligible science courses and features biotechnology classes designed to replicate the work environment. In addition, contextualized math and writing skills are included to ensure students are able to perform successfully as biotechnicians. Although the certificates are stackable and build on the skills and knowledge learned in the prior certificate, there are no prerequisites necessary to enter this program. Through regional alignment, all three colleges will offer the same core courses and certificates, with each college emphasizing a particular specialty: SAC – quality control/assurance microbiology, Santiago Canyon College – food safety and security, and Fullerton College – research and development.

**2. Course Development and Requirements**

Stackable certificates are a key strategy to retaining students and have been identified as an effective method to retain disadvantaged students.[[[28]](#endnote-29)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/What%20Works%20in%20Job%20Training%202014.pdf) Students often identify work and family demands as impacting their ability to succeed and persist in college. Stackable certificates turn a difficult situation into a positive by:

* Allowing a student to enter employment quickly (within a year) in a job that aligns with the student’s major, through which they can acquire skills and experience that will be an advantage as they continue on to earn STEM degrees and enter more advanced STEM professions;
* Paying a high wage that will help support students’ educational aspirations and encourage persistence; and
* Including courses that count toward transfer to university science programs.

The purpose of this Substantive Change Report is to seek approval for the College to offer SAC students the option of obtaining a state-approved Biotechnology Certificate of Achievement through pursuit of either a proposed General option[[[29]](#endnote-30)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/SAC%20Cert%20of%20Biotech%20General.pdf) and/or QC Microbiology option[[[30]](#endnote-31)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/SAC%20Cert%20of%20Biotech%20QC%20Microbiology.pdf), which are both part of a stackable sequence of certificates, where 50% or more of the courses contained in the proposed certificates are newly approved. Both the General and QC Microbiology options initially require completion of BIOL 193 and BIOL 194 as shown below:

Required Courses for Both Certificates

***Lab Assistant Certificate (11 units)***

Bio 190: Introduction to Biotechnology (3)

Bio191: Biotechnology A: Basic Laboratory Skills (4)

Chem 209: Introduction to Chemistry (4)

***Biotechnology Technician Certificate***

***(6 units)***

Bio193: Biotechnology C: Nucleic Acids (4)

Bio 194: Quality & Regulatory Compliance in Bioscience (2)

***Biomanufacturing Technician Certificate (14 units)***

Bio 192: Biotechnology B: Proteins (4)

Bio 211: Cellular and Molecular Biology (5)

Chem 219: General Chemistry (5)

1. **Biology 193: Biotechnology C – Nucleic Acids (4 units)**. Lecture and laboratory. Advanced knowledge and skills in biotechnology utilizing nucleic acids including subcloning, in vitro transcription, nucleic acid purification and isolation. In addition, the role of nucleic acids for use in safety and product analysis will be explored including DNA fingerprinting and polymerase chain reaction (PCR). Course will survey industrial application of these techniques and incorporate the use and application of regulatory guidelines and compliance testing and reporting. Career paths in the areas of biotechnology utilizing nucleic acids as well as regulatory affairs and quality assurance will be explored.
2. **Biology 194: Quality & Regulatory Compliance in Bioscience (2 units)**. Course will focus on federal and industry related regulatory requirements and compliance laws and guidelines. Standards such as ISO standards, USDA/ FDA regulations, 6 Sigma analysis, and California health and safety regulations will be discussed and applied to situations in industry as well as the Biotech industry simulated environment classroom courses. Compliance testing and reporting processes will also be discussed in conjunction with real-life industry situations as well as classroom models.

General option versus QC Microbiology option

If a student desires to obtain the Biotechnology Laboratory Technician Certificate of Achievement (General) for 14-16 total units, then in addition to required courses #1 and #2 above, the student must also select 8 units from the following choices:

1. **Biology 177: Human Genetics (3 units)**. Introductory course in human genetics which explores basic principles, patterns of inheritance, gene structure, function and regulation, current advances in genetics and gene technology, as well as social and ethical issues in contemporary genetics.
2. **Biology 290: Biochemistry and Molecular Biology (5 units)**. Lecture and laboratory. Introduction to biochemistry and molecular biology. Included are discussions of biological macromolecules, energy production, metabolic pathways and regulation, genetic code, genomics, DNA replication, transcription and RNA processing, translation, and gene regulation. Laboratory activities will include use of visible and UV spectroscopy, chromatography, cell fractionation, ultracentrifugation, protein purification, electrophoresis, and recombinant DNA methods. This course is designed for biology majors, health pre-professionals, and biotechnology majors.
3. **Biology 229: General Microbiology (5 units)**. Lecture and laboratory. Introduction to microorganisms, their classification, structure, biochemistry, growth, control, and interactions with other organisms and the environment. Designed for biology, preprofessional, and prenursing (BSN) majors.
4. **Biology 139: Health Microbiology (4 units)**. Lecture and laboratory. Presents practical and theoretical aspects of medical microbiology to meet the needs of those in allied health professions. Provides basic knowledge of the microbial world by covering diversity, structure, metabolic and genetic characteristics, cultivation, and control. Emphasis is placed on human-microbe interactions, especially infectious diseases. Laboratory deals with identification, growth, and control of microorganisms.
5. **Chemistry 229: General Chemistry II and Qualitative Analysis (5 units)**. Lecture and laboratory. Continuation of General Chemistry I, including but not limited to ionic equilibrium, acid and base equilibrium, thermodynamics, electrochemistry, nuclear chemistry, organic chemistry and descriptive chemistry.
6. **Biology 197: STEM Internship/Work Experience (1 – 4 units)**. Supervised paid or volunteer experience in student's major including new or expanded responsibilities. 75 hours of paid work or 60 hours of unpaid work equals one unit. Course may be taken 4 times for a maximum of 16 units of occupational cooperative work experience credit.

If a student desires to choose the QC Microbiology emphasis for 14 total units, then in addition to required courses #1 and #2 previously noted, the student must also complete the following coursework:

 3) **Biology 229: General Microbiology (5 units)**. Lecture and laboratory. Introduction to microorganisms, their classification, structure, biochemistry, growth, control, and interactions with other organisms and the environment. Designed for biology, preprofessional, and prenursing (BSN) majors.

 4) **Biology 195: QC Microbiology (2 units)**. This course will cover the skills necessary to work in a regulated quality control microbiology laboratory.

 5) **Biology 197: STEM Internship/Work Experience (1 unit)**. Supervised paid or volunteer experience in student's major including new or expanded responsibilities. 75 hours of paid work or 60 hours of unpaid work equals one unit. Course may be taken 4 times for a maximum of 16 units of occupational cooperative work experience credit.

By completing all three stackable certificates, a student will have acquired the foundational core competencies to enter and work effectively as a biotechnician. The content for each of these courses was developed by the faculty with in-depth input from biotechnology programs around the country as well as biotechnician employers in Orange County. Employers worked with the College to identify the occupational skills prioritized for new biotechnicians. The skills most urgently requested by employers were soft skills in the work environment; liquid handling skills; aseptic technique, knowledge of regulations; the ability to work in a quality environment; and contextualized math and writing skills.

The courses in this program include transfer-eligible science courses and feature biotechnology classes designed to replicate the work environment in order to ensure students are able to perform successfully as biotechnicians. The faculty have structured the biotech classrooms and assignments to replicate the work environment, so that students apply what they learn to perform job tasks as they would if employed as biotechnicians. That is, students do not just learn about standard operating procedures (SOPs), but they are required to perform according to the SOPs; they do not just hear about the importance of time management and dependability in the field, they “clock-in” and are docked points for being late; and so on. These course features are all designed to replicate the work environment as closely as possible.

**G. Evidence that Each Eligibility Requirement Will Be Fulfilled**

1. **Authority**

Santa Ana College has authority under its Board of Trustees to operate as a degree granting institution due to continuous accreditation by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges, an institutional accreditation body recognized by the Commission on Recognition of Postsecondary Accreditation and the United States Department of Education. This authority is noted on the first page of the Santa Ana Catalog.[[[31]](#endnote-32)](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf)

1. **Mission**

The current educational mission of Santa Ana College was revised and adopted by the Board of Trustees in November 2013. It is the responsibility of the participatory governance committees to review the mission statement on an annual basis and make recommendations for revision and updating to District Council. The mission of Santa Ana College is to be a leader and partner in meeting the intellectual, cultural, technological and workforce development needs of our diverse community. Santa Ana College provides access and equity in a dynamic learning environment that prepares students for transfer, careers and lifelong intellectual pursuits in a global community.[5](http://www.sac.edu/AboutSAC/Pages/mission.aspx) The proposed certificates in biotechnology structure teaching and learning in accordance with discipline-specific regulations that support the College’s mission and existing biology associate’s degree program[1](http://www.sac.edu/AcademicProgs/HST/OTA/Pages/default.aspx), offering students expanded CTE lower division course work which provides more in-depth training in the specific area of biotechnology, which has long-term research and vocational opportunities as the technology continues to expand. Upon completion of the proposed certificates in biotechnology, students will have the knowledge and job skills necessary to be employed in the biotechnology field, to transfer to a four-year college or university to continue their education in biotechnology, and to work productively in a research laboratory. The biology department program is a discipline which focuses on several aspects of the college mission, including “intellectual, cultural, technological and workforce development needs of our diverse community.” The purpose of the biology department is to prepare students for certification, pre-professional careers and a curriculum in a four-year institution leading to a baccalaureate degree in such areas as microbiology, biotechnology, teaching, and cell and molecular.

The mission statement is included in the College catalog and class schedule, it appears on all College meeting agendas, and it is posted on the website and in many public locations deemed appropriate.

1. **Governing Board**

Elected by the voters from the seven trustee areas[[[32]](#endnote-33)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/2000/BP-2010.aspx), the governing board of RSCCD consists of seven members who are responsible for the academic quality, integrity and financial stability of the institution and who ensure the efficacy of the institution’s mission.[[[33]](#endnote-34)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/2000/BP-2200.aspx) The Board exercises the right to be an independent policy-making body in accord with the California Education Code and reflects constituent and public interest in activities and decisions as reflected in the minutes of the regularly scheduled board meetings.

The Trustees also adhere to a conflict of interest policy, the intent of which is to assure that if there is a conflict of interest, the interests are disclosed and do not interfere with the impartiality of governing body members or outweigh the greater duty to secure and ensure the academic and fiscal integrity of the institution.[[[34]](#endnote-35)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/2000/BP-2710.aspx)

1. **Chief Executive Officer**

The Chief Executive Officer of the Rancho Santiago Community District (RSCCD) is the Chancellor, Raúl Rodríguez, Ph.D.; the Chancellor has served in this capacity since August 2010.

The Chief Executive Officer of SAC is Erlinda J. Martinez, Ed.D., appointed President of the College by the Chancellor of RSCCD and confirmed by the Board of Trustees in February 2005. She commenced her duties and responsibilities with SAC in March 2005. The President’s primary responsibilities to the institution are to ensure implementation of federal, state and local statutes and regulations as well as board policies; to efficiently manage fiscal and human resources; to provide effective leadership to define goals, develop plans and establish priorities for the College; and to ensure communication and cooperation among SAC constituencies.

1. **Administrative Capacity**

The training and experience required for each administrative position, as well as duties and responsibilities, are clearly set forth in recruitment publications. The administrative screening process ensures that Santa Ana College administrators have appropriate preparation and experience to provide the administrative services necessary to support the institution’s mission and purpose. The current SAC President has led the College for 10 years, and the Vice President of Student Services has served in the role for 23 years. Other cabinet positions include the Vice President of Academic Affairs (who will oversee the division that houses the proposed stacked certificates in biotechnology)[[[35]](#endnote-36)](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Science%2C%20Math%2C%20and%20Health%20Sciences%20Division.pdf), Vice President of Administrative Services, and Vice President of the School of Continuing Education, who provide the President with staffing plans that evaluate and assess the need for change across the College.
2. **Operational Status**

In spring 2015 (as of the census date), Santa Ana College served 27,657 students: 18,723 full and part-time credit students and 8,934 full and part-time non-credit students. (903 students were enrolled in both credit and non-credit courses.) Classes are offered in the day, evening and during weekends in a wide variety of lengths from four weeks to a sixteen-week semester. Additionally, students are enrolled in fee-based community services classes. All courses offered on the SAC main campus, Centennial Education Center and surrounding community facilities are listed in the *Schedule of Classes* each semester in a print version and an electronic version on the College website.[[[36]](#endnote-37)](http://www.sac.edu/CatalogAndSchedule/Pages/default.aspx) Community Services classes are published in a separate class schedule.

1. **Degrees**

The majority of Santa Ana College course offerings are in programs that lead to degrees as described in the College catalog. The College’s credit offerings include 1,548 approved courses along with 23 Associate Degrees for Transfer, 56 Associate in Arts Degrees, 33 Associate in Science Degrees, 70 certificates of achievement, and 33 certificates of proficiency. The College catalog contains a listing of degrees and certificates offered, course credit requirements and unit length of study for each degree and certificate program. Descriptions and explanations of courses offered, degree requirements and transfer courses are also provided in the catalog. Course Outlines of Record may be found on CurricUNET.[[[37]](#endnote-38)](http://www.curricunet.com/sac)

1. **Educational Programs**

Santa Ana College offers two-year general education, transfer, career and technical education programs in the credit mode as well as non-credit programs consistent with the RSCCD mission and goals[[[38]](#endnote-39)](http://www.rsccd.edu/Trustees/Pages/Mission-Goals.aspx) as well as the mission of California Community Colleges. All courses, degrees and certificates fulfill California Title 5 Regulations, including those addressing collegiate-level quality and rigor. Completion of associate degree and general education requirements for the associate degree and articulation agreements with four-year institutions ensure that degree programs are of sufficient content and length and are conducted at levels of quality and rigor appropriate to degrees offered. The biology department prepares students for certification, pre-professional careers and a curriculum in a four-year institution leading to a baccalaureate degree in such areas as microbiology, biotechnology, teaching, and cell and molecular.

1. **Academic Credit**

Institutional policies and transfer requirements as well as the awarding of credit are clearly and accurately described in the SAC College catalog in accordance with Title 5, Section 55002.5 of the California Code of Regulations.[[[39]](#endnote-40)](http://www.sac.edu/AcademicAffairs/Documents/Title5Section55002-5.pdf) SAC awards academic credits based on the Carnegie formula: one semester unit of credit is defined as one hour of recitation or lecture (together with the required two hours of preparation for each class hour) or three hours of laboratory work each week for a full semester or the equivalent amount of work over a different amount of time.

1. **Student Learning and Achievement**

Santa Ana College conducts regular assessments of programs in academic and student services areas to support ongoing and systematic efforts centered on student learning and achievement. Quadrennial course review is overseen by the Curriculum and Instruction Council. In addition, annual Department Planning Portfolio development with quadrennial capstone program review of academic programs use student learning outcomes (SLOs) assessment results to initiate and support programmatic improvement through means that include curriculum updates or changes, enhanced academic and student support services, and resource allocation requests through budget review. All programs and services continue to work toward sustainable, continuous quality improvement by linking identified course and program student learning outcomes to the broader seven Institutional Learning Outcomes (i.e., formerly Core Competencies) of the College.[[[40]](#endnote-41)](http://www.sac.edu/Program_Review/Documents/Institutional_%20Learning_Outcomes_How_To_from_TLC%2009-15-14.pdf) Through program review processes, SLOs are revised as needed in academic programs. Direct SLO assessment is conducted in a course-embedded program assessment approach in conjunction with analysis of indirect and direct data supplied by the Research Department.[[[41]](#endnote-42)](http://www.sac.edu/AcademicAffairs/InstitutionalResearch/Pages/Reports-Directory.aspx) Changes made in the SAC Strategic Plan[13](http://www.sac.edu/AcademicAffairs/IEA_Office/Documents/2014-2016%20Strategic%20Plan%20Update_approved9102014.pdf)are then based on the program review work of departments and broad-based interdisciplinary dialogue that occurs through the Teaching Learning Committee (TLC).[[[42]](#endnote-43)](http://sac.edu/committees/ProgramReview/Pages/default.aspx)

Specialized training on SLO writing and assessment is conducted through the TLC, ongoing faculty professional development, and the work of department chairs with the Institutional Effectiveness and Assessment coordinator. SLOs and student achievement inform the work of the Basic Skills coordinator as well. Administrators, faculty and staff are working cooperatively on an ongoing basis to facilitate and assess student achievement.

PLOs have also been developed for each of the certificates in the biotechnology certificate program. The ultimate goal of this career technical education program is for students to be proficient in employable job skills in the biotechnology field. The program level outcomes for each biotechnology certificate are as follows:

 Certificate of Achievement – Biotechnology Laboratory Technician Certificate: General

1. Students will know how to subclone a gene into a cloning or expression vector.
2. Students will have the knowledge and laboratory skills necessary to obtain entry-level jobs as a biotechnician.

 Certificate of Achievement – Biotechnology Laboratory Technician Certificate: QC Micro

1. Students will learn an overview of the processes of quality assurance and regulatory compliance used in the bioscience industry.
2. Students will know how to perform advanced aspects of aseptic technique.
3. Students will have the knowledge and laboratory skills necessary to obtain entry-level jobs in quality control and quality assurance microbiology.

**11. General Education**
Santa Ana College’s general education philosophy and the seven College Institutional Learning Outcomes(formerly Core Competencies),which inform the comprehensive general education student learning outcomes, ensure that students acquire breadth of knowledge and intellectual inquiry. Degree credit for general education is consistent with a level of quality and rigor appropriate to higher education, as defined by the College’s Curriculum and Instruction Council[[[43]](#endnote-44)](http://sac.edu/committees/curriculum/Documents/SAC%20Curriculum%20and%20Instruction%20Handbook%20%20Approved%202014-2015.docx), with general education courses spanning six general academic areas: Natural Sciences, Social and Behavioral Sciences, Humanities, Cultural Breadth, Communication and Analytical Thinking, and Lifelong Understanding and Self-Development. All of these academic areas have articulation agreements with the UC and CSU systems as well as various other private institutions of higher education. The general education component of each program is consistent with standards established in Federal Regulations[[[44]](#endnote-45)](http://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title34/34tab_02.tpl), State Education Code[[[45]](#endnote-46)](http://www.sac.edu/AcademicAffairs/Documents/CAcodes%28edc_70900-70902%29.pdf), the Chancellor’s Office for the California Community Colleges[[[46]](#endnote-47)](http://www.cccco.edu), and recommendations from the Statewide Academic Senate[[[47]](#endnote-48)](http://www.ccccurriculum.net/). There are specific courses required for the major, with a minimum of 18 units for each degree. Students must complete these courses with a grade of C or better.

1. **Academic Freedom**

RSCCD Board Policy 4030 addresses and ensures that SAC maintains an atmosphere in which intellectual freedom and academic independence exist, and it ensures that the faculty and students at SAC are free to examine and test all knowledge appropriate to their disciplines as judged by the general academic community.[[[48]](#endnote-49)](http://www.rsccd.edu/Trustees/Pages/BP-4030.aspx) The *Academic Freedom Policy* appears in the College catalog and the Faculty Handbook.[[[49]](#endnote-50)](http://www.sac.edu/President/AcademicSenate/Documents/Faculty%20Handbook%20-2014.pdf)

1. **Faculty**

The institution has a substantial core of qualified and experienced full and adjunct faculty to support all its educational programs. All faculty members meet the teaching and hiring requirements of Title 5. The responsibility of faculty to develop and review curriculum and use adequate assessment is outlined in each job announcement. In addition, requirements for full-time faculty hiring include having a working knowledge of, and experience with, student learning outcomes and assessment. The biology department has identified the need for and has staffed two full-time faculty with biology, biotechnology and industry experience to teach the necessary classes in support of the proposed certificates. There are currently two full-time faculty on staff that meet the required qualifications.

RSCCD currently has 370 full-time contract faculty and 1848 adjunct faculty in its credit and non-credit programs; as of spring 2015, SAC has 234 full-time faculty and 1354 adjunct faculty in both credit and non-credit programs. New full-time faculty positions for fall 2015 will increase support and commitment to existing and new educational programs. In 2014, 26 full-time faculty members were hired at SAC to meet the educational needs of the students.

1. **Student Services**

Student Services provides services and programs consistent with student characteristics to support student learning and development within the context of the institutional mission. Services and programs address the needs of a highly diversified student population characterized as ethnically diverse, educationally and economically disadvantaged, re-entry, and students with learning disabilities. Monitoring student characteristics and needs has been an ongoing activity. The Student Services Division engages in annual Program Review and maintains department portfolios which include research-based data as well as student learning outcomes analysis.[[[50]](#endnote-51)](http://www.sac.edu/Program_Review/Pages/Student-Services.aspx) Students seeking the certificates of achievement in biotechnology will have access to services in the following areas: academic computing center, bookstore, CalWORKs, career development/career technical education student success center, College advancement/foundation, community services, continuing education, counseling services, child development centers, disabled students programs and services (DSPS), English language academy, extended opportunity programs and services (EOPS), financial aid programs, California state programs, health and wellness center/psychological services, high school and community outreach, honors and awards, intercollegiate athletics, learning center, library services, math center, scholarships, student activities, student placement, testing center, university center transfer, veterans resource center, women’s programs and services, and the youth empowerment strategies for success (YESS) program.

1. **Admissions**

Santa Ana College’s published admissions policies are consistent with the College mission, appropriate for programs, and follow practices that are consistent with policies in specifying the qualifications for students appropriate for programs. Applications for admissions forms are routinely available through the Office of Admissions and Records, published in the schedule of classes and are available on the SAC website.

SAC has an open enrollment policy for high school graduates, those in possession of a California High School Proficiency Certificate, those 18 years of age and older who can profit from instruction, and high school students who qualify for the career advancement placement program.

1. **Information and Learning Resources**

Santa Ana College offers specific long-term access to sufficient information and learning support services, available to biotechnology certificate students as well as all lower division students, which is adequate for the College’s mission and instructional programs. The College has a large library as well as the Media Services Department, Learning Center, Math Center, Academic Computing Center, Testing Center and several labs and centers utilized for specific programs such as biology. Library services include a large collection of books, periodicals and online journals and databases. Library staff offer bibliographic instruction and provide reference desk services to students in credit and non-credit programs, faculty and community members. The School of Continuing Education (also called the Centennial Education Center or CEC) has the Community Learning Center, CEC Learning Skills Lab, CEC Main Computer Lab, CEC Small Lab and CEC Computer Skills Lab.

1. **Financial Resources**

The institution operates from a financially stable funding base, plans for financial development, and identifies and uses financial resources to support its mission and educational programs, improve institutional effectiveness, and assure financial stability. Copies and information regarding the District and College budgets[[[51]](#endnote-52)](http://www.rsccd.edu/Departments/Business-Operations/Documents/2014-15%20Adopted%20Budget.pdf) and funding base, as well as statements of assets[[[52]](#endnote-53)](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/CCFS-311%20Annual%20Fiscal%20Year%202013-14.pdf), fund balances and accounting of the auxiliary foundation of the College[[[53]](#endnote-54)](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/FOUNDATION%20REPORTS/Santa%20Ana%20College%20Foundation%20Audit%20Report%202014.pdf), are made available. While most of the financial resources of Santa Ana College are derived from the State of California, additional funding is obtained by aggressively seeking federal and private sources to augment the budget. All funds received by the College are carefully tracked, accounted for, and documented. The Rancho Santiago Community College District maintains adequate reserve levels for contingencies and for expansion and maintains at least a six percent ending fund balance as required by law. The College strategically accumulates funds in accounts for future needs and is careful to use one-time dollars only to fund additional one-time expenses. Both the College and District maintain conservative financial management policies and practices that ensure continued fiscal stability for the foreseeable future.

1. **Financial Accountability**

The institution can demonstrate financial accountability through the findings of an independent public agency secured by the Board of Trustees to perform regular audits. References to the College’s two most recent budget and institutional financial audits are included as part of this report.[[[54]](#endnote-55)](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/FOUNDATION%20REPORTS/Rancho%20Santiago%20CCD%20Audit%20Rpt%20%202013.pdf), [[[55]](#endnote-56)](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/FOUNDATION%20REPORTS/Rancho%20Santiago%20CCD%20Audit%20Report%202014.pdf)In all fiscal matters, the College adheres to specific board-approved policies and procedures governing responsible allocation of funds to support educational programs and services.

1. **Institutional Planning and Evaluation**

Santa Ana College provides evidence of planning for improvement of institutional structures and processes, student achievement of educational goals, and student learning. The institution provides evidence of basic planning for the development of the institution through planning documents such as theStrategic Plan; Academic, Student Services, and Administrative Services Program Reviews; and *Department Planning Portfolios*. These documents reflect the identification and integration of human and fiscal resources, as well as learning resources and facilities. The institution assesses progress toward achieving its stated goals in biology and makes decisions regarding improvement through an ongoing and systematic cycle of evaluation as evidenced by its quadrennial portfolio review and annual program review, integrated planning efforts which intertwine student learning outcomes assessment with resource allocation requests as evidenced by the College’s Resource Allocation Request[[[56]](#endnote-57)](http://www.sac.edu/AdminServices/budget/Pages/default.aspx) process, and re-evaluation each year to continually improve its institutional effectiveness. The certificates in biotechnology would be included in the biology department’s annual program review and quadrennial capstone portfolio.

1. **Integrity in Communication with the Public**

The College website contains information related to accreditation status, current and future students, academics, student services, faculty & staff, the Santa Ana College Foundation, and program review.[[[57]](#endnote-58)](http://www.sac.edu/) A link to the District website is also available.[[[58]](#endnote-59)](http://www.rsccd.edu) The College catalog, in both print and electronic versions, contains policies, procedures and practices relative to admission requirements; academic and career technical education programs; requirements and degrees; grievance procedures, fees, academic credentials of faculty and administrators; and other items relevant to student attendance and withdrawal. All information is precise, accurate, current, as well as evolving.

**21. Integrity in Relations with the Accrediting Commission**

The institution provides assurance that it complies fully with the eligibility requirements, accreditation standards and policies of the Commission, and it demonstrates honesty and integrity in representations to all constituencies and the public, and in relationships with the accreditation association and other external agencies. SAC further agrees to comply with all commission requests, directives, decisions and policies, including making complete, accurate and honest disclosures of its programs, staff and activities.

**H. Evidence that Accreditation Standards and Commission Policies Will Be Fulfilled**

**Accreditation Standards**

**Standard I: Institutional Mission and Effectiveness**

 **I.A. Mission**

The mission of Santa Ana College is to be a leader and partner in meeting the intellectual, cultural, technological and workforce development needs of our diverse community. Santa Ana College provides access and equity in a dynamic learning environment that prepares students for transfer, careers and lifelong intellectual pursuits in a global community. The proposed certificates of achievement in biotechnology structure teaching and learning in accordance with discipline-specific regulations that support the College’s mission and existing biology degree program, offering students expanded lower division, technical course work which provides more in-depth training in specific area of focus (i.e., biotechnology) as well as increased opportunities for critical analysis, research methods, and technical application. Upon completion of the proposed certificates of achievement, students will be increasingly eligible for gainful employment while fulfilling community workforce need, and this program will help prepare students for entry into more advanced technical fields in biotechnology. SAC serves a diverse population of residents (e.g., ethnically diverse, educationally and economically disadvantaged, re-entry, and students with learning disabilities) from the surrounding communities of Anaheim, Garden Grove, Irvine, Orange, Santa Ana, Tustin, and Villa Park through its credit, non-credit, community extension, and online classes. In addition, the College is proud to house a Digital Media Center (which combines education and business in the digital media industry), and law enforcement professionals receive instruction through the Orange County Sheriff’s Regional Training Center and two off-campus fire technology training centers. Through annual community, employee, and student surveys, the College continues to use data to determine how effectively it is accomplishing its mission to support the educational needs of its students and community. Through integrated planning activities, the College aligns its programs and services with the mission. Services and programs exist to support the intended student population such as ¡Adelante!, PUENTE, MESA (or Mathematics Engineering Science Achievement), Freshman Experience, TRiO, and the International Student Program. Fostering a College-wide commitment to student learning, Santa Ana College engages faculty and staff in a variety of robust planning and evaluation processes. Faculty members regularly assess and revise student learning outcomes. Annual program and budget reviews address departments goals related to student learning outcomes assessment, institution-set standards, resource allocation requests, with the purpose of supporting students from diverse backgrounds with a focus on transfer, basic skills, degree or certificate completion, and developing job skills in alignment with the College’s Strategic Plan.

 **I.B. Improving Institutional Effectiveness**

Santa Ana College features five governance committees – College Council, Facilities Committee, Planning & Budget Committee, Student Success Committee, and Technology Advisory Committee – that work in tandem with the Academic Senate in order to support a sustained, substantive, and collegial dialog concerning student outcomes, student equity, academic quality, institutional effectiveness, and sustainable, continuous quality improvement in student learning outcomes, integrated planning, and program review. Faculty take ownership and leadership in the arena of curriculum, instructional student learning outcomes assessment and program review, working alongside administration and staff through collegial consultation and administrative unit outcomes assessment to support student learning and achievement as compared to published institution-set standards. Ongoing dialog in the five governance committees as well as divisions, programs, and departments result in regularly updating goals, based on annual student learning assessments and indirect achievement data, in order to better support student success. As a result of recent Student Equity Plan assessments, the College is working to disaggregate and analyze program learning outcomes achievement data for subpopulations of students, addressing any performance gaps with appropriate allocation of human, fiscal, and other resources to mitigate these gaps. Results from these assessments will be used to better inform planning processes at Santa Ana College in order to promote improvement of institutional effectiveness. Each year, evidence of ongoing opportunities for input by all campus constituencies is documented through the ongoing cycle of goal setting, evaluation, institutional data and evidence analyses, resource allocation, implementation, and re-evaluation, which is integrated into the planning cycle at the College and later at the District level through a Comprehensive Master Plan.

The College collects assessment data through diverse means including program review, meetings, convocations, and digital platforms that are publicly communicated to all constituencies. Clear and accurate information is consistently maintained in all College publications and through the website. This includes the College’s mission, student learning outcomes results, educational programs, institutional policies and procedures, and student support services (e.g., tuition, fees, financial aid, transcript, award and transfer of credit, refunds, and other required expenses such as textbooks and mandatory instructional supplies). Information regarding ACCJC accreditation status is accurately and fully provided via a comprehensive statement in the College catalog and website as required by the Commission in order to ensure compliance with Federal regulations, California Education Code, and Title V. Moreover, the College continuously complies with the Eligibility Requirements, Accreditation Standards, Commission Policies, and Commission requests in a collegial, welcoming, and timely manner with the goal of best serving the needs of its diverse student population and surrounding community.

Since the College’s recent fall 2014 Accreditation visit, faculty members and the Academic Senate are working jointly with Academic Affairs to refine the College’s annual academic program review process to ensure better integration, assessment, analysis, communication, and resource allocation documentation. Academic program goals align to the mission of the College and Strategic Plan Vision Themes; analyses of student learning outcome results in terms of resource allocation requests and external research; and individualized department data portfolios will be succinctly addressed (both quantitatively and qualitatively) and systematically intertwined to the College’s institution-set standards. In addition, beginning fall 2015, student learning outcomes assessment will be recorded through TracDat, the newly selected assessment software platform that will more easily tie-in to the revised program review.

**Standard II: Student Learning Programs and Student Services**

 **II.A. Instructional Programs**

The biology department currently offers a strong biology program with an A.S. degree in Biology as well as an A.S. degree in Science. The Biotechnology certificate program serves to further support local unmet workforce need, focus on hard and soft skills development desired by employers in industry, and enhance student exposure to an emerging technology.

Through clear and systematic assessment and evaluation, every course and program at Santa Ana College receives the same level and quality of support services and resources, regardless of location or mode of instruction, and ensures alignment with the College’s overall mission. All faculty (both full-time and part-time) regularly evaluate and improve the quality and currency of all courses and instructional programs, including pre-collegiate, collegiate, career technical education, continuing education, and community education, to meet American higher education standards, technical and professional competencies, employment standards, and external accreditation standards and preparation for external licensure and certification, where applicable. Online instructors are required to complete a distance education certification that provides comprehensive online teaching pedagogy, discussion for colleague collaboration, and suggestions for online course development. General education coursework is developed by faculty. Courses and other related educational experiences are comparable in quantity and nature to credits awarded through District approved policies and procedures. The College has defined one credit hour as 50 minutes of classroom or direct faculty instruction and a minimum of two credit hours (or 100 minutes) of out-of-class student work each week for semester-length courses for one semester hour unit of credit, or the equivalent amount of work over a different amount of time. Faculty members also engage in SLO formulation and assessment at the course, program, and institutional levels.

Santa Ana College awards credit for college units earned at another regionally accredited college or university. Clearly defined procedures and deadlines are publically published in the College catalog and available from the Office of Admissions and Records when attempting transfer of credit, taking into account essential academic factors such as existing course equivalencies, student learning outcomes, grades, course level and applicability toward a degree, certificate, or program prerequisite.

Since the College’s recent fall 2014 Accreditation visit, department faculty and instructional deans have worked with Academic Affairs to create formalized time blocks for all courses as well as pathways for all degrees and certificates, to ensure students can complete their programs within an appropriate period of time. Beginning fall 2015, these improved scheduling modalities will be implemented as well as degree and certificate pathways published to ensure students are more actively informed when planning for their educational attainment and goals.

**II.B. Student Support Services**

Santa Ana College endorses and maintains a culture of supporting student academic achievement in alignment with the mission of the College, which emphasizes access and equity in a diverse learning environment, regardless of mode of delivery. Student Services staff regularly engages in reflective conversations regarding access, success and the effectiveness of its programs. Student learning outcomes data and data on successful student attainment of their goals provide measurements of students’ ability to benefit from the College’s services and programs. Once admitted and enrolled, the College provides students with equitable academic and support services designed to help them meet their individual goals. SAC has a variety of student support programs such as Academic Talent Search, Admissions & Records, Athletics, CalWORKs, Career/Job Resources Center, Counseling, DSPS, EOPS, Freshman Experience and Learning Communities II, Financial Aid, Health Center, International Students, MESA, Outreach, PUENTE, Santa Ana ¡Adelante!, Scholarship Program, Student Support Services Program, Student Life, Veterans Resource Center, University Transfer Center and Veterans Upward Bound.

The College maintains student records both electronically and on paper with provisions for secure backup. Paper records are scanned, and all Class One records are stored electronically and backed up through storage.

 **II.C. Library and Learning Support Services**

The College provides library and learning support services, sufficient in quantity, currency, depth, and variety, for both onsite and distance education students. Academic support services are available through the Learning Center, the Biology Study Center, the Math Center, the Academic Computing Center, and the School of Continuing Education learning centers, where faculty and staff engage in ongoing dialogue and conduct program review to ensure the educational equipment and materials are appropriate and supportive of student learning. The various learning centers offer individual tutoring, directed learning activities, instructional software, and workshops tied to specific student learning outcomes. The Library accommodates 477 students in individual study carrels, at tables with seating for four, at individual PC stations, in four group study rooms, and in a mediated lab used for library instruction. Collection includes textbooks (checked out for library use only), books (for three week loan), e-books (accessible 24/7 remotely), hard copy reference books (e.g., medical dictionaries and encyclopedias, such as the online version of the Gale Encyclopedia of Nursing and Allied Health), and an online collection of over 2,000 reference books. The Library provides articles on virtually any research topic. The SAC Library also hosts multiple databases to support the certificates of achievement in biotechnology. Access to a range of subscription databases, including multi-disciplinary resources such as **Academic Search Premier** and discipline-specific resources such as **MEDLINE**, are searchable 24/7 remotely and provide entry to an array of journals, magazines, newspapers, reference sources, and e-books.

SAC faculty librarians frequently dialogue with classroom faculty. Librarians serve as division liaisons and work closely with individual academic divisions, departments and faculty. This interaction includes, but is not solely limited to, informing faculty of library services and new library developments; soliciting and receiving reserve materials, as well as suggestions for library material selections; assisting with specific vocational program accreditation needs; collaborating with the development of classroom assignments; conducting customized library instruction classes; and assisting faculty with research. Reference desk librarians are actively engaged in helping students conduct research. Modules are also available online for research such as: *Find Articles*, *Find Books* and *Search the Internet*.

Over time, the Library has received consistent high marks from graduates, students, and faculty. In 2013, the Library received the highest rating of all SAC programs and services, with 89 percent of students rating the Library either “excellent” or “good”. Additional information about Library and Learning Support Services can be found in Section J of this report.

**Standard III: Resources**

 **III.A. Human Resources**

Santa Ana College works closely with the District to ensure the integrity and quality of its programs and services. Positions are created based on demonstrated student and program needs, services to be offered, duties to be performed, and the position qualifications required. The District has developed detailed hiring policies and procedures, commensurate with the College and District mission statements, to ensure all diverse employee groups meet or exceed the education, training, and experience qualifications required for their positions, based on analysis of original transcripts documenting education by recognized U.S. accrediting agencies or the equivalent. Faculty and administrator job descriptions include the development and review of curriculum as well as assessment and use of student learning outcomes. During the most recent years, the biology department has worked with the College and District to ensure that full-time faculty with expertise in biotechnology were hired to ensure adequate support and success of the proposed stacked certificate program. Evaluations of the various employee groups (e.g., faculty, classified, supervisory and confidential, administrators) are performed in conjunction with Education Code requirements and union contracts (where applicable), and access to these and other personnel records are securely maintained in a confidential manner at the District office. All employees are held accountable to a professional code of ethics, and the College is working diligently through ongoing Professional Development activities in various formats to support faculty, staff, and others in promoting excellence in teaching and learning, technological advancement, institutional effectiveness, and student success.

The biology department currently has two full-time faculty with biology, biotechnology and industry experience to teach the purposed classes. This should be sufficient to meet the requirements of the two biotechnology certificates.

Since the College’s recent fall 2014 Accreditation visit, Academic Senate leaders have been working very closely with classified staff and administrators to combine and centralize campus-wide Professional Development opportunities. Needs assessment surveys continue to be conducted for each employee group, identifying areas where there is a desire to enhance and plan for new Professional Development opportunities for both faculty and staff.

 **III.B. Physical Resources**

Santa Ana College is currently celebrating 100 years of service to students and the community. As the District’s oldest campus, continued construction and necessary facilities upgrades have occurred as a result of voter approval for two bond measures: Measure E ($337 million for the District) and Measure Q ($198 million for Santa Ana College). Facilities planning has been outlined and tied to criteria such as aging infrastructure/buildings and projected increase in student enrollment. The RSCCD Comprehensive Master Plan was recently updated in 2014 to include a strategic approach to campus growth and development through the year 2023. The SAC Facilities Master Plan was also updated in 2014 to evaluate existing conditions, enrollment trends, instructional programs and support services, with plans to seek a foundation to guide future decision-making as it relates to renovation, new construction, and other developments. In addition, four main ancillary planning documents also inform the campus on future renovations, based on identified facilities needs as described below:

1. Five-Year Construction Plan - Analysis of existing facilities capacity, based on fire/life safety, structural soundness, and accessibility considerations, to support enrollment forecasts, where capacity/load ratios are determined for each type of space found on campus and serves as the basis for potential capital outlay funding and approval of capital outlay requests.
2. Scheduled Maintenance Program - Annual site inspections which document the most needed repairs and replacements of both buildings and equipment, taking into account hazardous material removal, HVAC, plumbing, roofing, and accessibility needs.
3. Facilities Condition Assessment - Review of existing College facilities that identifies key components and systems such as foundation and waterproofing, heating, ventilation, and electrical in order to define problems, develop cost estimates, and create plans for repairs.
4. Space Inventory Report - District facilities staff examines the College’s facilities and identifies the use and amount of assigned square footage, utilized for all space types, to serve as the basis for the evaluation of funding proposals and to ensure the campus is developed and planned in the most efficient manner possible.

The College continues to engage in robust construction planning and facilities maintenance considerations, both short-term and long-term. Bond Measures E and Q and the 2014 Facilities Master Plan, in conjunction with the RSCCD Comprehensive Master Plan 2013-2023, are evidence of the College’s commitment to upgrade, build, and maintain the immediate and future needs of its growing and diverse student population to assure access, safety, security, and a healthful learning and working environment.

A biotechnology lab space has been identified by the Dean of Science, Math and Health Sciences with adjoining teaching space for the proposed classes and equipment. Because of the specific nature and high cost of the equipment needed to run such a program, SAC faculty have worked diligently to acquire all the equipment to date from donations from industry or from funding acquired from the successful acquisition of grant funding.

 **III.C. Technology Resources**

Technology is a critical and core component of Santa Ana College and is essential to how the College supports student learning programs and services. The College utilizes technology in a variety of forms, both software and hardware, to support the needs of learning, teaching, College-wide communications, research, and operational services. For example, faculty currently use the learning management system Blackboard for online and hybrid classes as well as WebAdvisor for maintaining course rosters and grading. To better assist the College in meeting its goal for effective and efficient use of technology in supporting the needs of all students, faculty, and staff, the SAC Technology Advisory Committee (or SACTAC) was formed, which consists of students, faculty, classified staff, and administration. This committee makes recommendations on campus-wide technology considerations. The College strives to maximize the use of its available technology. Where possible, as older technology is replaced, and if it is still viable, the replaced technology equipment is recycled and put to use in another area or program. Through annual program review, both instructional and non-instructional technological resources and infrastructure needs are evaluated as part of the College’s regular planning and budgeting process to ensure reliable access, safety, and security.

The District and College have two general purpose networks: one for instructional network services and another for administrative secured network services. Technology equipment housed in instructional computer labs, classrooms, and the Library are part of the instructional network. Services such as purchasing, general ledger, and human resources are part of the non-instructional administrative network. Procedures are in place to maintain security updates on servers and email services. In addition, the District has two Administrative Regulations that directly relate to technology. One addresses the rights and privileges for accessing information resources, responsibilities as to how information resources are used, accounts and passwords, confidentiality, copyright, and violation of use of information resources. The other administrative regulation on technology addresses District and College standardization of hardware and software.

To date, technology resources have been provided to the biology department in the form of donations. Former Salt Lake City College faculty have donated to us their Blackboard shell for the online Quality and Regulatory Compliance in Bioscience course. In addition, we have been working with the software company ERG, who has written and donated a Math Lab software program to us for use in multiple courses. In addition, various teaching faculty have been fortunate enough to participate in technical training on Liquid Column Chromatography, Biofuels production, Regulatory and Compliance Issue in Industry and Tissue Culture Techniques.

 **III.D. Financial Resources**

SAC has a well-defined budget allocation model, measurable fiscal accountability, well managed financial resources and reserves, and a very transparent financial management culture that demonstrates integrity and consistent fiscal stability. In spite of the recent years of state fiscal crisis and the dramatic funding cuts levied on the community college system statewide, the RSCCD and SAC have managed their resources, maintained strong reserves, and stretched their dollars to best support student learning and support programs. Annual program and budget reviews address departments goals related to student learning outcomes assessment, institution-set standards, resource allocation requests, with the purpose of supporting students from diverse backgrounds. Confirmation of appropriate financial documentation and its degree of credibility and accuracy are evidenced in recent external auditor’s annual report. SAC’s annual audits have resulted in unqualified reports related to the financial statements, clean audits with no deficiencies in internal controls over financial reporting, and minimal audit findings that are promptly corrected.

Both the RSCCD and SAC have in place practices and procedures to ensure fiscal viability and stability. The District has a demonstrated history of strong ending balances through prudent and conservative fiscal management and decision making. This has also allowed the District to set aside a substantial Stability Fund that it has used to smooth out structural budget deficits during the past couple of years. SAC also maintains a contingency fund of 20% of the annual ending balance to manage any unforeseen local fiscal challenges. Cash flow has been sufficient and consistent over the past several years in spite of state funding volatility, allowing the District to avoid any borrowing from the county or other lending institutions to meet financial obligations.

The College and District have strong procedures, practices, and policies in place along with verifiable evidence and regular assessment that confirms that SAC is able to support and sustain the proposed certificates of achievement in biotechnology. The College’s financial planning is both integrated and effectively driven by institutional planning processes. Consequently, available financial resources are similarly integrated with the institutional planning processes. All financial documents are found to be accurate, credible, timely accountable, and comprehensively communicated to the public, with sufficient cash flows and reserves to maintain stability, support strategies for appropriate risk management, and when necessary, implement contingency plans to meet financial emergencies and unforeseen circumstances. In addition, as the College and District make short-term financial plans, the institution considers its long-term financial priorities to assure financial stability, including Other Post-Employment Benefits, compensated absences, and other employee related obligations. Work through auxiliary services, Foundation and fundraising, both general obligation bond programs, and grants are conducted with integrity in a manner consistent with the intended purpose of the funding source in accordance with federal and state law, GASB, and the Budget Accounting Manual.

The biology department has received several grants to purchase the equipment to support the proposed Biotechnology program, including two Perkins grants and funding through the ENGAGE in STEM grant initiative or Encouraging New Graduates and Gaining Expertise in Science, Technology, Engineering and Mathematics, a collaboration between Santa Ana College, Fullerton College, and CSU Fullerton, dedicated to increasing awareness, retention, and success of students in the areas of STEM fields and majors. The department is currently in the process of applying for 3 new grants, including a Careers Pathways Grant, an NSF ATE grant and a CTE Enhancement grant. Any one of these grants would offset initial start-up costs. Long-term costs involve consumable reagents and supplies, available through the Division budget.

**Standard IV: Leadership and Governance**

 **IV.A. Decision-Making Roles and Processes**

Institutional leaders at Santa Ana College foster an environment that encourages empowerment, innovation, and excellence through formal and informal structures.[35](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Science%2C%20Math%2C%20and%20Health%20Sciences%20Division.pdf) Formal structures consist of participatory governance committees (i.e., College Council, Facilities Committee, Planning & Budget Committee, Student Success Committee, and Technology Advisory Committee) as well as standing committees and taskforces that work in tandem with the Academic Senate in order to support a sustained, substantive, and collegial dialog concerning student outcomes, student equity, academic quality, institutional effectiveness, facilities and technology maintenance, and sustainable, continuous quality improvement in student learning outcomes, integrated planning, and program review. Operational and governance meetings are frequently scheduled in advance and take place regularly throughout the academic year. Through the workings of the governing board, Academic Senate, CSEA, and ASG, Santa Ana College has established, documented, and subscribes to policies and procedures that ensure full participation in appropriate decision-making processes while defining roles and mechanisms for all campus constituencies through ongoing dialogue. The College regularly evaluates its governance and decision-making structures and processes through End-of-Year Reports to learn more about how members are appointed to committees, how members effectively communicate with their constituents, whether members feel any difficulties in serving or shaping the agenda, as well as overall strengths and weaknesses in order to make plans for improvements. The results of these reports are communicated to the campus community and posted on the SAC website.

 **IV.B. Board and Administrative Organization**

The Board of Trustees ensures the quality, integrity, and improvement of student learning, within appropriate budgetary means, and provides the resources necessary to support the District’s programs and services. To do this effectively, the Board receives regular reports from the Chancellor, College presidents, Academic Senate presidents, Student Trustee, ASG presidents, the Executive Vice Chancellor of Educational Services and Human Resources, the Vice Chancellor of Fiscal and Business Operations, the Accreditation Liaison Officers of both colleges, and other staff members as needed. As a collective entity, the Board regularly establishes and updates its policies in a manner consistent with the District mission statement and clearly commits the District to educational quality and student learning services as primary board responsibilities. These policies include bylaws and policies specifying the board’s size, duties, responsibilities, structure, operating procedures, training in support of board development, and evaluation. A code of professional ethics and conflict of interest policy are continuously enforced, and the Board delegates full responsibility and authority to the Chancellor to implement and administer board policies without board interference. The governing board regularly reviews key indicators of student learning and achievement (e.g., Scorecard, Accreditation) as well as institutional plans for improving academic quality.

Dr. Erlinda J. Martinez is the current CEO of Santa Ana College. The role of the President is to provide effective leadership in planning, organizing, budgeting, selecting and developing personnel, assessing institutional effectiveness, and maintaining primary leadership in the College’s accreditation. Throughout her 10-year tenure at SAC, Dr. Martinez has established and continues to maintain a collegial process that sets values, goals, and priorities for the College; supports the notion that the College set realistic and obtainable institution-set standards for student achievement; promotes institutional effectiveness through integrated planning efforts that rely on quality research data and analysis of both internal and external considerations, resource allocation, and support services; and ensures that the College continues to abide by federal and state statutes, regulations, and governing board policies in accordance with the mission of Santa Ana College. Dr. Martinez works and communicates effectively to the entire campus constituencies, represents the campus during District board meetings, and is readily visible throughout the community, promoting the mission, vision, and values of Santa Ana College while simultaneously generating external support for the College.

The Chancellor acts as professional advisor to the Board of Trustees in the formulation of policies for governing the Rancho Santiago Community College District and as the District's chief executive responsible for carrying out the policies adopted by the Board. The District Chancellor provides leadership in setting and communicating expectations of educational excellence and integrity through the District and ensures effective control of expenditures throughout the District, including resource allocation to the respective colleges. The Chancellor delegates full responsibility and authority to each college President to implement and administer delegated District policies without interference. District planning and evaluation continue to be integrated with College planning and evaluation in order to improve student learning and achievement as well as overall institutional effectiveness.

**Commission Policies**

**Policy on Award of Credit**

Santa Ana College adheres to the policies, regulations, and procedures as set forth in the College’s *Curriculum and Instruction Handbook* [43](http://sac.edu/committees/curriculum/Documents/SAC%20Curriculum%20and%20Instruction%20Handbook%20%20Approved%202014-2015.docx)and the CCCCO *Program and Course Approval Handbook*.[[[59]](#endnote-60)](http://extranet.cccco.edu/Portals/1/AA/ProgramCourseApproval/Handbook_5thEd_BOGapproved.pdf) Each academic division has a faculty-driven division curriculum committee which reviews and approves course or program revisions and new courses or programs as documented through CurricUNET, the College’s official curriculum documentation warehouse.[37](http://www.curricunet.com/sac) In order for a course or program to be created, modified, or deleted, it must be approved by the department, department chair, division curriculum committee, and the Curriculum and Instruction Council (CIC). Following submission to CIC, curriculum items are first reviewed by a Technical Review Committee, which consists of the CIC Council Chair, Vice President of Academic Affairs, Articulation Officer and Support Services Assistant. The Technical Review Committee ascertains that all policy, program, and course proposals are complete and meet standards of quality as defined by the institution and comparable in quantity and nature to credits awarded to other courses in the institution; insures accuracy and proper formatting; and determines which proposals will be reviewed by CIC and which may be placed on the consent calendar. The CIC, a standing committee of the Academic Senate, serves as a voice for the faculty on all academic and professional matters relating to curriculum. At any step in the process, a proposal may be denied and returned to the faculty for further updates and changes. Faculty initiate the proposal process and play a critical role in designing the course or program curriculum; determine appropriate delivery modes; create SLOs for each course, program, certificate, and degree as well as participate in the curriculum review process, which occurs every four years. The assessments are ongoing, systematic and used for the improvement of student learning. The proposed stacked certificate program in biotechnology features SLOs at the course and program levels that map to the College’s institutional outcomes.

A variety of programs of various lengths of study are offered to meet student goals at the College, including career technical education programs[[[60]](#endnote-61)](http://www.sac.edu/AcademicProgs/CEWD/Pages/default.aspx), which are based on identified labor market and gainful employment needs with input from faculty, industry, advisory groups, employers, and external specialized and program accreditation guidelines. Programs have published SLOs developed by the faculty within all these programs. Course-level and program-level SLOs are mapped to institutional SLOs as part of the ongoing overall student learning assessment process at the College. All programs, degrees, and certificates are ultimately reviewed and approved by the RSCCD Board of Trustees before submission is made to the California Community Colleges Chancellor’s Office.

**Policy on Contractual Relationships with Non-Regionally Accredited Organizations**

Santa Ana College does not participate in any contractual relationship with non-regionally accredited organizations.

**Policy on Direct Assessment of Learning**

The Santa Ana College catalog outlines both policies and procedures used in the determination of whether to award College credits, certificates, and degrees to students for prior learning. Only qualified discipline faculty meeting appropriate minimum qualifications are hired by the District as academic experts with the appropriate competence levels to award student credit.[[[61]](#endnote-62)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/7000/BP-7210.aspx) The College will award credit for college units earned at another regionally accredited college or university pending evaluation of all official transcripts by the Admissions and Records office, counselors, and discipline faculty. Continuous efforts are underway by the College’s Academic Affairs unit, instructional divisions and departments to create course articulation agreements between Santa Ana College and other public and private universities as well as maximize transfer opportunities for students through the development of Associate Degrees for Transfer (for community college student entry into the California State University System). As per the published catalog, it is the expectation of the College that all instructors will give at least two evaluations of student performance prior to the issuance of mid-term grades and at least one other evaluation before the final examination (required in all courses). Students have the option of taking credit by examination only for courses that are in the current academic year catalog and specifically designated by the appropriate dean as courses that are eligible for credit by examination. The RSCCD has also adopted a policy on course prerequisites, corequisites, and advisories in order to provide for the establishing, reviewing, and challenging of prerequisites, corequisites on recommended preparation, and certain limitations on enrollment in a manner consistent with the law and good practice. For courses where a prerequisite exists, students can submit a prerequisite challenge form from the appropriate division office, where the challenge is reviewed by a committee consisting of the dean (or designee), department chair (or designee), and one department or division representative (or designee). In addition, the College will grant units of credit to currently enrolled students for AP, CLEP, and IB exams, where an appropriate score was obtained as per the College catalog. Finally, students have the right to appeal an assigned grade within a one year period following the semester which the grade was assigned, if the student believes that the grade is based on a mistake, fraud, bad faith, or incompetency.

**Policy on Distance Education and on Correspondence Education**

Santa Ana College has developed, implemented, and evaluated all courses and programs according to the institution’s total educational mission, including those delivered through distance education, in consultation with its faculty, Curriculum and Instruction Council and Academic Senate, and Board of Trustees. The curriculum review process at the College ensures that all distance education courses are taught to standards consistent with the official course outline of record and feature regular, effective instructor-initiated student contact.[[[62]](#endnote-63)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/DEFacultyHandbook2013-approved-5-28-14.pdf), [[[63]](#endnote-64)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/OnlineLearningAddendumFormSAMPLE.pdf), [[[64]](#endnote-65)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/RegularEffectiveContactPolicy%284-8-13%29.pdf) In particular, distance education courses are examined to ensure: (1) methods of evaluation match those in the face-to-face course, (2) accessibility is addressed via Section 508 compliance, and (3) peer and student evaluations are conducted to ensure the quality of online courses is continuously maintained.

The College clearly defines appropriate student learning outcomes for all courses and programs, including those delivered through distance education. It also provides the resources and structure needed to accomplish these outcomes and to demonstrate that its students achieve these outcomes through application of appropriate assessment.

Academic integrity and student authentication are addressed in a number of ways. The Distance Education office makes resources available to faculty on how to promote academic integrity in online classes.[[[65]](#endnote-66)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/BeginningOfSemesterChecklist.pdf), [[[66]](#endnote-67)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/CaptioningGuidance.pdf), [[[67]](#endnote-68)](http://www.sac.edu/AcademicAffairs/DistanceEd-Old/Documents/Faculty%20Resources/NewSACOnlineProctor%20Agreement_v3.pdf) Workshops on the topic of promoting academic integrity in the online classroom as well as opportunities for instructors to become online certified are a regular feature of professional development. In accordance with the Higher Education Opportunities Act of 2008, in order to maintain user privacy in the online setting, students must use a unique username and a password of their own creation, hosted by the College, to ensure the same person who participates every time in and completes a course or program receives the appropriate academic credit. All classes offered in an online format utilize the District-selected learning management system (Blackboard), so that the College can ensure integrity of the online classroom, including student grades and usage data. In addition, arrangements for proctored examinations are made with other colleges and universities nationwide to ensure equal access and support for all online students.

In compliance with federal and state law, Santa Ana College has established procedures governing student records and the control of personally identifiable information. The College adheres to strict confidentiality standards as stated in the Family Educational Rights and Privacy Act (FERPA) and California Education Code. No student records, other than directory information, will be released without written consent by the student, except as authorized by the law.[[[68]](#endnote-69)](http://www.rsccd.edu/Trustees/Pages/BP-5040.aspx) In addition, no directory information will be released regarding any student who has notified the Admissions & Records office in writing that such information should not be released. There is no charge associated with verification of student identity.

Since spring 2013, Santa Ana College has not offered Correspondence Education courses.

**Statement on Diversity**

The mission statement of Santa Ana College is to be a leader and partner in meeting the intellectual, cultural, technological, and workforce development needs of our diverse community. SAC provides access and equity in a dynamic learning environment that prepares students for transfer, careers and lifelong intellectual pursuits in a global community.[4](http://www.sac.edu/AboutSAC/Pages/mission.aspx) Themes of cultural identity, diversity, and equity are intertwined into the mission statement of the College, reinforced by board policy on diversity[[[69]](#endnote-70)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/7000/BP-7100.aspx), as well as respected and embraced on a daily basis throughout the campus.

**Policy on Institutional Advertising, Student Recruitment, and Representation of Accrediting Status**

Advertising, Publications, Promotional Literature

Santa Ana College provides clear and accurate information to students and the public in all College publications and through its website. The College utilizes the College catalog[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf) and Schedule of Classes[36](http://www.sac.edu/CatalogAndSchedule/Pages/default.aspx) as primary outreach tools available through the College website[57](http://www.sac.edu/) and certain print formats. The District Public Information Office works with College offices to ensure that content, style, and format are reviewed for accuracy.

Required information in the catalog, class schedule, and website is found as shown in Table 2:

Table 2. Required Institutional Advertising in Catalog, Schedule of Classes and Website

|  |  |  |  |
| --- | --- | --- | --- |
| **Required Information** | **Catalog**[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf) | **Schedule of Classes**[36](http://www.sac.edu/CatalogAndSchedule/Pages/default.aspx) | **Website**[57](http://www.sac.edu/) |
| **Official Name, Address, Phone, Website** | ✓ | ✓ | ✓ |
| **Mission, Purpose, Objectives, Entrance** | ✓ | ✓ | ✓ |
| **Information on Programs and Courses** | ✓ | ✓ | ✓ |
| **Degree, Certificate, and Program Completion** | ✓ | ✓ | ✓ |
| **Faculty with Degrees Held** | ✓ |  | ✓ |
| **Facilities Available** | ✓ | ✓ | ✓ |
| **Rules and Regulations for Conduct** | ✓ | ✓ | ✓ |
| **Academic Freedom Policy** | ✓ |  | ✓ |
| **Tuition, Fees, Program Costs** | ✓ | ✓ | ✓ |
| **Financial Aid Opportunities** | ✓ | ✓ | ✓ |
| **Refund Policy and Procedures** | ✓ | ✓ | ✓ |
| **Transfer of Credit Policies** | ✓ | ✓ | ✓ |
| **Nondiscrimination Policy** | ✓ | ✓ | ✓ |
| **Other Locations for Policies** | ✓ | ✓ | ✓ |
| **Governing Board** | ✓ |  | ✓ |
| **Accreditation Status** | ✓ |  | ✓ |

The College catalog[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf), website[57](http://www.sac.edu/), and other official institutional publications describe career opportunities as well as clear and accurate information on national and/or state legal requirements for licensure eligibility and entry into an occupation or profession for which education and training are offered. The College also publishes occupational programs with licensure information as well as state certification requirements and external accreditation information. Gainful employment information is also included for occupational programs.

Student Recruitment for Admissions

The College complies with all legal and regulatory practices relating to recruitment and admissions. Student recruitment is guided by qualified College staff and trained student ambassadors.

Representation of ACCJC Accreditation Status

Information regarding ACCJC accreditation status is accurately and fully provided via a comprehensive statement in the College catalog[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf) and website[57](http://www.sac.edu/) as required by the Commission. In addition, specialized and program accreditation granted by other external accreditors is listed separately with respect to the following College programs:

1. Automotive Technology – accredited by the National Automotive Technicians Education Foundation (NATEF)
2. Emergency Medical Technician – accredited by the Orange County Emergency Medical Services (OCEMS)
3. International Business – accredited by the National Association of Small Business International Trade Educators (NASBITE)
4. Occupational Therapy Assistant – accredited by the Accreditation Council for Occupational Therapy Education (ACOTE)
5. Paralegal Studies – approved by the American Bar Association (ABA)
6. Pharmacy Technology – accredited by the American Society of Health-System Pharmacists (ASHP)
7. Registered Nursing – approved by the Board of Registered Nursing (BRN) and accredited by the Accreditation Commission for Education in Nursing (ACEN)

**Policy on Institutional Compliance with Title IV**

SAC complies with the requirements of Title IV of the Higher Education Act. The College follows federal regulations that require first-time borrowers of Direct Loans to receive entrance counseling available at <https://studentloans.gov>. The College regularly updates its financial aid website to remain current and compliant with regulatory changes as pertaining to Title IV and State Student Eligibility Requirements and Policies.

The College’s Financial Aid Department is committed to and effective at serving its diverse population of students, regardless of their economic background. The highest priority is given to helping students find funding avenues to meet their educational costs through available federal and state student financial aid programs and scholarships for successful college completion. One-on-one appointments are available to students who cannot attend workshop times for financial aid assistance and financial literacy coaching. Faculty and staff are regularly trained and updated, so that they are aware of the any potential regulatory changes that may affect their student population.

Santa Ana College continues to demonstrate diligence in keeping loan default rates at an acceptably low level while complying with program responsibilities defined by the U.S. Department of Education. Federal student financial aid program requirements state that if an institution has cohort default rates of 30 percent or more during three consecutive years, it may lose funding support through Federal Financial Title IV programs. For the four most recently recorded years at SAC[[[70]](#endnote-71)](http://www.nsldsfap.ed.gov), there continue to be no issues related to student loan default rates:

1. For 2009, 3-year Official CDR is 17.3% based on 37 borrowers defaulting of 213 who have entered repayment.
2. For 2010, 3-year Official CDR is 18.5% based on 41 borrowers defaulting of 221 who have entered repayment.
3. For 2011, 3-year Official CDR is 17.0% based on 48 borrowers defaulting of 282 who have entered repayment.
4. For 2012, 3-year Draft CDR is 17.1% based on 50 borrowers defaulting of 291 who have entered repayment (to be officially published in September 2015).

Santa Ana College has had no negative actions taken by the U.S. Department of Education regarding compliance with Title IV.

**Policy on Institutional Degrees and Credits**

Santa Ana College ensures that all courses and other related educational experiences are comparable in quantity and nature to credits awarded through its approved policies and procedures.[[[71]](#endnote-72)](http://www.rsccd.edu/Trustees/Pages/BP-4020.aspx) Consistent with federal regulations applicable to federal financial aid eligibility, the Rancho Santiago Community College District has designated each class hour as a “credit hour” and established the definition of “credit hour.” The class hour is the basic unit of attendance for computing the number of full-time equivalent students (or FTES) for apportionment. The District defines a “credit hour” as a clock hour of a total of 60 minutes composed of a segment of no less than 50 minutes of scheduled contact for instruction and/or examination and a segment of 10 minutes for passing time between classes or a break. RSCCD uses a clock-to-credit hour conversion formula to determine whether a credit hour program is eligible for federal financial aid. The conversion formula is used to ensure that a “credit hour” program has an appropriate minimum number of clock hours of instruction for each hour unit of credit it claims.

A “credit hour” at the Rancho Santiago Community College District and Santa Ana College represents the amount of work necessary to achieve intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

1. One “credit hour” (50 minutes) of classroom or direct faculty instruction and a minimum of two “credit hours” (100 minutes) of out-of-class student work each week for semester-length (e.g., sixteen weeks) courses for one semester hour unit of credit, or the equivalent amount of work over a different amount of time; or
2. At least an equivalent amount of work as required in the paragraph above of this definition for other academic activities as established by the Rancho Santiago Community College District, including three “credit hours” (150 minutes) of laboratory work, internships, externships, practica, studio work, and other activities leading to the award of “credit hours.”

A “credit hour” is assumed to be a 50-minute period. In courses, such as those offered online, in which seat time does not apply, a “credit hour” may be measured by an equivalent amount of work, as demonstrated by student achievement. For cooperative work experience education, one “credit hour” is equal to 60 hours of non-paid work or 75 hours of paid work.

The appropriate formula for credit hour is continuously applied throughout the College’s selected curricular database—the CurricUNET management system—which features accurate assignment of credit hours for all approved courses by the Curriculum and Instruction Council.[37](http://www.curricunet.com/sac)

**Policy on Institutional Integrity and Ethics**

Santa Ana College continues to uphold and protect the integrity of its practices in working with students, faculty, staff, its governing board, external agencies and organizations (including the Commission), and the general public. The College reports clear and accurate information related to its mission, educational programs, admissions requirements, student services, tuition and other fees, financial aid, transcript, award and transfer of credit, and refund policies to ensure compliance with Federal regulations, California Education Code, and Title V. Moreover, the College continuously complies with the Eligibility Requirements, Accreditation Standards, Commission Policies, and Commission requests in a collegial, welcoming, and timely manner with the goal of best serving the needs of its diverse student population and surrounding community.

Various board policies are formulated and regularly updated to ensure Santa Ana College maintains integrity and high ethical standards in its daily management. The Board of Trustees is delegated the responsibility to set prudent, ethical, and legal standards for District operations as per Board Policy 2200.[33](http://www.rsccd.edu/Trustees/Board-Policies/Pages/2000/BP-2200.aspx) Faculty are made aware of College policy regarding a professional code of ethics, as evidenced via Board Policy 7001, which does not allow personal bias or prejudice to influence their presentation of professionally accepted views in a discipline.[[[72]](#endnote-73)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/7000/BP-7001.aspx) Board Policy 4030 addresses academic freedom and the rights of both faculty and students to express personal convictions[48](http://www.rsccd.edu/Trustees/Pages/BP-4030.aspx), while Board Policy 7370[[[73]](#endnote-74)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/7000/BP-7370.aspx) prohibits political activity during an employee’s working hours as well as limits the use of District funds, services, supplies, or equipment to endorse or denounce any ballot measure or candidate. The College catalog also recognizes faculty and students’ right to express their informed opinions in the context of professional competence, open inquiry, and rigorous attention to the pursuit of truth.[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf) Board Policy 7120 establishes and assures integrity in District hiring processes.[[[74]](#endnote-75)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/7000/BP-7120.aspx)

The College prevents conflict of interest throughout the organization. Board Policy 6340 delegates authority to the Chancellor to enter into contracts on behalf of the District and establishes administrative procedures for contract awards and management under certain conditions.[[[75]](#endnote-76)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/6000/BP-6340.aspx) Conflict of interest forms are executed and filed for administrators and managers as required.

All programs, services and activities at Santa Ana College shall be available to all qualified persons. The District prohibits discrimination and harassment based on ethnic group identification, national origin, religion, age, sex, race, color, ancestry, sexual orientation, physical or mental disability, gender identity, medical condition (cancer-related or genetic characteristics), marital status, citizenship, or service in the uniformed services, or on the basis of these perceived characteristics or based on association with a person or group with one or more of these actual or perceived characteristics. Board Policy 3420 applies to all employment practices, including recruitment, selection, promotion, transfer, salary, training and development, discipline and dismissal in compliance with Title VII of the Civil Rights Act of 1964; Article 1, Section 31 of the California Constitution; Title 5 of the California Code of Regulations, Section 53000 et seq.; and Education Code Section 87100.[[[76]](#endnote-77)](http://www.rsccd.edu/Trustees/Board-Policies/Pages/3000/BP-3420.aspx)

**Policy on Monitoring Institutional Performance**

Santa Ana College continues to submit timely Annual Reports to ACCJC that address headcount enrollment data, growth in the number of instructional sites, collection and analysis of key data and indicators of student achievement and student learning as well as fiscal stewardship and stability, and other elements as determined by the Commission. In the last two years, the College has worked diligently through its governance structure to discuss and set institution-set standards with reasonable annual goals as related to: completion, retention, number of degrees and certificates, transfers, as well as licensure passage rates and graduate employment rates for key externally accredited CTE programs.[[[77]](#endnote-78)](http://www.sac.edu/President/collegecouncil/Documents/2015/Min-Nov-26-2014.pdf), [[[78]](#endnote-79)](http://www.sac.edu/AcademicAffairs/Documents/Academic%20Affairs%20Advisory%20Council/Accreditation%20Presentation%20of%20New%20Standards%203AC%20February%202015%20FINAL.pdf)

**Policy on Public Disclosure and Confidentiality in the Accreditation Process**

Santa Ana College provides information about institutional quality and the accreditation process to the public through its College catalog[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf), Schedule of Classes[36](http://www.sac.edu/CatalogAndSchedule/Pages/default.aspx), College website[57](http://www.sac.edu/), District publications, communications by the District Chancellor[[[79]](#endnote-80)](http://www.rsccd.edu/Discover-RSCCD/Documents/Chancellors-Update/2015/february11.htm) and College President[[[80]](#endnote-81)](http://www.sac.edu/President/Documents/Notes/2014/november20.htm), as well as other marketing and outreach means. Self-Evaluation reports prepared for the accreditation process, External Evaluation Reports of Educational Quality and Institutional Effectiveness by the visiting team, the Commission’s action letter stating the outcome of an accreditation review as well as the College’s resulting accreditation status, upcoming Commission visits to the College, and information about institutional effectiveness in achieving the College mission are made available to campus constituencies, students, and the public through the College website, after the Commission takes action on the institution’s accreditation.[[[81]](#endnote-82)](http://www.sac.edu/Accreditation/Pages/default.aspx) The College’s accreditation website also includes information about other specialized or external programmatic accrediting bodies for programs that include Automotive Technology, Occupational Therapy Assistant, Paralegal Studies, Pharmacy Technology, and Registered Nursing. The public is also able to access information on both the College website homepage and accreditation website regarding filing complaints against Santa Ana College with ACCJC.

**Policy on Refund of Student Charges**

The Rancho Santiago Community College District Board of Trustees authorizes student fees as related to enrollment, health, parking, instructional materials, physical education facilities, student representation, transcript, and International Students application processing where applicable.[[[82]](#endnote-83)](http://www.rsccd.edu/Trustees/Pages/BP-5030.aspx) Fee amounts are published in the College catalog along with procedures for the collection, deposit, waiver, refund, accounting and any exemptions as required by law. Refunds are based upon the date a student withdraws from a course online, and dates are published in the College catalog and available on the College website. Any requests for exemption may be filed at the Santa Ana College Office of Admissions and Records.

**Policy on Representation of Accredited Status**

Information regarding ACCJC accreditation status is accurately and fully provided via a comprehensive statement in the College catalog[31](http://www.sac.edu/CatalogAndSchedule/Documents/2014-2015/Catalog_14-15.pdf) and website[57](http://www.sac.edu/) as required by the Commission. Santa Ana College is accredited by the Accrediting Commission for Community and Junior Colleges, Western Association of Schools and Colleges, 10 Commercial Blvd., Suite 204, Novato, CA 94949, (415) 506-0234, an institutional accrediting body recognized by the Council for Higher Education Accreditation and the U.S. Department of Education.

**Policy on Transfer of Credit**

Santa Ana College will give credit for college units earned at another regionally accredited college or university. In order for transfer units to be applied towards a petition for degree or transfer certification, all official transcripts from other colleges must be on file with the Office of Admissions and Records. Students who have received degrees outside of the United States can have their coursework and degrees evaluated for equivalency using a District-approved, third-party foreign credential agency service. Clearly defined procedures and deadlines are published in the College catalog and available from the Office of Admissions and Records when attempting transfer of credit, taking into account essential academic factors such as existing course equivalencies, student learning outcomes, grades, course level and applicability toward a degree, certificate, or program prerequisite.

**I. Conclusions**

The biology department, in conjunction with the Career Technical Education and Science, Math, & Health Sciences divisions, recognizes that practical application of theoretical knowledge is essential to developing job skills and securing employment in the biotechnology sector. Along with the help of local industry and universities, the department has put together a stackable certificate program in biotechnology that will enable students to progress to more advanced skill sets and exit at various levels to attain different types of employment in the biotechnology field. In addition, the biology department is hoping that students will want to pursue more advanced degrees at respective four-year colleges and universities, and that the skills learned in the proposed stacked certificate program will enable these students to be successful in the university research laboratory. The proposed biotechnology certificate program is supported by administration with resources, supply and equipment money, personnel, and outreach to the Santa Ana Unified High School District. The department and College maintain that the hands-on, skills-based approach in designing this program will be successful with traditional and non-traditional students, allowing them to seek higher paying jobs in the biotechnology sector.

1. **Evidentiary Documents**
1. [Mission of the Rancho Santiago Community College District](http://www.rsccd.edu/Trustees/Pages/Mission-Goals.aspx) [↑](#endnote-ref-2)
2. [Rancho Santiago Community College District Institutional Research for Fall 2014](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/enrollmenttrendsfall2014final.pdf) [↑](#endnote-ref-3)
3. [Center for Demographic Research 2012](http://www.sac.edu/Accreditation/2014SelfEval/Documents/Introduction/Demographic%20Information.pdf) [↑](#endnote-ref-4)
4. [Santa Ana College Mission Statement](http://www.sac.edu/AboutSAC/Pages/mission.aspx) [↑](#endnote-ref-5)
5. [Biotechnology in California](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biotechnology_in_CA_2013.pdf) [↑](#endnote-ref-6)
6. [Los Angeles County Biotech Gap Analysis 2014](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/BioSci%20LA%20Details.pdf) [↑](#endnote-ref-7)
7. [2012-2013 Workforce Indicators Report 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/WIR-final-2013.pdf) [↑](#endnote-ref-8)
8. [Common Core Technical Skill Standards for the Bioscience Laboratory 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/common_core_skills_5_13_without_checklist.pdf) [↑](#endnote-ref-9)
9. [Biology Department Meeting Minutes 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biology%20Department%20Meeting%20Minutes%20September%202013.pdf) [↑](#endnote-ref-10)
10. [Division Curriculum Meeting Minutes 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Division%20Curriculum%20Meeting%20Minutes%20October%202013.pdf) [↑](#endnote-ref-11)
11. [Curriculum Council Meeting Minutes 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Curriculum%20Meeting%20Minutes%20December%202013.pdf) [↑](#endnote-ref-12)
12. [Salt Lake Community College STUDENTfacturED Program Website](http://www.slcc.edu/studentfactured/) [↑](#endnote-ref-13)
13. [SAC Strategic Plan 2014-2016](http://www.sac.edu/AcademicAffairs/IEA_Office/Documents/2014-2016%20Strategic%20Plan%20Update_approved9102014.pdf) [↑](#endnote-ref-14)
14. [Professional Development Website](http://www.sac.edu/facultystaff/professional-development/Pages/default.aspx) [↑](#endnote-ref-15)
15. [Student Equity Plan 2014](http://www.sac.edu/committees/StudentSuccess/Documents/Josh%20Dorman/Student%20Equity%20Plan.pdf) [↑](#endnote-ref-16)
16. [Cabinet Prioritized Resource Allocation Request 2013 - 2014 Academic Affairs](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/CABINET%20PRIORITIZED%20RAR%20Academic%20Affairs%202013-2014%20FUNDED.pdf) [↑](#endnote-ref-17)
17. [RSCCD Annual Financial Audit 2014](http://www.rsccd.edu/Departments/Fiscal-Services/Documents/FOUNDATION%20REPORTS/Rancho%20Santiago%20CCD%20Audit%20Report%202014.pdf) [↑](#endnote-ref-18)
18. [Tentative Budget 2015-2016 Unrestricted General Fund Assumptions](http://www.sac.edu/AdminServices/budget/Documents/Budget%20Assumptions%20FY%2015-16%20Approved.pdf) [↑](#endnote-ref-19)
19. [Cash flow and budget comparison second quarter 2014 Unrestricted budget fund 11 and 13](http://www.sac.edu/AdminServices/budget/Documents/Fund%2011%2013Cashflow%20and%20budget%20comparison%20fd%2011%2013%20SAC%20123114.pdf) [↑](#endnote-ref-20)
20. [Quarterly Cash Flow and Budget Comparison](http://www.sac.edu/AdminServices/budget/Documents/FUND%2012cashflow%20and%20budget%20comparison%20fd%2012%20SAC%20123114.pdf) [↑](#endnote-ref-21)
21. [Program Review Repository](http://www.sac.edu/program_Review/Pages/default.aspx) [↑](#endnote-ref-22)
22. [ACCJC Letter of Reaffirmation February 2015](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Santa_Ana_College_ACCJC-Letter-of-Reaffirmation_02_06_2015.pdf) [↑](#endnote-ref-23)
23. [RSCCD Board of Trustees Docket featuring Biotech Certificates December 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/12-09-13%20DOCKET.pdf) [↑](#endnote-ref-24)
24. [RSCCD Board of Trustees Meeting Minutes December 2013](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/RANCHO%20SANTIAGO%20COMMUNITY%20COLLEGE%20DISTRICT%20-%2012-09-13%20minutes.pdf) [↑](#endnote-ref-25)
25. [Los Angeles Orange County Regional Consortium Approval Letter for Biotechnology](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/LAOCRC%20Approval%20of%20Biotechnology.pdf) [↑](#endnote-ref-26)
26. [Certificate of Achievement in Biotechnology Approval Letter by CCCCO](http://www.sac.edu/AcademicAffairs/Documents/Substantive%20Change%20Proposal%20Baccalaureate%20Degree%20Proposal%202015/Biotech%20Certificate%20Approval%20Letter%20by%20CCCCO.pdf) [↑](#endnote-ref-27)
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