Substantive Change Application Form

New Baccalaureate Degree Program

Directions: This application should be submitted *at least* 30 days prior to the anticipated start date of the change. Applications must be complete and the required fees received in order to be scheduled for review.

Email completed application to substantivechange@accjc.org. Fees must be submitted to ACCJC, 331 J Street, Suite 200, Sacramento, CA 95814

Date of Inquiry: April 1, 2022 **Anticipated Start Date: August 22, 2022**

Institution Name: Mt. San Antonio College

Address: 1100 North Grand Avenue

City: Walnut **State: California** **Zip: 91789**

ALO Name: Kelly Fowler **Telephone: (909) 274-5414** **Email: Kelly.fowler@mtsac.edu**

Title of Application and Description of Proposal: Bachelor of Science in Histotechnology

Introduction:

Concise description of the proposed program:
The Bachelor of Science in Histotechnology Program at Mt. San Antonio College (Mt. SAC) will prepare students for a career in medical diagnostics by training them to prepare and evaluate tissues on a macroscopic and microscopic level and by developing strong supervisory and leadership skills necessary for high level management positions in a laboratory setting. In addition to performing complex tissue specimen preparations in the laboratory, students will complete courses in biochemistry, microbiology, anatomy and physiology, advanced histotechnology, histology and cytology, pathophysiology and anatomic pathology, advanced microscopy, and medical ethics. Clinical rotations will provide opportunities to apply these skills, while courses in laboratory

management, leadership, and professionalism will prepare them for supervisory and management positions. Completion of this program will prepare students for certification by the American Society of Clinical Pathologists Histotechnologist (HTL) Exam.

Rationale for the proposed program:

The Mt. SAC baccalaureate program in Histotechnology is the culmination of a long journey of careful institutional planning, collaboration with industry-leading partners, awareness of a major labor market need, and Mt. SAC's constant drive to address equity and diversity gaps in education and employment opportunities for our students. In 2001, Mt. SAC created an Associate of Science Degree in Histotechnology. Mt. SAC is still the only California community college with such a program. Through ambitious resource allocation and forward-thinking institutional planning, Mt. SAC created one of its program's largest and most up-to-date laboratory facilities.

The Mt. SAC Histotechnology Program Advisory Committee has long recognized the need for graduates at a baccalaureate level to meet industry needs for higher-level employment. This advisory committee consists of industry, business, and healthcare partners along with representatives from local four-year higher education institutions. Industry partners and healthcare representatives include Kaiser Permanente Medical Group and the City of Hope Hospitals. The role of the advisory committee is to ensure that the Mt. SAC Histotechnology Program remains current in both technology and curriculum. The advisory committee also advises the college regarding current employment trends, needs, and innovations in the Histotechnology Program.

The Bureau of Labor Statistics (BLS) Occupational Outlook Handbook projects 11% job growth among clinical laboratory technician and technologist occupations between 2020 and 2030. Additionally, the American Society for Clinical Pathology's (ASCP) latest vacancy survey (2018) revealed vacancies in the field were at their highest levels since the organization began the survey. The increased demand and growing vacancies emphasize the importance of recruiting highly qualified histotechnologists, an occupation that requires a baccalaureate degree.

Evidence of sufficient demand for proposed program:

Mt. San Antonio College (Mt. SAC) is located in eastern Los Angeles County, where San Bernardino, Orange, and Los Angeles Counties converge. Commuter students from these counties, as well as nearby Riverside County, enroll at Mt. SAC. In addition, graduates of the histotechnology program are employed by hospitals and medical facilities in these counties. Histotechnology is a specialized field within the broader realm of laboratory sciences. The following table shows the projected need for clinical laboratory technologists and technicians in these counties, as well as California as a whole, in the coming years. In this region, the demand for these occupations is projected to grow by 17.8% by 2028 (based on 2018 benchmark data), an increase of 2,280 positions, with the highest growth in Orange County. In fact, the Mt. SAC region will account for 41% of the projected statewide growth in this occupational area.

Regional and Statewide Occupational Projections of Employment in Clinical Laboratory Technologists and Technicians, 2018-2028[3]					
Area	Employment		Change		Total Job Openings
	Est.	Proj.	#	%	
Los Angeles County	8,500	9,870	1,370	16.1	7,160
Orange County	2,580	3,180	600	23.3	2,410
Riverside & San Bernardino Counties*	1,740	2,050	310	17.8	1,500
California	28,500	34,000	5,500	19.3	25,200

Note: The EDD combines Riverside and San Bernardino Counties into a single metropolitan statistical area for this report.

The Bureau of Labor Statistics (BLS) Occupational Outlook Handbook projects 36,500 additional job openings nationwide for clinical laboratory technologists and technicians, not including vacancies due to retirements or resignations, between 2020 and 2030. This growth rate is faster than the average projected growth rate among all occupations. The BLS also indicates that the aging population is expected to lead to a greater need to diagnose medical conditions through laboratory procedures. The Bureau of Labor Statistics (BLS) groups all clinical laboratory technologists and technicians together into a single occupational category. The American Society for Clinical Pathology's (ASCP) April 2021 report, "The Clinical Laboratory Workforce: Understanding the Challenges to Meeting Current and Future Needs," explains that this broad group of occupations as defined by BLS shows the national average for annual salaries ranges from $30,920 to $81,530. However, this category encompasses occupations that may require anywhere from on-the-job training all the way up to a master's degree with specialized certifications. California's Employment Development Department (EDD) also groups this wide range of occupations into a single category.

The ASCP conducts regular wage surveys of those practicing in the field. These survey results provide greater context to the potential earnings of histotechnologists. The most recent survey, "2019 Wage Survey of Medical Laboratories in the United States," revealed that the national average hourly wage for staff-level histotechnicians (AS degree-level) is $27.60. To advance up the ranks among histotechnicians, most facilities desire histotechnicians who hold baccalaureate degrees. A supervisor-level histotechnician earns an average hourly wage of $33.78, while histotechnician managers earn an average hourly wage of $43.51/hour. One should note that California pays the highest wages among histotechnicians of any state, with an average rate across all levels of $37.52/hour. The potential wage gains for histotechnologists in California who hold a bachelor's degree is greater than anywhere else in the country.

In addition, Mt. SAC's various employer partners, many of whom sit on the Mt. SAC Histotechnology Program Advisory Committee, have also expressed support for a baccalaureate degree program and the need for highly trained histotechnologists. While facilities hire individuals with associate degrees for histotechnician positions, career advancement to supervisor positions is limited to those who hold a baccalaureate degree. Those who do not require a baccalaureate degree consider both a BS and histotechnology (HTL) certification as preferred qualifications among applicants.

Standard I: Mission, Academic Quality and Institutional Effectiveness, and Integrity

Describe how the proposed program is consistent with college's mission and goals.

The proposed BS Degree in Histotechnology program at Mt. SAC will provide students with a degree that leads directly to high wage employment and the status of a baccalaureate degree, which fulfills the college mission "to support and empower all students in achieving their educational goals in an environment of academic excellence. Specifically, the College is committed to providing quality education, services, and workforce training, empowering students to attain success in an ever-evolving diverse, sustainable, global society. The College pledges to serve students so they may achieve their full educational potential for lifelong learning, for attaining certificates and associates and bachelor's degrees, for employment, and for the completion of career and transfer pathways."

The College will carry out this commitment by providing an engaging and supportive teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. The College is dedicated to serving our community through improving economic achievement, advancing civic engagement, enhancing personal well-being, developing critical thinking, and enriching aesthetic and cultural experiences." Students who complete the BS Degree in Histotechnology will be prepared to enter the workforce at a high level of skill and compensation, improving their socio-economic standing and providing them with a stable career path. These outcomes directly meet the mission of Mt. San Antonio College.

As stated in California Education Code 66010.4, "the primary mission of the California Community Colleges is to advance California's economic growth and global competitiveness through education, training, and services that contribute to continuous work force improvement." Mt. San Antonio College's Baccalaureate Degree program will support the mission of California Community Colleges by providing additional job opportunities in Histotechnology. With Mt. SAC offering a bachelor's degree in Histotechnology, it will become the sixth college or university to offer this BS program in the United States and will be the only Histotechnology BS program in California. With the establishment of a Histotechnology BS Program, this will address both the economic growth of California and our global competitiveness by providing trained members of the workforce who are not found elsewhere in the state or region. The healthcare industry in California requires trained histotechnology personnel at both the technician (associate degree) and technologist (baccalaureate degree) levels. The Mt. SAC associate degree and bachelor's degree in Histotechnology will meet these needs for the state and region.

One of Mt. SAC's Strategic Priorities is to, "Effectively coordinate human, physical, technology, and financial resources to improve student accessibility, growth, and academic success." The Histotechnology baccalaureate degree program at Mt. SAC will provide a high- quality undergraduate education at an affordable price for students in the community and the state of California. Tuition alone for the BS in Histotechnology would be approximately $11,000 for the four years, compared to approximately $24,000 at a CSU and approximately $46,000 at a UC. The Mt. SAC Histotechnology BS degree provides students with access to a streamlined, affordable option for obtaining a baccalaureate degree to advance their career in Histotechnology.

Mt. San Antonio College has a deep commitment to its Strategic Priority to, "Advance and foster an equitable, diverse, inclusive, just, and anti-racist campus culture that empowers our community to make positive change in society." The College has the honor of being federally designated as a Hispanic Serving Institution (I) and an Asian American and Native American Pacific Islander Serving

Institution (AANAPISI) with an enrollment of 61.78% Hispanic students and 20.19% Asian students for the 2020-2021 academic year. The Histotechnology program reflects the work of the College to create an inclusive environment and has a diverse student body that exceeds the state level for nontraditional enrollment.

The proposed BS degree in Histotechnology program is consistent with Mt. SAC's mission and goals. The College feels strongly that the connection to the baccalaureate degree should be explicitly stated in the mission. Therefore, in preparation for approval of the BS degree in Histotechnology application from the California Community Colleges Chancellor's Office, Mt. SAC engaged in review and revision of the mission statement to specifically include the baccalaureate degree. A revised mission statement was approved by the Board of Trustees on September 14, 2022.

Describe the planning process that led to the proposed baccalaureate degree.

In 2001, Mt. San Antonio College (Mt. SAC) embarked on the development of an Associate of Science (AS) Degree in Histotechnology. Twenty years later, Mt. SAC is the only college in California that offers an AS Degree in Histotechnology. The histotechnician training program at Mt. SAC was first awarded NAACLS accreditation in 2003. During the latest accreditation cycle in 2020, the histotechnology program received the maximum ten-year accreditation. The program prepares students for entry-level employment as histotechnicians in a variety of settings, including clinical, veterinary, forensic, marine biology, and research laboratories. It also serves as a pathway for career advancement in specialized areas in histotechnology. Under the direction of Jennifer MacDonald, HT (ASCP), and with a strong and active industry advisory committee, the program has become one of the largest histotechnology programs in the country. With a cumulative pass rate of 90% on the ASCP histotechnician certification exam on the first attempt (compared to the national rate of 77%) and a long wait list each year, the program is in great demand. It supplies many of the region's hospitals and research institutions with well-trained, competent histotechnicians.

In the fall of 2021, the program director surveyed current students and graduates of the AS in Histotechnology Program at Mt. SAC. Among current students who responded to the survey, 100% indicated some level of interest in the proposed baccalaureate, with 61% of students "very interested." Similarly, among program graduates, 91% of respondents indicated some level of interested in a BS degree program at Mt. SAC, with 43% "very interested." Among these same graduate respondents, 52% stated that the lack of a bachelor's degree has prevented them from career advancement. Moreover, 52% of graduate respondents indicated that they had been turned down for a job or did not apply for a job because the position required a bachelor's degree. Students have expressed a desire for a baccalaureate degree program in histotechnology in order to gain additional relevant skills in the field and improve their ability to advance within the profession.

A report by the Public Policy Institute of California (PPIC) projects that by 2030 38% of jobs in California will require at least a bachelor's degree, but only 32% of workers will have those degrees. The Histotechnology BS degree at Mt. San Antonio College will increase access to students with the smooth transition from an AS degree to a BS degree while also improving completion rates and time to degree, particularly with low-income, Latino, and African American students. Mt. SAC is a Hispanic Serving Institution (I) with 61.78% of the 2020-21 credit students identifying as Hispanic/Latino. A baccalaureate degree program at Mt. SAC would help to address the demand to fill the projected 25,200 job openings for clinical laboratory technologists/technicians throughout the state in the coming decade.

In order to meet the state-wide demand, with the encouragement and support of the Mt. SAC Histotechnology Program Advisory Committee, the program director, Professor Jennifer MacDonald, has contacted local universities to inquire about a joint program that would allow students completing their training at Mt. SAC to obtain a baccalaureate degree in histotechnology, a degree needed for top-level positions in the field. At different points over the past 14 years, Professor MacDonald has approached California State Polytechnic University, Pomona, California State University (CSU), Dominguez Hills, University of California (UC), Irvine, and Loma Linda University. At this time, Mt. SAC is not aware of any UC, CSU, or private university that has an interest in adding a baccalaureate degree in histotechnology to their program offerings. As part of its baccalaureate degree program application to the California Community Colleges Chancellor's Office, Mt. SAC received eleven letters of support from various CSUs and UCs supporting a BS Degree in Histotechnology at Mt. SAC.

Describe how the baccalaureate degree program will be evaluated and fit into the existing college planning process.

Mt. SAC has planned and is ready to fully support the implementation of a Baccalaureate program. Planning at Mt. SAC focuses on excellence and innovation in programs, services, and facilities that promote and support student access, equity, and success. Mt. SAC's Planning for Institutional Effectiveness (PIE) has included support for a BS Degree in Histotechnology since 2017. Included in the planning is recognition of additional resources needed to support the program, including faculty, staff, equipment, and classroom/lab space. The Mt. SAC 2018 Educational and Facilities Master Plan (EFMP) is the College's long-term plan and serves as the foundation for other components of the College's integrated planning process and cycle of continuous quality improvement. The baccalaureate program in Histotechnology is a featured goal of the 2018 Mt. San Antonio College Education and Facilities Master Plan (EFMP) update. Curriculum supported in the 2018 EFMP, has already been developed.

Program development and planning is informed by Histotechnology Program Advisory Committee, whose role is to ensure that the Mt. SAC Histotechnology Program remains current in both technology and curriculum. The main industry composition of the advisory committee is program graduates and clinical site coordinators for work experience. Member affiliations include UCLA, USC, UCI, Kaiser Permanente, VA Long Beach Medical Center, Children's Hospital Los Angeles, Sakura Finetek, City of Hope, and Chino Valley Medical Center. The advisory committee also advises the College regarding current employment trends, new technologies, industry needs, and innovations to be incorporated in the Histotechnology Program.

Standard II: Student Learning Programs and Support Services

Explain the program requirements (include program sheet for the college catalog).

- **Must provide evidence Baccalaureate Degree has 120 credits**
- **Must provide evidence degree has 36 units of General Education**

The requirements for the BS Degree in Histotechnology include 36=37 units of General Education and a total of 135-141 units. Students must complete the required lower division Histotechnology courses and then apply for admission to the BS in Histotechnology program.

Completion of courses as indicated below:

- Total number of lower division units in major = 63
- Total number of lower division GE units in 5 subject areas = 27-28
- Total number of upper division units in the major = 28-31
- Total number of upper division electives in the major (choose 3) = 8-10
- Total number of upper division required units in the major (28-31 + 8-10) = 36-41
- Total number of upper division GE required = 9 units
- Total number of units for the degree = 63 + (27-28) + (36-41) + 9 = 135-141

Electives within the major may include (choose 3):

- Forensic Histopathology
- Anatomical Pathology II
- Anatomical Pathology Lab II
- Pathobiology of Cancer and Angiogenesis
- Advanced Microscopy

In addition to the program-specific coursework, students also will complete 36-37 units of general education requirements, including the following. Note that the requirements for Area B will be met with the program coursework.

- Area A: The English Language and Critical Thinking (9 units)
- Area B: The Physical Universe and Life (9 units)
- Area C: Arts, Literature, Philosophy and Foreign Languages (9 units)
- Area D: Social, Political, and Economic Institutions and Behavior; Historical Background (9 units)
- Area E: Lifelong Understanding and Self Development (3 units)

First Year			
Term	**Course #**	**Course Name**	**Units**
Fall	MATH 110	Elementary Statistics	3
Fall	CHEM 10	General Chemistry for Allied Health Majors	5
Fall	HT 1	Intro to Histotechnology (8 wks)	1
Fall	HT 2	Scientific Basics for Histotechnicians	3
Fall	Lower Division GE (1)		3
Winter	Lower Division GE (2)		3

Winter	Lower Division GE (3)		3
Spring	BIOL 4	Biology for Majors	4
Spring	CHEM 20	Intro to Organic and Biochem	5
Spring	HT 12	Beginning Histotechniques	5
Spring	Lower Division GE (4)		3
Summer	ANAT 35	Anatomy	5
**Completion of MATH 71 or satisfactory score on the mathematics placement exam required for enrollment in the BS degree program.*			
Second Year			
Term	**Course #**	**Course Name**	**Units**
Fall	MICR 1	Principles of Microbiology	5
Fall	HT 10	Histology	5
Fall	HT 14	Advanced Histotechniques	5
Fall	Lower Division GE (5)		3
Winter	HT17	Clinical Rotations	2
Winter	Lower Division GE (6)		3
Spring	ANAT 36	Physiology	5
Spring	HT16	Immunohistochemistry	¾
Spring	Biol 8	Cellular and Molecular Biology	4
Spring	Lower Division GE (7)		3
Spring	Lower Division GE (8)		3
Summer	HT I7	Clinical Rotations	2
Summer	Lower Division GE (9)		3
*Successful completion of all lower division requirements and admission to the BS in Histotechnology program are required for all upper division courses.			
Third Year			
Term	**Course #**	**Course Name**	**Units**
Fall	HT 300	Applied Immunology	3
Fall	Chem 300	Biochemistry	3
Fall	HT 302	Pathological basis of clinical medicine	2
Fall	HT 312	Ethics & professional development in the lab	3
Fall	Upper Division GE		3
Winter	Upper Division GE		3
Spring	HT 320	Anatomical Pathology lecture1	3
Spring	HT 322	Anatomical Pathology lab I	2
Spring	HT 308	Essentials of Hematology	3
Spring	HT 330	Forensic Histopathology*	3
**See suggestions for electives following these tables.*			
Fourth Year			

Term	Course #	Course Name	Units
Summer	Upper Division GE		3
Fall	HT 424	Anatomical Pathology lecture 2*	3
Fall	HT 426	Anatomical Pathology lab 2*	2
Fall	HT 404	Cytology and Histopathology	3
Fall	HT 432	Histotechnology applications in research	3
Winter	Upper Division GE		3
Spring	HT 406	Pathobiology of cancer and angiogenesis*	3
Spring	HT 440	Advanced microscopy*	5
Spring	HT 410	Laboratory Management	2
Spring	HT 399	Special topics in Histotechnology	1
**Electives in the major*			

The following table provides course descriptions for the BS Degree in Histotechnology.

Course #	Topic	Prereq*	Units
HT 300	**Applied immunology** Upper division course covering the basics of immunology with emphasis on immunotherapeutics, diagnostics, staining techniques and histological changes due to immune system activity. Innate and adaptive immunity, T/B cell development and function, autoimmunity, hypersensitivity reactions, transplant rejection, immune deficiencies, and clinical aspects of immunology will also be included.	MICR 1	3
CHEM 300	**Biochemistry** This course explores the role of proteins, enzymes, carbohydrates, lipids, and nucleic acids in relationship to biological and metabolic processes. Separation techniques, including chromatography and electrophoresis will be covered, as well as isolation, purification, and manipulation of DNA and methods for evaluating enzyme activity.	CHEM 20	3
HT 302	**Pathological basis of clinical medicine** The nature and causes of cell injury and death, adaptive cellular changes, inflammation, healing, repair, thrombosis, infarction, and neoplasia are described along with essential concepts of pathological processes and altered health states.	ANAT 36	3

	HT 404	**Cytology and histopathology** Fundamentals of human histology and cell cytology provide groundwork for an in- depth discussion of diagnostic indicators of histology of normal cells and tissues and their basic cytomorphology in comparison with the cytomorphology of disease states, such as inflammation and carcinogenesis.	ANAT 35 HT 10	3
	HT 406	**Pathobiology of cancer and angiogenesis** This course covers the morphological and biologic basis of human cancer development on a molecular and histologic level, including the metastatic processes, molecular carcinogenesis, mechanism that initiate and promote angiogenesis and laboratory techniques employed in diagnosis and treatment.	HT 302	3
	HT 308	**Essentials of hematology** This course is a histological, biochemical, and clinical diagnostic study of blood, blood cell formation, iron metabolism, blood pathology, and practical laboratory technology used in hematologic evaluation.	ANAT 35	3
	HT 410	**Laboratory management** This course prepares histotechnologists for leadership positions in the laboratory by developing knowledge and abilities to run a laboratory efficiently. Leadership skills, time management, personnel management, team building, motivation, quality assurance, and strategic thinking and planning prepare students for management opportunities.	Upper division standing	2
	HT 312	**Ethics and professional development in the lab** This course explores ethical and professional standards relative to a laboratory setting, covers a variety of ethical theories, and focuses on issues such as patient confidentiality, integrity, honesty, and professional conduct.	Upper division standing	2

	HT 320	**Anatomical pathology lecture** Fundamental knowledge and practical experience of human histology and pathology, including biospecimen processing and management at the organ, tissue, cellular, and molecular levels. This course is to be taken concurrently with HT 322.	HT 302	3
	HT 322	**Anatomical pathology lab 1** Reinforces the principles taught in HT 320 by utilizing human anatomical specimens in our cadaver lab for applied hands-on laboratory sessions that include dissection, preservation, processing, and sectioning of tissue.	Concurrent enrollment in HT 320	2
	HT 424	**Anatomical pathology lecture** Continuation of HT 320. Must be taken concurrently with HT 326.	HT 320	3
	HT 426	**Anatomical pathology lab 2** Reinforces the principles taught in HT 324 by utilizing human anatomical specimens in our cadaver lab for applied hands-on laboratory sessions that include dissection, preservation, processing, and sectioning of tissue.	Concurrent enrollment in HT 424	2
	HT 330	**Forensic histopathology** This course introduces the specialty of forensic histopathology, in which discipline specific techniques are used to aid in the determination of the cause, manner, and mechanism of unusual and unconventional deaths. Medical and legal implications are covered, in addition to basic forensic principles, such as chain of evidence, appropriate reporting of findings, and privacy.	HT 302 (Recommend HT 320 & 322)	3

HT 432	**Histotechnology applications in research** With a growing emphasis on cellular and molecular approaches to research, this course introduces the creation, maintenance, and use of human tissues and the derivatives as tools in translational research. Included are the logistics and legal aspects of creating and maintaining bio-banks, federal, state, and institutional regulatory and funding mechanisms.	Upper division standing	3
440	**Advanced microscopy** This course introduces the theory and practice of modern microscopes. Lectures cover basic physical properties of microscopy, including optics, principles of image formation, light microscopy, fluorescence microscopy, digital imaging, confocal microscopy, and electron microscopy. A lab component provides hands-on opportunities for students to work with a variety of types of microscopes, explore their features, determine the best applications, and prepare slides using specialized techniques such as heavy metal and fluorescence staining.	HT 404	5
HT 399	**Special topics in histotechnology**: This course provides an opportunity for students to learn about specialized techniques and hear from a variety of presenters from industry about current topics in histotechnology.	Upper division standing	1-4

Provide evidence that program learning outcomes are the appropriate level for Baccalaureate Degree.

Student Learning Outcomes (SLOs) demonstrate the rigor commonly accepted among bachelor's degrees in higher education. Faculty discipline experts developed the following SLOs for the BS Degree in Histotechnology based on national industry standards and a review of laboratory-based and collegiate bachelor's programs:

1. Students will demonstrate competence and skill in all aspects associated with and practiced in a contemporary histotechnology laboratory.
2. Students will be able to prioritize and perform laboratory testing.
3. Students will be able to troubleshoot instrumentation problems and resolve-staining inconsistencies.

4. Students will be able to organize, supervise, and manage laboratory personnel and effectively manage a histotechnology laboratory.
5. Students will be able to implement quality control standards.
6. Students will be able to correlate clinical data with laboratory findings.
7. Students will be able to maintain accurate and complete records and communicate effectively orally and in writing with members of the health care team.
8. Students will be able to apply safety and government regulations and standards as applied to the histotechnology laboratory.
9. Students will demonstrate professional conduct and engage in continuing education and professional development.

Describe the impact on Student Services (counseling/advising, etc.), Learning Support Services (tutoring, etc.), Library Services, and other activities that will support students.

Mt. SAC provides extensive student support services online and on campus, including Counseling, Admissions and Records, Financial Aid, Transfer Center, Career Center, Accessibility Resource Centers for Students (formerly DSPS), DREAM, REACH, EOPS, Veteran's Services Center, CARE, and CalWORKs. Faculty and staff provide information on accessible, supportive resources during classes, office hours, information desks, orientations, and events. Students enrolled in the proposed baccalaureate program will have access to comprehensive and supportive services to meet their needs and assist them in achieving their degree. The Histotechnology program has an assigned liaison counselor who will provide specialized guidance for enrolled students in the baccalaureate program. Additionally, all Mt. SAC counselors will receive professional development to ensure continuity of information provided to all students regarding the new BS in Histotechnology requirements.

Mt. SAC ensures that students have access to online and on campus tutoring support. Academic learning support centers such as the Technical Education Resource Center (TERC) and the STEM Center are also widely used by histotechnology students and will provide support designed to help students in the bachelor's program succeed.

The Library provides 24/7 support and access to online resources. Robust resources currently available to support histotechnology include access to general academic and specialized databases, more than 2,861 eBooks, and 1,726 streaming videos. The library subscribes to databases and journals, including nearly 8,361 e-journals to support the subjects covered in this degree. As part of the course and program approval process, library faculty meet with discipline faculty to ensure the addition of library resources as necessary to support upper division histotechnology curriculum.

Standard III: Resources

Please describe the staffing plan to support the proposed program.
Faculty:
The Histotechnology program will be led by two full-time faculty members Jennifer MacDonald and Dr. Carmen Rexach. Three additional full-time faculty will support the Histotechnology Program, including Dr. Elizabeta Boyer Meyer, Dr. Carola Wright, and Melissa Presch. Together this faculty team will coordinate curriculum development and implementation of the BS program. These Mt. SAC Histotechnology faculty members have worked at the department, College, and state levels to determine transfer pattern course articulation, determine course outline comparison and evaluation, write curriculum, and revise curriculum. In alignment with the planning process for the BS in Histotechnology, Mt. SAC program expansion will include hiring additional faculty with training in histology or pathology.
Staff:
The Mt. SAC BS in Histotechnology will be supported by four Biological Sciences Laboratory Technicians who provide instructional support services for faculty and students. Lab Technician staff prepares and sets up laboratory exercises, demonstrations, and instructional materials. They also monitor the laboratory environment, and organize, arrange, stock, and distribute materials, equipment, and supplies. To ensure compliance with safety standards, lab technicians also clean and ensure proper storage and maintenance of laboratory equipment and monitor that laboratory and work areas are in clean and orderly condition. One Lab Technician has extensive experience in the histology program and holds a degree in molecular biology. This technician has taken a leadership role in setting up Histotechnology program labs and has developed preparation sheets for the labs. These procedures sustain the quality of excellence as additional laboratory staff members are trained for the specialized needs of Histotechnology. Lab technician and additional staffing support is anticipated to grow as program implementation needs become evident.
Administration:
The Histotechnology program is a part of the Natural Sciences Division, with academic leadership and administration provided by a Dean and Associate Dean. The Dean and Associate Dean oversee and direct all academic functions for the Histotechnology program including short- and long-term educational planning and development, and administration of departmental policies, procedures, and programs. They also work with faculty to coordinate the implementation of goals, objectives, policies, procedures, and work standards for the department. The Dean and Associate Dean establish the Histotechnology budget and work with the Office of Instruction and Human Resources to ensure staffing levels meet program needs. As the program grows, it is anticipated that a BS Histotechnology program director will be added to support program administration.

Provide faculty qualifications.

Since 2001, Professor MacDonald HT (ASCP) has coordinated the histotechnician program at Mt. SAC, teaching all histotechnology courses and leading the efforts to secure accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Over the first decade of the program, Professor MacDonald has established a foundation of excellence, with student completion rates and their subsequent licensing exam pass rates both at over 90%. Professor MacDonald obtained her Medical Technology degree in Canada where she worked in all areas of the clinical laboratory, including histology. Following graduation, she worked for a number of years in Canadian laboratories. Prior to her career in education, Professor MacDonald was the Anatomic Pathology Manager at San Antonio Community Hospital where she supervised the departments of histology, cytology, and transcription for a busy CAP accredited laboratory, prepared and implemented new policies and procedures, was a member of the hospital hazardous materials team, and acted as co-safety officer for the laboratory. Now at Mt. SAC for more than twenty years, Professor MacDonald is the dedicated full-time faculty member for the associate degree histotechnology courses and coordinates clinical work experience for students. She also coordinates affiliation agreements and supporting documentation (self-study report, annual survey) for NAACLS. Professor MacDonald is the recipient of multiple awards, including Educator of the Year (National Society for Histotechnology), Educator of Distinction (Mt. San Antonio College), Technologist of the Decade (California Society for Histotechnology).

Dr. Carmen Rexach holds an undergraduate degree from UCLA, a Master's Degree in the Pathophysiology of Human Disease from CSU Stanislaus, and a PhD in Infectious Diseases Epidemiology from UC Davis, where she conducted research in Clostridium difficile colitis in pediatric patients. She is a member of the Infectious Diseases Society of America, where she sits on the Public Health Advisory Committee, a member of the American Academy of Clinical Anatomists, American Society for Microbiology, the American Public Health Association, and various international organizations supporting research and clinical practice in infectious diseases. During her tenure at Mt. SAC, she authored the AS Degree in Public Health and the program's nine courses, as well as courses in pathophysiology, immunology, and genetics. She is also the author of the Certificate in Human Prosection. Together with Virginia Pascoe, she developed and maintains a cadaver lab on campus which provides prosected anatomical specimens for demonstration in the many sections of lower division anatomy we offer each term. Dr. Rexach was recognized by the American Medical Student Association (AMSA) as the recipient of the Women Leaders in Medicine Award in 2018.

Dr. Elizabeta Meyer holds two PhDs from Michigan State University (MSU): one in Biochemistry and the other in Toxicology. She completed a NIEHS pre-doctoral fellowship from 1991 to 1997. Dr. Meyer taught upper-division courses in biochemistry (lecture and lab) at Michigan State University & CSU Fullerton which included courses in genetics for majors and non-majors. She has been a faculty member at Mt. SAC since 2001, where her teaching assignments include anatomy, physiology, and cell and molecular biology, both lecture and lab, and genetics lecture. She has completed graduate level coursework in human prosection, clinical veterinary toxicology, pathology, pathophysiology, and biochemistry.

Dr. Carola Wright holds an undergraduate degree in Pharmacology from Germany and a PhD in Biological Sciences from UC Irvine, Department of Physiology and Biophysics. She has completed extensive graduate course work in the field of medical physiology, cell physiology, molecular

biology, and biochemistry, and she has conducted research resulting in four publications in the American Journal of Physiology – Cell Physiology. Significant histology, including processing and staining of muscle cells, was an intricate part of her research, which she has continued during sabbatical leave. At Mt. SAC, she has taught general biology for majors and non-majors, cell and molecular biology, microbiology, and histotechnology.

Melissa Presch holds an undergraduate biology degree from CSU Fullerton and a master's degree in Biological Science from CSU San Bernardino. Professor Presch completed 2.5 years in the Doctoral Program at UC Riverside before then deciding to pursue a career in teaching versus academic research. Professor Presch began teaching human anatomy in 1993 and as a doctoral student at UC Riverside, Professor Presch taught comparative vertebrate anatomy. After deciding to leave the program to pursue teaching, she became the coordinator for the Vertebrate Anatomy Lab Program (a two-quarter program) at CSU Fullerton that ran 30+ lab sections each quarter. Professor Presch was a lecturer and the coordinator for the upper-division Human Anatomy Program at CSU Fullerton for ten years before beginning her tenure at Mt. SAC. While at CSU Fullerton, she coordinated and taught multiple sections of human anatomy, which included maintaining the human cadaver program. Melissa has been the coordinator of the Anatomy 35: Human Anatomy program at Mt. SAC since 2010.

Explain the impact on the following resources:

Physical Resources

Facilities and physical resources utilized by the Histotechnology baccalaureate program have been evaluated for feasibility and effectiveness for the program as part of the BS Application to the California Community Colleges Chancellors Office. These physical assets continue to be evaluated annually as part of the College program review, Planning for Institutional Effectiveness (PIE) process.

The AS Degree in Histotechnology program is well-prepared to meet the resource requirements for a baccalaureate degree program. Mt. SAC maintains one of the most well-equipped, dedicated student histotechnology laboratories in the nation. This means there are already dedicated facilities, labs, technology and equipment in place. In November 2018 the district voters approved Measure GO, a local facilities bond. Building updates for the Histotechnology program are funded through these General Obligation bonds. Additionally, the 2018 Mt. San Antonio College Education and Facilities Master Plan (EFMP) includes planning for added classroom space to accommodate program growth anticipated with establishment of the bachelor's degree in Histotechnology.

Technology

Mt. SAC current Histotechnology lab is the largest in the nation, with advanced technology to serve program needs. The dedicated classroom and laboratory are equipped with instructional stations that include integrated audio and visual projection. Additionally, specialized program technology included digital microscopy. With the support of Sakura Finetek, Mt. SAC developed two virtual microscopes for students use which can be utilized with any digital device, including smart phone. Microscope projection capabilities enable instructional assistance for students to participate synchronously online. Equipment technology needs are reviewed each year through

the Planning for Institutional Effectiveness (PIE) process. Recent upgrades include embedding centers, microtomes, and flotation baths.

Equipment

Mt. SAC is committed to providing students in the BS Histotechnology program with equipment that will prepare them to transition successfully into employment. The Histotechnology Program Advisory Committee advises Mt. SAC on industry trends and equipment needed to maintain program excellence. The dedicated student histotechnology laboratory currently includes: 24 workstations with microtomes and flotation baths, eight extra microtomes and flotation baths, six embedding stations, an automated coverslipper, two grossing centers, a tissue processor, three cryostats, two chemical fume hoods, two automated cassette labelers, two slide labelers, a digital microscope, an antigen decloaker for immunohistochemistry stains, three drying ovens (one is high-capacity), heating plates and surface thermometers for *in situ* hybridization, two water baths, 26 student microscopes, one teaching microscope, microscope projection equipment, two paraffin dispensers, four dedicated staining stations, humidity chambers for immunohistochemistry staining, a centrifuge, and a cytocentrifuge. Equipment refresh and expansion will be supported by Perkins funding and State Instructional Equipment funding.

Explain the impact on financial resources.

Mt. SAC's strong current and projected financial position will provide sufficient financial resources to support baccalaureate program planning, implementation, curriculum development, and professional development. As the BS program grows, the College will expand the laboratory space and equipment with growth funds, instructional equipment allocations, new resource allocations, grant requests, and/or enhanced partnerships with employers. The Student-Centered Funding Formula (SCFF) will generate additional ongoing resources. Year three and year four students will generate higher income than year one and two due to the additional $84 per unit in additional student fees. Under the current funding rates, and assuming 50% of students are eligible for the Pell Grant and 50% qualify for the California Promise Grant, year three students are projected to generate $7,560 per FTES. For year four students who complete degrees, the projection is $9,988 per FTES. These resources will be allocated to the additional expense of instruction and support needed for year three and four students.

Standard IV: Leadership and Governance

Describe the leadership and governance structure that will ensure academic quality and institutional effectiveness are sustained and maintained.
Mt. SAC has an established leadership and governance structure in place to ensure academic quality and institutional effectiveness are sustained and maintained. Board Policy (BP) 3255: Participation in Local Decision-Making requires that governance committees, operational committees, and Academic Senate committees and task forces are structured to include appropriate representation by faculty, management, classified staff, and students when matters are being considered that are within their purview. BP/Administrative Procedure (AP) 3255 firmly establishes policy and procedures authorizing administrator, faculty, and staff participation in decision-making processes. Each constituency of the College has responsibility and expertise in specific areas, and the decision-making structure is designed to bring the multiple segments of the College together to participate in decisions related to their areas of interest and expertise. Mt. SAC implements a shared governance structure that has at its foundation shared responsibility and collaboration to ensure academic quality and institutional effectiveness are sustained and maintained.
Describe the internal approval process.
The BS in Histotechnology has the support of College leadership, including the College president, the Board of Trustees, the College vice presidents, and discipline faculty experts and faculty leadership. The program was initially approved by the Mt. SAC Academic Senate through the shared governance process for submission to the Chancellor's Office in 2014. Though not selected for the first round of baccalaureate degrees, faculty remained committed to moving the degree forward, ensuring that the Histotechnology BS was included in program reviews and in the Educational and Facilities Master Plan. After the passage of AB 927, the Academic Senate again approved to move the Histotechnology BS forward for consideration. Faculty discipline experts worked closely with Academic Senate leadership and managers in the Natural Sciences Division and Instruction Office to ensure that the appropriate structures are in place for curriculum review and approval, library and academic support services, student outcomes assessments, staff and faculty professional development, and wrap around services to support students in the program. This support led to the submission of an application for approval of a Baccalaureate program in Histotechnology to the California Community College Chancellors Office (CCCCO) in January 2022. On September 14, 2022 the Histotechnology program faculty presented an update to the Board of Trustees and the Board passed resolution 22-09 to formally approve the Bachelor of Science in Histotechnology. On September 8, 2022 Mt. SAC received provisional approval from the CCCCO for the Bachelors of Science in Histotechnology, pending approval by ACCJC and the Board of Governors. The program will be submitted to the Board of Governors at the September meeting and is anticipated to secure conditional approval at that time. Following the approval of the ACCJC substantive change, the BS in Histotechnology program and courses will be submitted through the rigorous local curriculum review and approval process. The baccalaureate degree and upper division courses are being developed by faculty discipline experts with input from the Histotechnology Advisory Board. The new curriculum will be submitted by faculty authors and reviewed and approved by departments and division managers before being submitted to the Educational Design Committee (EDC) and the Curriculum and Instruction Council (C&I). Once approved by C&I, the degree and courses will be submitted for approval to the Mt. SAC Board of Trustees and presented as an information item to

the Mt. SAC Academic Senate. Once the program is approved at the state level and courses are being offered, faculty will engage in the evaluation of student learning outcomes (SLOs) and program level outcomes (PLOs) to evaluate the program to ensure equitable student success and to make changes as determined by outcomes analysis. The Outcomes Committee will ensure that SLOs and PLOs are evaluated according to the 4-year review cycle. Further, the Distance Learning Committee (DLC) will evaluate any courses submitted to be offered in an online modality. As per requirements established through the DLC and approved by the Academic Senate, all faculty teaching online or hybrid classes must meet stringent online teaching certification requirements to ensure compliance with all state and federal laws. This internal approval process ensures that the curriculum is appropriate to the baccalaureate level, all federal and state laws are followed, and that outcomes drives meaningful data analysis to ensure student success.

Describe the external approval process (state/federal approvals, etc.).

In 2014, when the opportunity arose for California community colleges to offer baccalaureate degrees within narrowly defined criteria, Mt. SAC's Histotechnology program was an immediate and obvious choice. Unfortunately, Mt. SAC was not granted permission to implement a pilot baccalaureate degree program at that time. Since that time, Mt. SAC has been preparing for the next opportunity to offer this advanced program, which AB 927 provided. Stakeholders from across the campus worked together to ensure that this program has the resources, planning, and student support to succeed. Mt. SAC industry partners have voiced their unqualified support and labor market data show an even greater need for qualified graduates at this level of Histotechnology than ever before. As the culmination of over ten years of planning and preparation, Mt. SAC is ready to become the first baccalaureate program in Histotechnology in California and only the sixth higher education program nationwide. An application for approval of a Baccalaureate program in Histotechnology was submitted to the California Community College Chancellors Office in January 2022 and was granted provisional approval on September 8, 2022 pending ACCJC approval and Board of Governors approval. The program will be presented to the full Board of Governors at the September 2022 meeting and is anticipated to secure conditional approval at that time.

Please include documentation that will help the Committee understand the process by which the change was developed, such as former and proposed mission and/or objectives, summary of discussions and approvals with campus constituents, (Board of Trustees, Academic Senate, students, community members), strategic plans, financial plans, copies of Board minutes, as appropriate, copies of draft legal documents regarding the new location, copies of draft legal documents dealing with matters of facilities and other institutional property, as appropriate. Please include documentation of all state and/or federal approvals, as appropriate.

Evidence

- Baccalaureate Degree Application Mt. SAC January 15 2022
- Board of Trustees Approval of Revised Mission September 14 2022
- Board of Trustees Resolution 22-09 Approval of a Bachelor of Science in Histotechnology
- Fall 2021 Survey of Histotechnology Students and Graduates

- Histotechnology Program Funds 2022-23
- Information Report to Board of Trustees September 14 2022
- Mt SAC CCCCO Application Decision Letter
- Mt SAC Letters of Support January 15 2022
- Mt SAC Strategic Priorities