Major and Certificate Requirements

Students are encouraged to meet with a counselor/advisor for assistance in selecting courses.

Transfer Program Requirements
Students who intend to major in transfer programs listed on the previous page should plan a course at College of San Mateo to meet the general requirements for junior standing, as well as the lower division requirements, of the specific college or university to which they plan to transfer.

See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Accounting

Associate in Arts Degree with a major in Accounting; Transfer Program; Certificate Program; Certificates of Completion

Recommended high school preparation: use of microcomputers, including spreadsheet and word processing applications; basic math and English skills.

Career Opportunities: Accounting offers an interesting and rewarding career to people who can work with numbers, focus on details, use a computer, and work as part of a team. Many high paying entry-level accounting jobs are available, and you can advance your career by demonstrating your skills on the job.

CSM offers two Accounting Certificates of Completion: an Accounting Certificate Program, and an Accounting A.A. degree. The Accounting Assistant I Certificate of Completion, which can be completed in eight weeks, covers the essential skills a student needs to qualify for an entry-level job. The Accounting Assistant II Certificate of Completion, which can be completed in one semester, includes additional course work to strengthen a student's background. The Accounting Certificate requires two semesters and provides the most complete training. These three are designed as a sequence. A student may earn the Accounting Assistant I Certificate of Completion; then complete four more courses and earn the Accounting Assistant II Certificate of Completion; then complete two more courses and earn the Accounting Certificate. After completing the Accounting Certificate Program a student may earn the Accounting A.A. degree by completing the General Education requirements.

Many graduates continue their education and receive a Bachelor's degree in accounting or business administration. Students who earn a Bachelor's degree can have a career as a certified public accountant (CPA), internal auditor, cost accountant, financial analyst, personal financial planner, or tax accountant.

A.A. Degree

Major requirements: ACTG 100, 103, 121, 131; ACTG 144 and 145 or ACTG 171; BUSW 415 plus three of the following courses: BUSW 114, 214, 383, 416, 464, 530. Total: 20.5-24.0 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Many of the higher paying career opportunities in accounting require a B.A. or advanced degree. Students can fulfill lower division requirements at College of San Mateo. See the Transfer Planning and Major Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program

Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

Certificates of Completion

Accounting Assistant I: ACTG 100, 103, 144; BUSW 105, 415; CRER 133. Total: 8.5 semester units.

Accounting Assistant II: ACTG 100, 103, 144, 145; BUSW 114, 214, 415, 416; CRER 133. Total: 13 semester units.

Administration of Justice

Associate in Science Degree with a major in Administration of Justice; Transfer Program; Certificate Program

Career Opportunities: The criminal justice field offers employment in over 581 municipa-
Group 4: ETHN 150, 151, 160; ANTH 105, 110, 120; GEOG 110
Group 5: SPCH 120, 140, 150, 170
Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Option 2 (For Peace Officers Only)
Major Requirements: ADMJ 100, 102, 108; 9 substitution units for ADMJ 104, 106, 710 given for a current, valid POST Basic Academy Certificate with transcripts signing completion through any accredited California college (Certificate/transcripts must be approved by the Administration of Justice Department Coordinator); plus 9 units selected from one of the elective groups listed below. Students must complete all 9 units within the same group. Total: 27 semester units.

Group 1: ADMJ 120, 125, 153
Group 2: ACTG 100, 121; ECON 100, 102; ECON 123 or MATH 200
Group 3: PSYC 225; SOCI 105, 141, 200; PSYC 300 or SOCI 300
Group 4: ETHN 150, 151, 160; ANTH 105, 110, 120; GEOG 110
Group 5: SPCH 120, 140, 150, 170
Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program
Many career opportunities in Administration of Justice require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program
Options 1 and 2:
Certificate requirements: Completion of A.A. degree major requirements listed above with a grade of C or higher in each course. Total: 27 semester units.

Basic Police Academy
This 800 hour course of training is certified by the California Commission on Peace Officers Standards and Training to meet the statutory basic training requirements.

Certificate requirements: ADMJ 145 with a grade of C or higher. Total: 20 units.

POST (California Commission on Peace Officers Standards and Training) Certification
Peace Officers Standards and Training (POST) certification is a significant aspect of the Administration of Justice program. Job opportunities within the law enforcement field require certification by POST of a candidate’s work preparation. Reserve officers are hired by local law enforcement agencies only after completing a POST-certified program such as that offered by College of San Mateo. For regular police officer positions, in the event that a job applicant has not completed POST-mandated and certified training, the hiring agency might choose to hire the individual and then pay for his/her training. It is more often the case that the agency will seek out candidates who have completed training in a POST-certified program. College of San Mateo’s Administration of Justice program is oriented to comply directly with POST certification standards, placing our program graduates in an advantageous position when applying for jobs in the law enforcement field.

Upon completion with a grade of C or higher of each of the following special courses, students will receive a certification of completion. Elective credit may be applied to the A.S. degree.

POST Regular Basic Course Modular Format
ADMJ 771 P.C. 832: Arrest and Control Training
ADMJ 775 P.C. 832: Firearms Training
ADMJ 776: Regular Basic Course Level III
ADMJ 777: Regular Basic Course Level II

Aeronautics
Transfer Program
Career Opportunities: Many graduates in this field are employed in the aircraft and aircraft parts industry. Some work for Federal Government agencies, such as NASA and the Department of Defense. Students who complete courses and obtain a Federal Aviation Certificate and an A.S. degree in Airframe and Powerplant Technology have excellent opportunities for steady employment with airlines, as well as other aircraft operations.

Transfer Program
Transfer programs are available for four-year degree curricula at San Jose and San Francisco State Universities, as well as other institutions which provide Aeronautics or Design and Industry majors. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Aeronautics: Airframe and Powerplant Technology
Associate in Science Degree with a major in Airframe and Powerplant Technology: Certificate Programs
Recommended high school preparation: elementary algebra, intermediate algebra, plane geometry, drafting, general shop, physics, or physical sciences. Students should check course descriptions and prerequisites and discuss recommended sequence with counselors/advisors.

Career Opportunities: Aircraft and Powerplant Technology offers opportunities for individuals who have the ability to diagnose mechanical problems, work with their hands, work independently, and handle crucial responsibility to become aircraft mechanics. The program offered at CSM is designed to provide students with the finest training and experience available. Through the expertise of the faculty and exposure to theory and techniques for maintaining the airframe and powerplant of an aircraft, students will be eligible to take the FAA licensing exam upon completion of their coursework.

Chances for immediate hire as an aircraft mechanic are enhanced for students who have completed CSM’s carefully designed program, and opportunities for advancement with this College’s training are more rapid. Experts predict that there will be more new jobs created in aviation than in most other career fields. Graduates of CSM’s Aircraft Maintenance Technology program can expect to find the majority of available jobs at metropolitan airports.

A.S. Degree
Option 1
Major requirements: AERO 300, 301, 310, 311; AERO 330, 331, 350, 351, 370, 371; AERO 320, 321, 340, 341, 360, 361; Total: 56 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).
If a student has an airframe or powerplant certificate issued by the F.A.A., upon application to the Aeronautics Department, 7 units of credit may be granted and the A.S. Degree may be completed under Option 2 or 3.

Option 2 (for those students who already have an airframe certificate issued by the F.A.A.)

Major requirements: AERO 320, 321, 340, 341, 360, 361 plus 6 units selected from DRAF 120; ELEC 110, 280; MANU 100; PHYS 100; WELD 300. Total: 27 semester units plus 7 units credit granted for airframe certificate issued by the F.A.A. 

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Option 3 (for those students who already have a powerplant certificate issued by the F.A.A.)

Major requirements: AERO 330, 331, 350, 351, 370, 371 plus 6 units selected from DRAF 120; ELEC 110; MANU 100; PHYS 100; WELD 300. Total: 27 semester units plus 7 units credit granted for powerplant certificate issued by the F.A.A.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Certificate Program

Students may apply for a Certificate in Airframe and Powerplant Technology upon completion of one of the following options:

Option 1

Certificate requirements: AERO 300, 301, 310, 311, 320, 321, 330, 331, 340, 341, 350, 351, 360, 361, 370, 371 with a grade of C or higher in each course. Total: 35 semester units.

If a student has an airframe or powerplant certificate issued by the F.A.A., upon application to the Aeronautics Department, 7 units of credit may be granted and the Certificate requirements may be completed under Option 2 or 3.

Option 2 (for those students who already have an airframe certificate issued by the F.A.A.)

Certificate requirements: AERO 320, 321, 340, 341, 360, 361 with a grade of C or higher in each course. Total: 21 semester units plus 7 units credit granted for airframe certificate issued by the F.A.A.

Option 3 (for those students who already have a powerplant certificate issued by the F.A.A.)

Certificate requirements: AERO 330, 331, 350, 351, 370, 371 with a grade of C or higher in each course. Total 21 semester units plus 7 units credit granted for powerplant certificate issued by the F.A.A.

Aeronautics: Airframe Technology

Certificate Program

Certificate requirements: AERO 300, 301, 310, 311; AERO 330, 331, 350, 351, 370, 371 with a grade of C or higher in each course. Total: 35 semester units.

Aeronautics: Powerplant Technology

Certificate Program

Certificate requirements: AERO 300, 301, 310, 311; AERO 320, 321, 340, 341, 360, 361 with a grade of C or higher in each course. Total: 35 semester units.

Aeronautics: Aircraft Maintenance Technology

Associate in Science Degree with a major in Aircraft Maintenance Technology

This major is designed especially for students who already possess both the airframe and powerplant certificates issued by the F.A.A. Upon application to the Aeronautics Department, students may receive 14 units of credit toward an Associate in Science degree in Aircraft Maintenance Technology. Applicants must have completed 12 units at College of San Mateo with a 2.0 G.P.A. and be enrolled at the College at the time of application.

Career opportunities: Career opportunities in Aircraft Maintenance include work on aircraft as an airframe or powerplant mechanic or as a supervisor of maintenance operations in airport maintenance facilities.

Major requirements: 18 units selected from the following courses: BUSW 105 or 214; CIS 110; DRAF 120; ELEC 110; PHYS 100 or MANU 100; WELD 300; COOP 641 (3 units). Total: 18 semester units plus 13 units granted for airframe and powerplant certificates issued by the F.A.A.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Aeronautics: Avionics

(See Electronics Technology: Avionics)

Alcohol and Other Drug Studies

Associate in Arts Degree with a major in Alcohol and Other Drug Studies; Transfer Program; Certificate Program

Career opportunities: The Alcohol and Other Drug Studies program prepares students to work with the alcohol and other drug dependent population, and the family and employer of the chemically dependent person. The program addresses community needs for trained alcohol and other drug prevention specialists to work and volunteer in both public and private agencies in the Bay Area.

Career opportunities include Primary Addiction Counselor/Supervisor, Case Manager, Program Director, Prevention Educator, Mental Health Dual Diagnosis Counselor, Crisis Intervention Specialist, Incarceration Counselor, and Assessment/Placement Specialist. Other opportunities include working with adolescents, seniors, multicultural populations, and those who have been affected by HIV/AIDS.

Persons who are awarded the certificate may be employed by in-patient and out-patient treatment clinics, transitional housing centers, mental health clinics, job training/placement programs, shelters for various homeless populations, detoxification units, crisis intervention centers, incarceration facilities, and education/prevention programs in the schools and community.

Major requirements: SOSC 301, 302, 303, 304, 307, 308, 314, 315, 316; 6 units selected from PSYC 100, 410 or SOCI 100; 3 units selected from SOSC 310, 313, or 319, with a grade of C or higher in each course. Total: 36 semester units.

Transfer Program

See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program

This certificate program conforms to the Proposed Guidelines for Alcohol and Other Drug Studies Programs within Higher Education prepared for the California State Department of Alcohol and Drug Programs and
meets the accreditation standards set forth by the California Association for Alcohol/Drug Educators (CAADE).

Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course. Total: 30 semester units.

**American Sign Language**
Certificates of Completion
(See Foreign Languages)

**Anthropology**
Transfer Program
(Also see Social Sciences)

Career opportunities: In addition to careers in cultural, physical and medical anthropology, students majoring in Anthropology have opportunities in archaeology, cultural resource management, environmental impact analysis, ethnic relations, ethnology, exhibit design, expeditions, film ethnography, health research, linguistics, museum curatorship, population analysis, public information, recreation, redevelopment, social gerontology, social services consultation, transcultural nursing, travel consultation, and urban planning.

Transfer Program
Most career opportunities in anthropology require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion
(See Foreign Languages)

**Arabic**
Transfer Program, Certificates of Completion

Career opportunities: In addition to providing skills in understanding, speaking, reading, and writing Arabic, the major provides a greater understanding of Arabic culture and civilization and prepares students for greater international and domestic career opportunities. Given the multi-national nature of the business world today, fluency in a foreign language, such as Arabic, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attaché, diplomatic officer, immigration inspector, journalist, teacher/professor, and travel agent.

Transfer Program
Many career opportunities in Arabic and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion
(See Foreign Languages)

**Archaeology**
(See Anthropology courses.)

**Architecture**
Associate in Science Degree with a major in Architecture; Transfer Program

Career opportunities: Most architecture majors, after completing their studies and obtaining their Professional Degree, will choose to obtain their license to practice as owners of their own firm. As practitioners, they will service a wide variety of clientele: private, business, institutional, and governmental. Others may elect to find employment in existing architectural firms, as members of their teams, in the design and development of the built environment. Some may elect to do advance work in fields such as art, historic restoration, product development, government, politics, business administration, law, education, medicine, research, land development, the military, etc. Others find opportunities in related fields that utilize the technical and problem-solving skills obtained from their architectural education.

**Recommended high school preparation:**
academic program including mathematics (4 years), science (4 years), English (4 years), art (2 years), mechanical drawing (1 semester). Students should check course descriptions and prerequisites, and discuss recommended sequence with an architectural counselor/advisor.

**A.S. Degree**
Major requirements: ARCH 100, 120, 130, 140, 145, 210, 220, 230, 240. Total: 26 semester units.

**Suggested Electives:**
ARCH 112; CIS 240/241; MATH 241, 242 and PHYS 210, 220 or MATH 251, 252, 253 and PHYS 250, 260, 270.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**
Most career opportunities in architecture require a B.A. or advanced degree and professional licensing. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Architecture: Architectural Engineering, Landscape, City and Regional Planning**

**Transfer Program**
See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.
Art

Transfer Program
Career opportunities: Art majors find employment in a variety of fields, which include advertising, manufacturing, industrial design, public relations, and communications. Experienced artists frequently specialize in a particular product or field such as fashion, industrial art, advertising, or story illustration. Career opportunities include advertising manager, antique dealer, architect, art administrator, art therapist, art critic, art dealer, art historian, cartoonist, ceramicist, commercial ceramicist, community artist, computer artist, computer graphics illustrator, computer publisher, design consultant, curator, display designer/manager, fashion/floral/interior designer, educator, gallery director, graphic artist, illustrator, jewelry designer, layout artist, muralist, museum technician, painter, photographer, policeman, printmaker, set designer, sculptor, and visual information specialist.

Transfer Program
Many career opportunities in art require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Art: Art History
Transfer Program
Career opportunities: Individuals interested in careers in the art history field may obtain an A.A. in Liberal Arts, which trains them in observation, analysis and communication, the basis for many careers in both the business and government sectors.

Many graduates continue their education at a university, majoring in Art History. Career opportunities for those with a B.A. or advanced degree include work with museums as curators or archivists; with galleries; in publishing as art editors or critics; art appraisal; art consulting; historical preservation; conservation; and education, teaching at the college or high school levels.

Transfer Program
Most career opportunities in Art History require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Recommended courses: ART 101, 102, 103, 104, 105, 201, 301; HIST 100, 101; French, German, or Italian language courses.


Art: Commercial
Associate in Arts Degree with a major in Commercial Art
Career opportunities: Commercial artists are trained in design, materials, advertising production, commercial drawing, computer art, lettering, cartooning, figure and composition, fashion illustration, and photography. Commercial artists are employed in advertising agencies, art studios, corporate communications departments, textile manufacturers, fashion designers, architects, publishing companies, printing firms, large retail stores, supermarkets, mail order houses, promotion departments for motion picture and television studios, and with the military. In addition, many commercial artists are self-employed.

Recommended high school preparation: design, drawing, painting.

A.A. Degree
Major requirements: ART 201, 202, 206, 207, 214, 301, 328; TA&G 101. Total: 23 semester units.

Suggested electives: ART 101, 223, 231, 241, 305; BUS. 175; CRER 410; SPCH 100.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Art: Commercial Illustration
Transfer Program
Career opportunities: The Commercial Illustration field offers career opportunities in advertising, manufacturing, industrial design, public relations, and communications. Experienced artists frequently specialize in a particular product or field such as fashion, industrial art, advertising, computer art, or story illustration.

Transfer Program
Many higher paying career opportunities in Commercial and Illustration Art require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Art: Fine Arts
Associate in Arts Degree with a major in Fine Arts: Drawing or General Studio Art or Painting or Printmaking; Transfer Program
Career opportunities: The A.A. degree in Fine Arts provides the student with both a historical and contemporary perspective on the creation of art, the ability to analyze and understand compositional structure and historical significance, and hands-on skills working in a variety of media.

A.A. Degree
Major Requirements (for all options):
ART 101 or 102, 103 or 104, 201, 202, 206, 207, 214, 301.

Option 1: Drawing
Career opportunities: An emphasis in Drawing prepares the student to express emotions, ideas and visions through representation of lines on a surface utilizing media such as pen and ink, pencil, charcoal, pastel, and brush.

Major requirements: as listed above plus a repeat of ART 206 and 207; ART 223. Total: 33 semester units.

Suggested electives: ART 224, 241, 328, 351, 405.

Option 2: General Studio Art
Career opportunities: An emphasis in General Studio Art prepares the student to function as a creative artist utilizing traditional fine arts (drawing, painting, sculpture) and modern media (ceramics, textiles, interdisciplinary, photography). The General Studio Art major leads individuals to careers as artists, elementary school through graduate level educators, commercial artists, art critics, museum curators, restorers/conserva-
tors, graphic designers, art editors, art agents, and art administrators.

**Major requirements:** as listed above plus ART 223, 241, 405. Total: 33 semester units.

**Suggested electives:** ART 321, 351.

**Option 3: Painting**

**Career opportunities:** An emphasis in Painting prepares the student to express emotions, ideas, and visions through application of paints and related chemical color substances to canvas and other surfaces. This field offers career opportunities in painting, muraling, jewelry design, color consulting, art education and art therapy. Some of these careers require a B.A. or advanced degree.

**Major requirements:** as listed above plus ART 223 (3 units), 224 (6 units). Total: 33 semester units.

**Suggested electives:** ART 231, 232, 241, 351, 405. Repeat of ART 206 or 207.

**Option 4: Printmaking**

**Career opportunities:** An emphasis in Printmaking prepares the student to render art concepts on surfaces and transfer images, via ink or dyes, to paper or fabric. Career opportunities exist in specialties such as intaglio, relief, lithography, serigraphy, and photo-mechanical printmaking. Some printmakers work in book arts and papermaking.

**Major requirements:** as listed above plus ART 241, 242. Total: 30 semester units.

**Suggested electives:** ART 223, 351, 405. Repeat of ART 206 or 207.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Biological Sciences**

(See Life Sciences: Biological)

**Biotechnology**

(See Life Sciences: Biotechnology)

**Broadcast and Electronic Media**

*Associate in Arts Degree with a major in Broadcast and Electronic Media; Transfer Program; Certificate Program*

**Career opportunities:** The Broadcast and Electronic Media field offers a variety of career opportunities in electronic communications for creative individuals with solid communications skills. CSM’s program provides a comprehensive view of the communications disciplines, is tailored to meet current needs in the broadcasting media, and is well respected in the industry.

Through actual on-air broadcasts from the campus stations, KCSM-FM and KCSM-TV, students receive both theoretical and practical, hands-on experience that provides excellent preparation for immediate employment or for transfer to a four-year program.

The broadcasting field offers students an exciting environment in television and radio with career opportunities in broadcast operations, engineering, writing and performance; media analysis; and instructional media. Additional opportunities include non-broadcast production areas such as music media production, music videos, corporate videos, video news features, and cablecasting. Other positions this training can qualify a student for include traffic, marketing, and programming.

Radio Broadcasting offers both on-air and behind-the-scenes career opportunities with radio stations, audio production facilities, educational institutions, and media departments. Among career opportunities in this field, the best known is perhaps the radio announcer, or “disc jockey.” Announcers select and introduce recorded music; present news, sports, weather, and commercial announcements; interview guests; and report on community activities and other matters of interest to their audience. While announcers may ad-lib much of their material, they also do much of the research and writing for scripted news and commercial copy. In addition, announcers may operate the control board and sell commercial time to advertisers. Other career opportunities for Radio Broadcasting Operations graduates are as sound engineers, dispatchers, broadcast technicians, business service salespeople, and telecommunications analysts.

Television Broadcasting offers career opportunities in broadcast production with television stations, educational institutions, media departments, cable companies, satellite communications facilities, interactive video production companies, and telecommunications companies. This field of study provides students with training for positions which include camera operator, cinematographer, editor, engineering technician, instructional media specialist, lighting director, production director, production assistant, sound engineer, technical director, and videographer.

**A.A. Degree**

**Major requirements:** BCST 100, 101, 110, 131, 132, 194, 231, 232 plus 6 units selected from BCST 112, 120, 242, 244 or 250; or MUS. 275; or BUS. 101 or 180 or MGMT 100 (maximum of 3 units); or
ELEC 110; or JOUR 120. Total: 27.5 semester units.

**Transfer Program**

Many higher paying career opportunities in Broadcast and Electronic Media require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificate Program**

**Certificate requirements:** completion of A.A. degree major requirements listed above with a grade of C or higher in each course. Total: 27.5 semester units.

**Building Inspection Technology**

*Associate in Science Degree with a major in Building Inspection; Certificate Program*

**Career opportunities:** A career in Building Inspection includes review and interpretation of plans and diagrams for compliance with codes and ordinances; inspection of new and existing residential, commercial, and industrial buildings during and after construction to enforce and certify them for safety and code compliance; assurance of structural integrity and plumbing, electrical, and mechanical systems in the sale and exchange of property; work with architects, engineers, contractors, and property owners to ensure proper use of materials and workmanship; and making and administrative duties that are foreign to specialized and industrial buildings.

Career opportunities in Building Inspection include employment with the building departments of local, state and federal government. Local governments employ large inspections staffs, as do state and federal departments such as Defense, Housing and Urban Development, and Agriculture. Other graduates work for firms in engineering and architectural services, construction, and business services industries. Most opportunities for building inspectors are concentrated in cities and suburban areas undergoing rapid growth. The number of new career opportunities will be largely determined by the level of new housing and commercial building activity and the increasing complexity of construction requirements.

**A.S. Degree**

**Major requirements:** BLDG 700, 710, 720, 730, 740, 750, 760; 3 units selected from ENGL 800 or higher or MGMT 110; 3 units selected from MGMT 120 or 235. Total: 27 semester units.

**Suggested electives:** BLDG 725, 775, 790; COOP 641; MANU 100; PHYS 100.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Certificate Program**

**Certificate requirements:** completion of A.S. degree major requirements listed above with a grade of C or higher in each course.

**Business**

**Career Programs**

The following programs are designed to prepare students for employment in specific careers. They emphasize business skills for immediate employment; general courses provide a background for promotion in chosen occupational areas. Students planning to complete a four-year degree in these areas should consult the catalog of the college or university to which they plan to transfer.

**Business: Business Information Processing**

*Associate in Arts Degree with a major in Business Information Processing; Certificate Programs: Certificates of Completion*

**Recommended high school preparation:** typing, business math, microcomputers, accounting, business English, and office work experience.

**Career opportunities:** Career opportunities available to Business Information Processing graduates include employment in both entry-level positions and mid-level office management. Other areas of career opportunities include sales, marketing, public relations, and human resources.

Students develop the ability to organize and manage work tasks and information through the use of computer/office technology. These programs offer training in decision-making and administrative duties that are required for promotion.

**A.A. Degree**

Completion of one of the following options:

**Option 1: Microcomputer/Word Processing**

**Career opportunities:** Among career opportunities for those skilled in microcomputer word processing are administrative assistant, executive secretary, secretary, and secretarial services entrepreneur.

**Major requirements:** BUS. 100, 115, 317, 326; BUSW 114; BUSB 105, 114, 214, 215, 383, 415, 530, 540, 541. Total: 25.5 semester units.

**Option 2: Microcomputer/Data Base and Spreadsheet Functions**

**Career opportunities:** Among career opportunities for those skilled in microcomputer database and spreadsheet functions are technical support specialist, PC applications support specialist, PC telephone customer service representative, computer support aide, and consultant/trainer.

**Major requirements:** ACTG 100, 144, 145; BUS. 100, 115; BUSD 114, 115; BUSB 105, 114, 214, 415, 416, 464, 530; CRER 133. Total: 8-9.5 semester units.

**Certificate Program**

**Options 1 and 2**

**Certificate requirements:** completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

**Certificates of Completion**

**Office Assistant I:** BUS. 317; BUS. 316 or BUSW 214; BUSB 114, 415, 530; CRER 133. Total: 8-9.5 semester units.

**Office Assistant II:** BUS. 317; BUSB 114, 214, 215, 383, 415, 530; CRER 133. Total: 11 semester units.

**Business: Merchandising (General)**

**Career opportunities:** Opportunities are available to qualified individuals in the general areas of wholesaling, retailing, and certain areas of manufacturing in the domestic and international markets. Specific careers include selling, buying, customer service,
and product promotion. Careers in distribution are growing in availability at a healthy rate. Over one fourth of the civilian labor force is engaged in merchandising/marketing-related activities.

Certificate Program
Certificate requirements: BUS. 100, 101, 115, 170, 175, 180, 641 (6 units) with a grade of C or higher in each course. Total: 24 semester units.

Business: Merchandising (Management)
Associate in Arts Degree with a major in Merchandising (Management): Certificate Program

Career opportunities: Opportunities are available to qualified individuals in the general areas of wholesaling, retailing, and certain areas of manufacturing in the domestic and international markets.

Merchandising management careers are available in selling, buying, customer service, and product promotion.

A.A. Degree
Major requirements: BUS. 100, 101, 115, 170, 175, 180, 641 (6 units); ACTG 100 or 121. Total: 27-29 semester units.

Plus General Education and other requirements for the A.A. degree, (see index: General Education).

Certificate Program
Certificate requirements: completion of A.A. degree major requirements listed above, with a grade of C or higher in each course.

Business Administration
Associate in Arts Degree with a major in Business Administration; Transfer Program

Recommended high school preparation: elementary algebra, intermediate algebra, geometry, trigonometry, foreign language.

Career opportunities: Career opportunities for Business Administration majors are diverse and many. The major prepares students for careers in business disciplines which include sales, marketing, public relations, and human resources. Many graduates find employment within the manufacturing industries: automotive, aerospace, commercial; investment banking; consulting services; retailing; and communications. Others secure employment in federal, state, or local government agencies. Still others work for private foundations and professional organizations. With a B.A. or advanced degree, career opportunities extend to include budget analyst, accountant, controller, financial analyst, financial planner, loan officer, marketing analyst, production manager, and securities analyst.

A.A. Degree/Transfer Program
Career opportunities: Accountant, administrative assistant, budget analyst, budget consultant, claims agent, controller, credit analyst, financial manager, hospital administrator, insurance agent, lawyer, and trust officer are some of the careers for which this option helps prepare the student. Additional fields for which this option helps prepare the student are advertising/marketing, banking, business publications, and computer operations.

Major requirements: ACTG 121; ECON 100, 102; ECON 123 or MATH 200 or higher level math course; 6-10 units selected from ACTG 131; BUS. 100, 201, 295; CIS 240/241; or MATH 125, 241, 251. Total: 20-26 semester units.

Transfer Program
Many higher paying career opportunities in Business Administration require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Associate in Arts Degree with a major in Business Administration
Career opportunities: Administrative assistant, bookkeeper, buyer, employment interviewer, and sales agent are some of the careers for which this option helps prepare the student.

Major requirements: ACTG 100 or 121; BUS. 100, 101, 115, 201, 401 or equivalent; BUS. 295 or CIS 110; 3 units selected from BUSD or BUSW series. Total: 24-27 semester units.

Suggested electives: BUS. 131, 150, 170, 180, 401.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Chemistry
Associate in Science Degree with a major in Chemistry and Transfer Program

Career opportunities: The Chemistry major prepares students to transfer to four-year institutions for continued study in the field of chemistry. While an A.S. degree may be sufficient for an individual to secure employment as an environmental technician, laboratory technician, safety manager, sanitarian, or water-quality analyst, most careers in the field require a B.S. or advanced degree. Analytical chemist, biochemist, biotechnologist, dentist, educator, forensic specialist, environmental/industrial health engineer, pharmacist, physician, research chemist, and veterinarian are some of the careers for which an Associate degree in Chemistry prepares a student who subsequently obtains a university degree in the field. Approximately two-thirds of all chemists work for manufacturing firms. Chemists are also employed with federal, state and local governments, such as the departments of Defense, Health and Human Resources, and Agriculture. Some chemists work for research organizations and educational institutions.

Major requirements: CHEM 210, 220, 231, 232, 250; PHYS 210/211 or 250. Total: 28-29 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program
Most career opportunities in chemistry require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Chinese
Transfer Program, Certificates of Completion

Career opportunities: In addition to providing skills in understanding, speaking, reading, and writing Chinese, the major provides a greater understanding of Chinese culture and civilization and prepares students for greater international and domestic career opportunities. Given the multinational nature of the business world today,
fluency in a foreign language, such as Chinese, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attaché, buyer, diplomatic officer, immigration inspector, interpreter, journalist, teacher/professor, and tutor.

Transfer Program
Many career opportunities in Chinese and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion
(See Foreign Languages)

Computer and Information Science
Associate in Science Degree with a major in Computer and Information Science; Transfer Program; Certificate Program; Certificates of Completion

Career opportunities: Computer and Information Science offers extraordinary career opportunities to individuals who possess fluency in the English language, solid keyboarding skills, and a desire to work with computers on a daily basis. Students in the Computer and Information Science program at CSM are trained primarily on PC microcomputers and receive the finest training and experience available in areas such as programming, data communications, applications development, network support, end-user support, and hardware/systems support. This training is intended to lead to employment in the computing industry or transfer to a baccalaureate institution for continued study in the field and to provide advanced study for computing professionals.

Career opportunities include applied scientist, communications technician, computer maintenance technician, computer operator, data base specialist, documentation specialist, information specialist, Local Area Network (LAN) administrator, PC specialist, programmer, software engineer, software technician, systems analyst, systems test engineer, technician support representative, and as sales personnel skilled in marketing methods for computer systems. While some students secure employment following completion of the A.S. degree or Certificate program, many transfer to four-year universities to complete a Bachelor’s degree in a computer-related field.

Recommended preparation: for all of the course work described in the CIS program, fluency in the English language and keyboarding skills are essential. Testing for proficiency in the reading and writing of English is done regularly through the testing facilities of CSM Student Services. Students who wish to be tested should contact the Testing Office in Room 1-207. Keyboarding skills may be improved in the Business Skills Lab.

Job requirements vary among companies, and students’ course selection for the A.S. degree in CIS, the Computer Science Applications Development Certificate, or the Computer Support Specialist Certificate should be guided by these requirements. Therefore, it is important for students to check these requirements with companies for which they plan to work. For this, the Career Center and the Cooperative Education Office may be able to help.

A.S. Degree
In order to receive an A.S. degree in Computer and Information Science, students must complete the recommended courses for the transfer program or the certificate requirements listed below for the Computer Science Applications Development Program or the Computer Support Specialist Program (any option) plus the General Education and other requirements for the A.S. degree (see Index: General Education).

A.S. Degree/Transfer Program
Many career opportunities in Computer and Information Science require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Major Requirements: CIS 250/251 or 284/285 AND 252/253 or 286/287; CIS 290/291; 4 (or more) units selected from CIS courses numbered higher than 110; MATH 251, 252; 3 (or more) units selected from MATH courses higher than 251; ENGL 100. Total 32 semester units.

Suggested Electives (Strongly Recommended): CIS 372/373; MATH 253, 268; PHYS 250, 260.

Students should also consult the catalog of the college or university to which they plan to transfer.

A.S. Degree/Certificate Program
(Computer Science Applications Development)

Career opportunities: The Computer Science Applications Development program prepares CSM graduates for entry-level programming positions with companies of all sizes. Program emphasis is on cultivating computer professionals who are technically competent and work well with others. Career opportunities exist in numerous businesses and industries. Typical entry-level positions include quality assurance and systems testing, and frequently involve working on project teams.

Major requirements: CIS 110, 150; ENGL 100; MATH 120 or 122-123 or higher math class; CIS 118/119; CIS 250/251 or 284/285; CIS 252/253 or 286/287; CIS 290/291; 8 units selected from CIS 180, 252/253 (if not used above); 286/287 (if not used above); 308/309, 360/361, 372/373, 374/375, 378. Total: 38-39 semester units.

A.S. Degree/Certificate Program
(Computer Support Specialist)

Career opportunities: The Computer Support Specialist program prepares CSM graduates to support microcomputer systems and end-users in business and industry. Students may choose to concentrate in network support, end-user support, or hardware support. Program emphasis is on cultivating computer professionals who are technically competent and work well with others.

Major requirements (for all options): CIS 110, 150; ENGL 100; MATH 120 or 122-123 or higher math class.

Option 1: Network Support
Career opportunities: Graduates in this specialization will find employment supporting network users and installing, config-
uring and managing moderate-sized homogenous networks. Individuals with prior network experience can acquire more extensive technical education in networks through this program and prepare for industry network certification examinations. Career opportunities exist in numerous businesses and industries.

**Major requirements:** courses listed above; BUSD 114-115 and BUSW 114 OR CIS 315; CIS 115/116 and 308/309 OR CIS 118/119 and either 250/251 or 284/285; ELEC 110, 215; 9 units selected from BUSW 124-125, CIS 152, 153, 409, 410, 458, 460/461, 474, 475, 476, 477, 479, or ELEC 218. Total: 40-42.5 semester units.

**Option 2: End-User Support**

**Career opportunities:** Graduates in this specialization will find entry-level employment as end-user support specialists, help desk support specialists, computer librarians, information systems liaisons, and with computer operations staffs. Career opportunities exist in numerous businesses and industries.

**Major requirements:** courses listed above; BUSD 114-115 and BUSW 114 OR CIS 315; CIS 115/116 and 308/309 OR CIS 118/119 and either 250/251 or 284/285; ELEC 110, 215; 9 units selected from CIS 376, 378 or BUSW Windows applications courses or GRA applications courses or MULT applications courses or TA&G applications courses. Total: 40-42.5 semester units.

**Option 3: PC Hardware and System Support**

**Career opportunities:** Graduates in this specialization will find entry-level technician positions with companies of all sizes, installing, configuring and supporting stand alone and networked systems. Career opportunities exist in numerous businesses and industries.

**Major requirements:** courses listed above; BUSD 114-115 and BUSW 114 OR CIS 315; CIS 115/116; ELEC 110, 215, 216, 217, 218, 310. Total: 39-41.5 semester units.

**Certificates of Completion**

| Network Plus Basics | CIS 150, 152. Total: 6 semester units. |

**Object-Oriented Design:** CIS 250/251, 286/287, 372/373; OR CIS 284/285, 252/253, 372/373. Total 12 semester units.

**General interest in computers**

For students who do not plan to major in CIS but wish to learn about computers, CIS 110 is recommended as a beginning course. Those who wish to learn some programming should begin with CIS 115/116 or CIS 118/119.

**Cooperative Education**

Cooperative Work Experience Education enables students to earn college credit for work and learning done on his/her current job. The job may be major or career related or in a general field not especially related to a student’s major. Cooperative Education involves: a. students attending CSM full or part time and working full or part time; or b. students working full time one semester and attending CSM the next. These programs allow students to earn additional college credit while learning through an actual job experience. Cooperative Education gives the opportunity to use classroom theory in the job setting.

Now volunteer service in non-profit agencies, the public sector, or educational institutions may qualify for Cooperative Education credit. Sign up to put your volunteer service to work for you earning units that can apply to your CSM degree or transfer.

Further information is available in the Cooperative Education Office, located in the Career Services Center in Building 5, Room 128, telephone 574-6171.

**Cosmetology**

**Associate in Arts Degree with a Major in Cosmetology; Certificate Program; Certificate of Completion**

The Cosmetology Program consists of 1600 hours training in theory and practical skills in all phases of beauty culture. Units are based on hours in attendance.

**Career opportunities:** The Cosmetology program at CSM is designed to give students the finest training and experience available, and to prepare them for qualification to take the California State Bureau of Barbering and Cosmetology examination for licensure as a cosmetologist. Through the expertise of a talented faculty and exposure to professional cosmetologists and salons, students can learn hair design, hair coloring, hair analysis, skin care, nail care, and aesthetic enhancement of the body.

Skilled cosmetologists find employment with full-service and specialty salons. Licensed cosmetologists also have the freedom to work either full or part-time, and employment opportunities are available without regard to gender or age. The employment outlook for cosmetologists is good, with positions presently outnumbering applicants.

**High school preparation:** Completion of tenth grade or equivalent is required by State Law. Students must be 17 years of age to be eligible for State Examination. Note: High school students may enroll in cosmetology training at College of San Mateo in their junior or senior year by contacting their respective schools and the Cosmetology Department.

**Admission Requirements:** Contact the Cosmetology Department, 574-6363, for application information and forms.

When space is available, students with previous training may be eligible for admission to the Advanced Standing program in Cosmetology within a one-year period of withdrawal from a previous school and upon submission of State Bureau records to the Cosmetology Department. No student who has completed more than 800 hours of approved training in another school will be admitted to the Advanced Standing program.

**A.A. Degree**

**Major requirements:** 9 units each of COSM 712 and 722; 13.5 units each of COSM 732 and 742, with a grade of C or higher in each course. Total: 45 semester units.

**Suggested electives:** BUS. 115; ACTG 100; PSYC 100; SOCI 100; SPCH 120.

**Plus General Education and other requirements for the A.A. degree (see Index: General Education).**

**One-Year Certificate Program**

Upon satisfactory completion of 1600 total hours (with grades of C or higher), students will be qualified to take the California State Bureau of Cosmetology examination for licensure as a cosmetologist.

**Certificate requirements:** 9 units each of COSM 712 and 722; 13.5 units each of COSM 732 and 742, with a grade of C or higher in each course. Total: 45 semester units.
Certificate of Completion
Completion of 600 hours of COSM 752 and 753 prepares a student to take the California State Bureau of Cosmetology Examination for Estheticians and for subsequent employment in this field only.
Esthetician: COSM 752 and 753. Total: 16 semester units.

Special Courses in Cosmetology
COSM 750, Brush-up. Refresher course to upgrade skills for students who have satisfactorily completed an approved course of training with a minimum of 1600 hours or for out-of-state cosmetologists in preparation for the California State Bureau of Cosmetology Examination.
COSM 760, Cosmetology Instructor Preparation. Preparation for California State Bureau of Cosmetology Instructor examination, which requires the student to complete a 600-hour instructor training certificate program or equivalent work experience and individualized instruction as required.

Dental Assisting
Associate in Science Degree with a major in Dental Assisting; Certificate Program
Career opportunities: The Dental Assisting program at CSM is designed to give students the finest training and experience. Through the expertise of a talented faculty and exposure to dental care professionals, a student is trained to prepare patients for treatment, assist the dentist working with patients, process x-rays, manage the office, and handle appointments and billing with computer applications. Graduates of CSM’s program are eligible to take the National Certification Examination to become a certified dental assistant and the California Registration Examination to become a registered dental assistant.

Admission Requirements: High school graduate or equivalent.

A.S. Degree
Major requirements: DENT 716, 721, 722, 731, 732, 735, 740, 742, 743, 749, 751, 763; PSYC 108 or SOCI 100; SPCH 120; COOP 647 (4 units). Total: 35 semester units.
A grade of C or higher is required for all Dental Assisting courses.
Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Certificate Program
One-Year Certificate
Certificate requirements: DENT 716, 721, 722, 731, 732, 735, 740, 742, 743, 749, 751, 763; COOP 647 (4 units); 1.0-1.5 units selected from ENGL 830 or equivalent or READ 812; 1.0-1.5 units selected from SPCH 850 or equivalent. Total: 31-32 semester units.
All students completing the above required courses with a grade of C or better are eligible to apply to the Office of Admissions and Records for a Certificate in Dental Assisting.
Up on successful completion of the program with a grade of C or higher in all courses required for the certificate, the student is eligible to take the National Certification Examination to become a Certified Dental Assistant, and the California Registration Examination to become a Registered Dental Assistant.

Drafting Technology

CAD/Drafting
Associate in Science Degree with a major in CAD/Drafting; Certificate Program; Transfer Program

Recommended high school preparation: elementary algebra. Students should check course descriptions and prerequisites and discuss recommended sequence with counselors/advisors.
Career opportunities: Drafting is common to all manufacturing and construction activities. The drafter interprets the engineer’s ideas, presenting them in the language of manufacturing and construction. Recognized as one of the finest Drafting programs in the state, CSM’s instructors have recent industry experience and classrooms are equipped with the latest equipment, including computer-aided drafting (CAD) stations. A graduate of CSM’s Drafting Technology program may select from several enviable opportunities. The graduate may immediately enter industry as a draftsperson with the potential to become a designer or may opt to continue their education at a state university for a Bachelor’s degree in Industrial Technology, becoming eligible for technical management positions.
The demand for CAD drafters has never been greater, and the number of engineering and manufacturing firms requiring CAD personnel is increasing.

A.S. Degree
Major requirements: DRAF 120, 121, 122, 123, 124; 3 units selected from DRAF 130, 140, 150 or 680, Pro-E; 3 units selected from any course(s) in ARCH, BUSW, ELEC, MANU, MULT or WELD. Total: 21 semester units.
Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program
Many career opportunities in Drafting Technology require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program
Certificate requirements: completion of A.S. degree major requirements listed above with a grade of C or higher in each course.

Economics
Transfer Program
(Also see Social Science)
Career opportunities: A major in Economics prepares the student to transfer to four-year institutions where they may complete baccalaureate degrees in Economics and other disciplines. Most careers in teaching, government, and large corporations deriving from the study of Economics require a graduate degree in the field, while a Bachelor’s degree in Economics generally qualifies the student for the same types of
employment available to those who hold
general business or liberal arts degrees. In
addition to a career as an economist, those
who possess advanced degrees choose from
careers such as accountants, attorneys, audi-
tors, computer systems engineers, credit
analysts, financial planners, statisticians,
and treasurers. Other fields in which econo-
mists are employed include arbitration, bud-
get analysis, business/market analysis, busi-
ness/economic forecasting, commodities,
industrial relations, investment analysis, labor relations, manpower, transportation,
international business, marketing, natural
resources, and operations research.

Transfer Program

Most career opportunities in Economics
require a B.A. or advanced degree. Students
can fulfill lower division General Education
and major requirements at College of San
Mateo. See the Transfer Planning and Major
Preparation Recommendations sections of
this catalog. Students should also consult
the catalog of the college or university to
which they plan to transfer.

Education

Transfer Program

Career opportunities: The Education ma-
ajor prepares students to transfer to a baccalaureate institution to complete a Bachelor’s
degree and teaching credential, and subse-
quently for a Master’s degree and perhaps
Ph.D. for those who plan to teach at com-
munity colleges or four-year colleges/uni-
versities. Multiple subject teaching creden-
tials allow individuals to teach in pre-school
through sixth, and sometimes eighth,
grades. Single subject teaching credentials
allow the individual to teach a specific sub-
ject at the middle and high school levels.
Students interested in the field of education
can also work as teacher assistants or para-
professionals, and may specialize in areas
such as special or bilingual education, spe-
cializations also open to credentialled teach-
ers. A background in Education is also ex-
cellent preparation for those interested in
working in corporate training or as educa-
tors in churches, synagogues, and commu-
nity agencies.

Transfer Program

Students planning a career in teaching at the
elementary or secondary levels should con-
centrate on meeting the General Education
requirements of the college to which they
plan to transfer. The courses recommended
for a student who plans to teach will, to a
considerable degree, depend upon the cre-
dential sought and the teacher education
college the student plans to attend. How-
ever, EDUC 100 should be taken as an in-
troduction to this profession.

Most career opportunities in Education (ex-
cluding certificate programs in Early Childhood Education) require a B.A. or advanced
degree. Students can fulfill lower division
General Education and major requirements at
College of San Mateo. See the Transfer Plan-
ning and Major Preparation Recommendations
sections of this catalog. Students should also
consult the catalog of the college or uni-
versity to which they plan to transfer.

Electrical Technology

Associate in Science Degree with a major in
Electrical Technology; Certificate Program

The courses required for this degree are ad-
ministered by College of San Mateo in con-
junction with the Joint Apprenticeship and
Training Committee. Registration is limited
to those individuals fulfilling the related
instruction requirements of the State of Cali-
forina as an indentured apprentice. For in-
formation, contact the San Mateo County
J.A.T.C. for the Electrical Construction
Industry or the college Apprenticeship
Department.

Career opportunities: Electrical techni-
cians assist electronics engineers to develop,
manufacture and service electronic systems
and equipment. They troubleshoot, test,
calibrate, and repair electronic components
and circuit boards used in products such as
computers, office machines, musical equip-
ment and components, solar energy devices,
and industrial and medical measuring and
controlling devices. Employment opportuni-
ties exist in military, industrial and con-
sumer markets. New career opportunities
exist with cable television networks which
utilize their own cable system or share a
cable with another transmission company.
Publications, such as newspapers and maga-
zines, have also recently begun to require
the services of electrical technicians.

Required preparation: at least 18 years of
age; high school diploma or G.E.D.; one
semester of college-level algebra with a
grade of C or higher.

A.S. Degree

Major requirements: ELEC 701, 702, 703,
704, 705, 706, 707, 708, 709, 710. Total: 30
semester units.

Plus General Education and other require-
ments for the A.S. degree (see Index: Gen-
eral Education).

Certificate Program

Certificate requirements: completion of
A.S. degree major requirements listed above
with a grade of C or higher.

Electronics Technology

Associate in Science Degree with a major in
Electronics Technology; Transfer Program;
Certificate Program; Certificates of
Completion

Career opportunities: The Electronics
Technology program at CSM prepares a
student for entry-level employment as an
electronics technician and, with additional
General Education coursework, for transfer
to a baccalaureate institution. Entry-level
employment opportunities exist in many
segments of the electronics industry in the
greater Bay Area. Companies involved with
circuit design and fabrication; computer
construction, installation, and support; com-
ponent manufacturing; high-technology
transportation; aerospace systems; auto-
mated process control; and consumer elec-
tronics all offer program graduates opportu-
nities for entry-level employment. Career
opportunities in Electronics include work as
an engineering aide, a technician, or a man-
ager. These individuals are involved with
design, manufacturing, sales, or service of a
wide range of products. Electronics is one
of the largest and fastest growing career
fields in Northern California, with more
significant growth expected over the next
decade. Most Electronics Technology ma-
jors specialize in a particular area, such as
communications systems, computer and
digital systems, microwave, medical elec-
tronics, manufacturing, or precision instru-
mants.

A.S. Degree

Major Requirements (for all options):
BUSD 114, 115; BUSW 114, 530; ELEC
201, 202, 215, 231, 262, 275, 282, 290, 332
with a G.P.A. of 2.0 or higher.
Option 1 (Digital Electronic Systems):

Major requirements: as listed above plus ELEC 310, 320, 360 with a G.P.A. of 2.0 or higher. Total: 42 semester units.

Option 2 (Linear Electronic Systems):

Major requirements: as listed above plus ELEC 232, 320, 370 with a G.P.A. of 2.0 or higher. Total: 41 semester units.

Option 3 (Wireless Communications Systems):

Major requirements: as listed above plus ELEC 232, 302, 362, 346 with a G.P.A. of 2.0 or higher. Total: 42 semester units.

Option 4 (Industrial Electronics, Electro-Mechanical Control Systems):

Major requirements: as listed above plus ELEC 421, 422, 424 with a G.P.A. of 2.0 or higher. Total: 44 semester units.

Option 5 (Industrial Electronics, Process Control Systems):

Major requirements: as listed above plus ELEC 441, 442, 444 with a G.P.A. of 2.0 or higher. Total: 44 semester units.

Option 6 (Microcomputer Systems):

Major requirements: as listed above plus ELEC 216, 217 with a G.P.A. of 2.0 or higher. Total: 38 semester units.

Option 7 (General Electronics):

Major requirements: as listed above plus ELEC 232 and 10 units selected from ELEC 302, 310, 320, 360, 362, 370 with a G.P.A. of 2.0 or higher. Total: 43 semester units.

A.S. Degree (Advanced Placement)

Students with an extensive background in electronics from the military, industrial on-the-job training, or other educational institutions who wish to obtain a degree or certificate must complete a minimum of 22 units from the courses listed below, with a G.P.A. of 2.0 or higher and no grade lower than a C. A course substitution/waiver form must be filed with the Office of Admissions and Records to verify experience and/or course qualification.

Major requirements: BUSD 114, 115; BUSW 114, 530; ELEC 282, 290, 332 plus additional courses selected from one of the options listed above. Total: a minimum of 22 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program

Many high-paying career opportunities in Electronics Technology require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program

Certificate requirements: completion of A.S. degree major requirements listed above with a G.P.A. of 2.0 or higher and no grade lower than a C.

Certificate Program (Advanced Placement)

Certificate requirements: completion of A.S. degree major requirements (advanced placement) with a G.P.A. of 2.0 or higher and no grade lower than a C.

Electronics Technology: Avionics Systems Maintenance

Career opportunities: The Avionics Systems Maintenance program prepares a student for entry-level employment as a radioelectronics (R&E) technician in the commercial passenger and/or freight airline industry. Such positions are found at commercial and private airports throughout the greater Bay Area. Career opportunities include work as a line or bench mechanic or supervisor involved with the operation and maintenance of computer, communications, navigation, and flight control equipment used in commercial and civil aircraft. Upon completion of the program the student possesses the fundamental knowledge and skill to successfully pass the FCC General Radiotelephone License examination, as well as entry-level employment skill tests.

A.S. Degree

Option 1:


Option 2 (for those students who already have an airframe and powerplant certificate issued by the F.A.A.)

Major requirements: ELEC 231, 262, 275, 290, 302, 320, 362, 346; AERO 160. Total: 29 semester units plus 6 units of credit granted for airframe and powerplant certificate issued by the F.A.A.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

*Upon application to the Electronics Technology Department, students may receive 6 units of credit toward an A.S. Degree in Electronic Technology—Avionics Systems Maintenance. Applicants must have completed 12 units at College of San Mateo with a 2.5 grade point average and be enrolled at the College at the time of application.

Certificate Program

Certificate requirements: completion of A.S. degree major requirements listed above with a grade of C or higher in each course and a G.P.A. of 2.0 or higher.

Certificates of Completion

Network Cabling Specialist: ELEC 110, 131; CIS 110. Total: 10.5 semester units.

Electronics Assembly: ELEC 110, 282, 332. Total: 7 semester units.

Electronics Technology: PC Technical Support

Career Opportunities: By providing a solid foundation in PC operating systems and PC system hardware and peripherals, the PC Technical Support Program prepares students for entry-level employment as PC hardware technicians. The fundamentals of operating system installation and operation as well as the function of, configuration of, and proper operation of PC system hardware and peripherals form the core of the program. System troubleshooting, problem detection and correction, and system upgrading are stressed throughout the program. The program prepares students to successfully pass the nationally recognized CompTIA A+ PC hardware certification exam. Entry-level employment opportunities exist in small and large businesses of all types, at PC hardware, software, and peripheral manufacturers and retailers, within governmental agencies, and as an independent consultant. Recognized
by the U.S. department of labor as one of the fastest growing employment fields, opportunities abound in the greater Bay Area.

**A.S. Degree**

**Major requirements:** BUSD 114, 115; BUSW 114, 124, 125, 530; CIS 110, 150; ELEC 110, 215, 216, 217. Total 27 semester units.

Plus General education and other requirements for the A.S. degree (see Index, General Education).

**Certificate Program**

**Certificate requirements:** completion of A.S. degree major requirements listed above with a G.P.A. of 2.0 or higher and no grade lower than a C.

**Engineering**

*Associate in Science Degree with a major in Engineering; Transfer Program*

**Career opportunities:** Engineering is one of the largest professions in the United States, with over one million jobs in fields ranging from airplane design to pollution control. The three largest branches of engineering are electrical, mechanical and civil. All branches of engineering place a heavy emphasis on problem solving and mathematics. Engineering education focuses on teaching scientific and engineering concepts and their application to the creative and effective solution of problems.

Career opportunities for those who hold a Bachelor’s or advanced degree include engineering positions in aerospace, agricultural, architectural, biomedical, chemical, civil, computer, electrical, industrial, materials, mechanical, and nuclear fields. Most engineers work for manufacturing industries, while a smaller percentage work for federal, state and local government agencies or as private consultants. The remainder hold faculty positions at colleges and universities.

**Recommended high school preparation:** mathematics (four years); chemistry (one year); physics (one year); mechanical drawing (one year). Students should check course descriptions and prerequisites, and discuss recommended sequence with counselors/advisors.

**A.S. Degree**

**Major Requirements:** ENGR 210, 230, 260, 270 plus 5 additional units chosen from the following electives: CHEM 220 or 225, 231; CIS 240/241, 250/251; ECON 100, 102; ENGR 111, 666; GEOL 210; MATH 200, 270, 275; PHYS 270. Total: 19 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**

Most career opportunities in engineering require a Bachelor’s degree. Students can fulfill lower division major and general education requirements at the College of San Mateo and then transfer with junior standing to a four-year college or university. Students usually transfer into a specific engineering major (e.g., Civil Engineering, Mechanical Engineering, or Electrical Engineering). Because transfer requirements vary by major and four-year school, students should refer to [http://www.assist.org](http://www.assist.org) and to the catalog of the school to which they plan to transfer. Additional information on the engineering transfer program is available at [http://www.smccd.net/accounts/demsetz/transfer.pdf](http://www.smccd.net/accounts/demsetz/transfer.pdf) and in the Transfer Planning and Major Preparation Recommendations sections of this catalog.

**Engineering Technology: Electronics**

*Associate in Science Degree with a major in Engineering Technology: Electronics; Transfer Program*

**Career opportunities:** Most Electronics majors secure employment with firms that manufacture electrical and electronic equipment, business machines, professional and scientific equipment, and aircraft/aircraft parts. Computer and data processing firms, engineering and business consulting firms, public utilities, and government agencies also hire electrical and electronics engineers. This major helps prepare graduates for positions as technicians engaged in research and development, manufacturing, testing, installing, and maintaining electronic equipment. After gaining experience and/or an advanced degree, graduates may advance to positions which include production supervisor, sales engineer, field engineer, and test engineer.

**A.S. Degree**

**Major requirements:** ELEC 220, 262, 275, 290, 310, 320, 360, 370; MATH 241, 242. Total: 26 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**

Many career opportunities in Electronics require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Engineering Technology: General**

*Associate in Science Degree with a major in Engineering Technology; Transfer Program*

**Career opportunities:** Engineering Technology is that part of the engineering field which blends scientific and engineering knowledge with technical skills in research, development and production. CSM offers the General Education, mathematics, science, engineering, and many of the technical courses required to meet lower division requirements in Engineering Technology and prepare the student for transfer to a baccalaureate institution for a degree in Engineering Technology. The Associate degree alone prepares students for employment as engineering technicians, who work with or under the direction of engineers. Career opportunities exist largely with manufacturers of electrical and electronic equipment, aircraft/aircraft parts, machinery, scientific instruments, chemical, motor vehicles, fabricated metal products, and primary metals. Non-manufacturing opportunities exist with engineering and architectural firms, research and testing facilities, and business services in which engineering work is done on a contract basis for organizations in other sectors of the economy. Additional opportunities for employment exist in the communications, utilities, and construction industries; and with federal, state and local government agencies.

**A.S. Degree**

**Major requirements:** ENGR 210; MATH 241-242; PHYS 210, 220; 6 elective units
selected from area of technology specialization. Total: 26 semester units.

Suggested Electives: ACTG 100; ENGR 666; CIS 250/251; MATH 200; technical courses.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program
Most career opportunities in Engineering Technology require a B.S. or advanced degree. Students can fulfill lower division General Education and some major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

English
Associate in Arts Degree with a major in English; Transfer Program

Career opportunities: The English major provides students with a broad-based foundation for transfer to baccalaureate institutions. English coursework prepares individuals to succeed in many diverse fields such as advertising, business, communications, editing, film/video production, insurance, journalism, law, politics, medicine, public relations, teaching, and writing. Career opportunities include advertising copy writer or manager, columnist/journalist, editor, educator, freelance writer, information specialist, lexicographer, librarian, media planner, novelist, poet, public relations officer, publisher, radio/television announcer, reporter, researcher, technical writer, and writing consultant. Additional career opportunities include business administrator, civil servant, clergy member, foreign service officer, fund raiser, insurance examiner, legislative assistant, and program developer.

Major requirements: 6-7 units selected from ENGL 100 or 100/101, 110, 120, 130, 140, 165 plus 12 units selected from literature courses in the 100 and 200 series or LIT. 430 (6 units selected from ENGL 161, 162, 163, or 164 may be substituted for 6 literature units). Total: 18-19 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program
Most career opportunities in English require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Ethnic Studies
Associate in Arts Degree with a major in Ethnic Studies; Transfer Program

Career opportunities: The multicultural emphasis of the Ethnic Studies program has attracted many persons currently employed in public school systems, social services and human relations, as well as professionals whose jobs involve interpersonal situations with multicultural groups.

Students who transfer complete and Bachelor’s degree in Ethnic Studies can pursue careers in the arts, business, city planning, creative writing, education at all levels, international relations, journalism, law, medicine, politics, psychology, public health, research, and social work. In addition, Ethnic Studies courses allow public school teachers the opportunity to meet California State requirements in ethnic education.

A.A. Degree
Major requirements: ETHN 101, 102; plus 12 units selected from the following courses: ETHN 150, 151, 152, 160, 261, 262, 288, 290, 300, 350, 361, 425, 430, 440, 585. Total: 18 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

The Ethnic Studies program is structured for the student who plans to major in the Social Sciences, Social Welfare, Humanities, Ethnic Studies or related areas in either a two-year program or as transfer to a four-year institution. Ethnic Studies courses are transferable as Social Science, Humanities, Electives or Ethnic Studies, depending upon the respective institution. In addition, Ethnic Studies courses allow public school teachers the opportunity to meet California State requirements in ethnic education.

Transfer Program
Most career opportunities in Ethnic Studies require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Film History
Associate in Arts Degree with a major in Film History; Transfer Program

A.A. Degree
Career opportunities: Individuals interested in careers in the film history field may obtain an A.A. in Film History, which trains them in observation, analysis, and communication, the basis for many careers in both the business and government sectors.

Many graduates continue their education at a university, majoring in Film History. Career opportunities for those with a B.A. or advanced degree include work in publishing as film editors or critics and in education, teaching at the college level.

Major requirements: FILM 100, 120, 121, 200 plus at least 8 units selected from FILM 101-106 (maximum of 3 units), 110, 461, 462, 464, 465, 466; ART 100, 101, 102, 103, 105; BCST 110; ENGL 161, 162, 163; ETHN 585; HUM. 114. Total: 20 semester units.

Transfer Program
Most career opportunities in Film History require a B.A. or advanced degree. Students can fulfill lower division General education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Filmmaking
Associate in Arts Degree with a major in Filmmaking; Transfer Program

Career opportunities: Most filmmakers are employed by private cinema companies at “movie capitals” around the world. Television studios also employ a large number of camera technicians and directors to pro-
duce everything from soap operas to news documentaries. Many filmmakers go into business for themselves eventually.

**Major requirements:** FILM 100, 461, 462, 466 plus at least 6 units selected from FILM 101-106 (maximum of 3 units), 110, 120, 121, 200, 464, 465; ART 350-355, 360; BCST 120, 194, 232; ENGL 161, 162, 163; ETHN 585. Total: 20 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**
Many high paying career opportunities in Filmmaking require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Fire Sprinkler Technology**

*Associate in Science Degree with a major in Fire Sprinkler Technology; Certificate Program*

The courses required for this degree are administered by College of San Mateo in conjunction with the Joint Apprenticeship Committee. Registration is limited to those individuals fulfilling the related instruction requirements of the State of California as an indentured apprentice. For information, contact the Sprinkler Fitters J.A.C. or the college Apprenticeship Department.

**Career opportunities:** Career opportunities for Fire Sprinkler Technology graduates involve the design, installation and maintenance of fire protection systems. Fire departments, insurance companies, industrial fire safety programs, and fire protection system companies hire graduates with this training.

**Required preparation:** at least 18 years of age; high school diploma or G.E.D.; one semester of college-level algebra with a grade of C or higher.

**A.S. Degree**

**Major requirements:** SPFI 701, 702, 703, 704, 705, 706, 707, 708, 709, 710. Total: 30 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Certificate Program:**

**Certificate requirements:** completion of A.S. degree major requirements listed above with a grade of C or higher.

**Fire Technology**

*Associate in Science Degree with a major in Fire Technology; Transfer Program; Certificate Program*

**Career opportunities:** The Fire Technology Program prepares students to meet the high standards necessary in pursuing a career in the fire service as a firefighter or a member of related fire protection services, such as emergency medical technician. Students who wish to concentrate on meeting the basic requirements for entry-level employment are advised to complete FIRE 783 and FIRE 785. Many of the over 1100 fire agencies in California require completion of this training to meet minimum requirements for employment as a firefighter.

Firefighters can specialize in areas of the fire service such as fire prevention, training and administration. Opportunities also exist with industry safety programs, insurance companies, and equipment manufacturing companies. The Fire Technology field offers enhanced opportunities for employment to students who have completed CSM’s program, and opportunities for advancement for those who possess this training are more rapid.

Through the expertise of the faculty and the exposure to professional fire service personnel, students can expect to be trained in the latest theories and techniques of fire technology, fire fighting skills, and emergency medical training.

**A.S. Degree**

**Major requirements:** FIRE 715*, 720, 730, 740, 745; ENGL 800 or higher level English; 13-14 units selected from other Fire Technology courses (recommend 3 units selected from FIRE 705, 714, or 725) and State Board of Fire Services courses offered through the College, with a grade of C or higher in all Fire Technology courses. (To select elective courses, obtain assistance from counselor/advisor.) Total: 31-32 semester units.


Note: other Fire Technology courses may be substituted as electives with permission.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**
Many career opportunities in Fire Technology require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificate Program**

**Certificate requirements:** completion of A.S. degree major requirements listed above with a grade of C or higher in each course.

*In all Fire Technology programs, FIRE 715, (FT1) Fire Protection Organization may be waived for those students who have three or more years of certified service as professional firefighters. (A letter verifying service must be filed with the Office of Admissions and Records.) If FIRE 715 is waived, another three units of Fire Technology courses must be substituted.

**Career Opportunities**

Firefighter and Emergency Medical Technician training represent a significant aspect of the Fire Technology program. Many job opportunities within the fire service require completion of a State-certified Firefighter Academy and certification as an Emergency Medical Technician. College of San Mateo’s Fire Technology Program is structured to comply with certification standards and to provide students with a solid foundation for a career in the fire service.

**Firefighter I Academy**

The Firefighter Academy is a State Board of Fire Services certified academy that, when combined with a specified experience component, leads to State certification as a Firefighter I.

**Emergency Medical Technician**

Completion of Fire Technology 785, a six-unit course, and passing the State test (of-
ferred as part of the course) provide the student with a State certificate as an EMT. This course is also required as a prerequisite for students who want to continue on with pre-medic training.

**Floristry**  
(See Horticulture: Floristry)

**Foreign Languages**  
(See specific headings for majors/transfer programs in Arabic, Chinese, French, German, Italian, Japanese and Spanish.)

**Certificates of Completion**  
Students can earn Certificates of Completion in Arabic, American Sign Language, Chinese (Mandarin), French, German, Italian, Japanese, or Spanish by earning Credit or a grade of C or higher in twelve (12) units of coursework at College of San Mateo in that language. At least five (5) of the units must come from the transfer classroom sequence (110, 111, 112, 120, 121, 131, 211, 212, 251, etc.). The other five units may come from a telecourse sequence (115, 116, 117, etc.) or from a conversational sequence (801, 802, 803, etc.). However, classes taught in English, such as literature in translation, do not qualify.

In special circumstances, the Dean of Language Arts may approve the limited use of other courses in the same language (such as those numbered 680 or taken at Skyline or Cañada Colleges). In rare circumstances, the Dean may approve using a course in another discipline if its content is closely related to the language studied.

To apply for a Certificate of Completion, a student must be currently enrolled in a course that can be counted toward the certificate. A complete listing of eligible course combinations in a specific language is available in the Language Arts Division Office, Building 17, Room 169.

**French**  
*Associate in Arts Degree with a major in French; Transfer Program; Certificates of Completion*

**Career opportunities:** In addition to providing skills in understanding, speaking, reading, and writing French, the major provides a greater understanding of French culture and civilization and prepares students for greater international and domestic career opportunities. Given the multi-national nature of the business world today, fluency in a foreign language, such as French, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attaché, customs agent/inspector, diplomatic officer, fashion coordinator, foreign broadcast specialist, foreign correspondent, immigration inspector, journalist, teacher/professor, travel agent, and United Nations guide.

**A.A. Degree**  
**Major requirements:** completion of 18 units of French language courses (excluding the 800 series). Total: 18 semester units.  
With Language Arts Division approval, ART 103 and HIST 101 may be accepted as part of the 18 units.  
Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**  
Many career opportunities in French and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificates of Completion**  
(See Foreign Languages)

**Geography**  
*Transfer Program*  
(also see Social Science major)

**Career opportunities:** A major in Geography prepares students to transfer to baccalaureate institutions where they may complete a Bachelor’s degree in Geography or a related discipline. Many Geography majors enter the education profession at all levels. State, county and city governments, as well as private companies, hire geographers in the fields of cartography, environmental studies, resource management, and urban planning because of their broad training. The U.S. Geologic Survey traditionally hires geographers in aerial photograph interpretation, land use mapping, map making, and satellite image analysis. In addition to a career as a geographer, geographic analyst, geographic planner, or agricultural geographer, graduates have opportunities as cartographers, climatologists, demographers, ecologists, environmental scientists, meteorologists, spatial analysts, soil conservationists, surveyors, water resource managers, and land use, urban or recreational resource planners.

**Transfer Program**  
Many career opportunities in Geography require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Geological Sciences**  
*Associate in Science Degree with a major in Geological Sciences; Transfer Program*

**Career opportunities:** An Associate degree in Geological Science prepares the student for transfer to a baccalaureate institution for a four-year degree in Geology. While some jobs are available for technicians with Associate degrees in Geological Science, a Bachelor’s degree in Geology is a minimum requirement for employment in exploratory geology, minerals management, and engineering.

Approximately 40% of geologists work for oil and gas companies, either in service or exploration. Some work for mining and quarrying companies, while others work as consultants or are self-employed. Government agencies provide employment opportunities with the Bureau of Mines, U.S. Geologic Survey, and Bureau of Reclamation. Specific career opportunities include engineering geologist, environmental geologist, geochemist, geology assistant, geophysicist, mining geologist, marine geologist, paleontologist, petroleum geologist, petrologist, seismologist, soils technician, teacher/professor, volcanologist, and waste management geologist.
A.S. Degree

Major requirements: CHEM 210, 220; GEOL 210; OCEN 100, 101; PALN 110. Total: 21 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program

Most career opportunities in Geological Sciences require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

German

Associate in Arts Degree with a major in German; Transfer Program; Certificates of Completion

Career opportunities: In addition to providing skills in understanding, speaking, reading, and writing German, the major provides a greater understanding of German culture and civilization and prepares students for international and domestic career opportunities. Given the multinational nature of the business world today, fluency in a foreign language, such as German, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attaché, consul, diplomatic officer, foreign advertising sales representative, foreign service officer, intelligence specialist, immigration inspector, journalist, public relations specialist, and teacher/professor.

A.A. Degree

Major requirements: completion of 18 units of German language courses (excluding the 800 series). Total: 18 semester units.

With Language Arts Division approval, HIST 101 may be accepted as part of the 18 units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Many career opportunities in German and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion

(See Foreign Languages)

Global Studies

Transfer Program; Certificate of Completion

Career opportunities: The Global Studies program, consisting of interdisciplinary and multicultural courses, is designed to provide students with a broad background in developing their understanding of global economic, political, technological, social, and environmental issues. It offers a comprehensive awareness of multicultural and multidimensional issues that occur as a result of globalization and provides a strong, practical foundation for doing business in a global market. Skills in intercultural communications and cross-cultural business communication, and an understanding of global politics, economies, and major world views. It prepares students for a variety of careers in international trade, government, finance and banking, and sales and marketing; the travel industry; import/export activities; and human changes.

Transfer Program

Many career opportunities involving global studies require a B.A. or advanced degree. Students can fulfill lower division requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate of Completion

BUS. 125; JAPN 680, Introductory Japanese for Business; PLSC 120; GEOG 110 or 680, Economic Geography; SPCH 150 or 170; 2 units of Cooperative Education. Total: 17 semester units.

Graphics

Associate in Arts Degree with a major in Graphics; Transfer Program; Certificate Program

Career Opportunities: This highly technical, yet craft- and art-related major prepares students for careers in the visual communications industry. Although much of the work created by graphic artists is concerned with the design and digital preparation of artwork for print, graphic artists with the right software skills and training are now finding a wide variety of new outlets for their talents. Specific career opportunities, some of which may require a B.A. or further training beyond that available at College of San Mateo, include production artist, graphic artist, illustrator, graphic designer, desktop publisher, digital pre-press operator, art director, animator, multimedia designer, web designer, web production artist, and creative director.

A.A. Degree


Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Some career opportunities in the graphic arts require a B.A. degree or advanced training from selected schools. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate Program

Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.
History

Transfer Program
(also see Social Science major)

Career opportunities: The History major prepares students for transfer to a baccalaureate institution for a Bachelor’s degree in History or a related discipline. History course work in general is helpful to the student who intends to eventually pursue graduate studies in such diverse fields as history, education, and law.

Most career opportunities associated with this discipline require the minimum of a B.A. degree. Some business firms and government agencies seek persons with a broad overview and perspective of historical phases and processes of change. In addition to a career as a historian, career possibilities include anthropologist, antique dealer, archivist, attorney, book dealer, correspondent, customs inspector, college administrator/professor, foreign service officer, fund raiser, librarian, museum curator/technician, news editor, researcher/research analyst, theologian/clergy member, title examiner, and writer.

Transfer Program

Most career opportunities related to History require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Horticulture

Career Opportunities: The Horticulture program provides excellent preparation for immediate employment in the field. Career opportunities include landscape construction and design, greenhouse nursery production, park/golf course management, garden maintenance, interior plantscaping, pest control, and floristry. The field of horticulture offers unlimited employment opportunities in San Mateo County, one of the major producers of plants and flowers in the United States.

Horticulture: Environmental

Associate in Science Degree with a major in Environmental Horticulture; Certificate Program; Transfer Program.

Career opportunities: The Environmental Horticulture major provides excellent preparation for immediate employment in landscape construction and design, greenhouse nursery production, park/golf course management, garden maintenance, interior plantscaping, and pest control.

A.S. Degree

Major Requirements (for all options): HORT 311 or 711; 312 or 712; 315 or both 701 and 702; 327 or both 705 and three units selected from HORT 325, 706, or 742; HORT 320 or BIOL 145 or 110.

Option 1: (Landscape Construction/Design)

Career opportunities: Training in this horticultural option prepares the student for careers in landscape construction and landscape design. Students are prepared for the California Landscape Contractors License Examination, and completion of the Associate degree can be applied as the equivalent of one year’s experience toward contractor’s license requirements.

Major requirements: as listed above plus HORT 340 or 709; 342 or 721. Total: 21-29 semester units.

Option 2: (Nursery Management)

Career opportunities: Training in this horticultural option leads to career opportunities in nursery facilities planting, cultivating, harvesting, and transplanting trees, shrubs, and plants. The nursery industry includes wholesale growers and distributors of nursery stock, as well as various retail outlets and services. In wholesale nurseries, graduates with advanced degrees have opportunities as production managers and assistant managers, plant propagators, and landscape nurserypersons. Upon obtaining experience in nursery management, some graduates branch out into their own businesses, selling landscape maintenance packages to homeowners, apartment complex owners, and business offices. This entrepreneurial effort can lead to a career as a landscape maintenance contractor, who assumes full responsibility for landscape upkeep on contracted jobs.

Major requirements: as listed above plus HORT 330 or both 777 and 778; 342 or 709. Total: 21-30 semester units.

Option 3: (Landscape Management)

Career opportunities: Training in this horticultural option leads to career opportunities in gardening and grounds-keeping for individuals and organizations. Some landscape gardeners work on large construction projects, such as office buildings and shopping malls. For residential customers, the gardener terraces hillsides, builds retaining walls, and installs patios, as well as plants flowers, trees and shrubs. Other landscape gardeners specialize in lawn service, maintaining lawns and shrubs for a fee. Groundskeepers, generally classified as either grounds managers or grounds maintenance personnel, maintain a variety of facilities, including athletic fields, golf courses, cemeteries, and parks. After several years of experience, gardeners and groundskeepers can advance to supervisory positions. Supervisors can advance to grounds managers or superintendents for golf courses, athletic facilities, cemeteries, church campuses, and schools. Many gardeners and groundskeepers move into landscape contracting.

Major requirements: as listed above plus HORT 330 or both 777 and 778; 342 or 721. Total: 21-29 semester units.

Grade C or higher required in all horticulture courses. Plus General Education and other requirements for the A.S. Degree (see Index: General Education).

Certificate Program

Options 1, 2, and 3

Certificate requirements: completion of A.S. degree major requirements listed above with a grade of C or higher in each course.

Transfer Program

Many higher paying career opportunities in Environmental Horticulture require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Horticulture: Floristry

Associate in Arts Degree with a major in Floristry; Certificate Program; Transfer Program

Career opportunities: This Horticulture program provides excellent preparation for immediate employment in the industry. Em-
employment opportunities are found throughout the year in retail nursery sales, interior plantscaping, and floral design shops.

**A.A. Degree**

**Major requirements:** HORT 400, 401, 404, 405, 415, 417, 419, 421, 425, 426, 427, 428; plus 3.0 units selected from HORT 325, 327, or 742; plus 2.0 units selected from HORT 326, 421, 422, 425, 429, 641, or 690 with a grade of C or higher in each course. Total: 21 semester units.

**Certificate Program**

**Certificate requirements:** completion of A.A. degree major requirements listed above with grade of C or higher in each course.

**Transfer Program**

Many high paying career opportunities in Floristry require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Humanities**

**Associate in Arts Degree with a major in Humanities; Transfer Program**

**Career opportunities:** The Associate degree in Humanities prepares students for transfer to a baccalaureate institution to obtain a four-year degree in Humanities or a related discipline. Students increase their understanding of self and the culture around them through this enriching curriculum, thereby enhancing their long-term potential for career advancement. Many Humanities majors seek careers as teachers. Additional career possibilities include communications specialist and writer in humanistic endeavors.

**A.A. Degree**

**Major requirements:** HUM. 101 and 102; plus 12 units selected from the following: 3 units selected from HUM. 111, 112, or 114; 3 units selected from HUM. 125, 127, or 128; 3 units selected from ANTH 370 or HUM. 131 or 133; and 3 units selected from HUM. 136 or 140. Total: 18 semester units. Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Most career opportunities in Humanities require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Human Services**

**Associate in Arts Degree with a major in Human Services; Transfer Program; Certificate Program; Certificates of Completion**

The Human Services Program at College of San Mateo was developed in cooperation with State and County Departments of Mental Health, Rehabilitation, Vocational Rehabilitation, and Human Services. The program is designed to train personnel to provide value-based services for individuals and families in need of temporary social, health, and economic assistance.

**Career Opportunities:** The Human Services Program prepares students for various paraprofessional positions in human services, such as mental health case manager, job coach/employment specialist, social service intake specialist, or community health worker. Graduates of the program can expect to work as entry-level employees under the direct supervision of social workers and other human services professionals in public and non-profit social service agencies.

**A.A. Degree**

**Major requirements:** HMSV 100, 110, 115, 120; COOP 641 (3 units); 12 units selected from ADMJ 100, 102, 108, 125 or ANTH 110, 120, 180 or ASL 111 or BUS. 101, 401 or BUSW 105 or CRER 133, 140, 141, 142 or ETHN 101, 102, 161, 261, 262, 360, 430 or HMSV 130, 131, 150, 151, 262, 264 or HSCI 100, 105, 109, 111, 112, 113 or PSYC 100, 108, 200, 201, 300, 410 or SOCI 100, 105, 141, 200, 300, 391 or SOSC 301, 303, 304, 307, 309, 310, 313, 314, or SPCH 120, 140, 150, 180. Total: 25 semester units. Plus General education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Students can fulfill lower division General Education and major requirements at College of San Mateo to prepare for upper-division work in human services and other behavioral sciences. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificate Program**

**Certificate requirements:** completion of A.A. degree major requirements listed above with a grade of C or higher. Total: 25 semester units.

**Certificates of Completion**

**Community Health Worker:** HMSV 262, 264; HSCI 100; COOP 641 (3 units); 3 units selected from HSCI 101, 102, 103, 105, 106, 109, 111, 112, or 113; 3 units selected from HMSV 100, 110, 115, ETHN 101, 102, 161, 261, 262, 360, 430, SOSC 301, 303, 309, 310, or CRER 133. Total: 17 semester units.

**Family Development:** HMSV 262, 264, COOP 641 (3 units). Total: 9 semester units.

**Instrumentation Technology**

(See Electronics Technology)

**Italian**

**Transfer Program; Certificates of Completion**

**Career opportunities:** In addition to providing skills in understanding, speaking, reading, and writing Italian, the major provides a greater understanding of Italian culture and civilization and prepares students for greater international and domestic career opportunities. Given the multi-national nature of the business world today, fluency in a foreign language, such as Italian, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attache, diplomatic officer, immigration inspector, journalist, teacher/professor, and travel agent.
Transfer Program

Many career opportunities in Italian and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion
(See Foreign Languages)

Japanese

Transfer Program; Certificates of Completion

Career opportunities: In addition to providing skills in understanding, speaking, reading, and writing Japanese, the major provides a greater understanding of Japanese culture and civilization and prepares students for greater international and domestic career opportunities. Given the multi-national nature of the business world today, fluency in a foreign language, such as Japanese, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include attaché, counselor, diplomatic officer, immigration inspector, foreign advertising sales representative, journalist, teacher/professor, and tour guide.

Transfer Program

Many career opportunities in Japanese and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificates of Completion
(See Foreign Languages)

Journalism

Associate in Arts Degree with a major in Journalism: Transfer Program

Career opportunities: Individuals with a background in Journalism have a wide variety of career opportunities working for advertising agencies, corporate communications divisions, magazines, news agencies, newspapers, publishing companies, and radio/television stations. Specific career opportunities include advertising copy writer, biographer, columnist, correspondent, editor, editorial assistant, editorial writer, interviewer, journalist, legislative assistant, novelist, photographer, press/public relations officer, proofreader, radio/television announcer or writer, reporter, and science, speech or technical writer.

Major requirements: JOUR 110, 120, 300; 9 units selected from English or literature courses. Total: 18 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Most high paying career opportunities in Journalism require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Liberal Studies

Associate in Arts Degree with a major in Liberal Studies; Transfer Program

Career opportunities: A Liberal Studies major provides students with a broad liberal arts and science education that blends the traditional subjects in the humanities, natural sciences, and social sciences. Many employers and professional schools give preference to graduates who possess the richly diversified education this major provides.

A Liberal Studies degree makes an individual extremely marketable. Many employers view Liberal Studies majors as having a wide variety of knowledge and skills, and as being among those who are quickest to adjust to change and opportunities. The Liberal Studies major is the main avenue of preparation for those desiring to become elementary school teachers. This major is also appropriate as preparation for various professions and graduate programs such as business, counseling, law, librarianship, medicine, and social work. Additional career opportunities associated with Liberal Studies are editor, freelance writer, journalist, market researcher, personnel officer, social scientist, and travel agent.

A.A. Degree

Option 1:
Major requirements: eighteen units selected from courses satisfying the A.A./A.S. Degree requirements for Natural Sciences, Social Science, and Humanities (see Index: General Education), with at least 3 units in each area. Total: 18 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Option 2:
Major requirements: fulfillment of Areas A-E of the California State University General Education requirements (see Index: General Education) or completion of Areas 1-5 of the California State University Intersegmental General Education Transfer Curriculum (CSU-IGETC) requirements.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Note: Completion of the major requirements under Option 2 will automatically fulfill the Math/Quantitative Reasoning and English competency requirements, and the requirements of two sections under General Education: (2) Language and Rationality and (5) Additional Requirements. The remaining General Education requirements which must be fulfilled are: (1) American History and Institutions and California State and Local Government, (3) Health Science, and (4) Physical Education.

Option 3:
Major requirements: fulfillment of Areas 1-5 of the University of California Intersegmental General Education Transfer Curriculum (UC-IGETC) requirements.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Note: Completion of the major requirements under Option 3 will automatically fulfill the Math/Quantitative Reasoning and English...

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Major Requirements

Career opportunities: The study of engineering and molecular life sciences. Biotechnology requires the knowledge and skills of the biochemist, molecular biologist, microbiologist, and immunologist, as well as those of the engineer. An advanced degree in Biotechnology can lead to career opportunities in manufacturing/production, marketing/sales, patents, quality control, regulatory affairs, and research. In addition, there are extended career opportunities for biotechnology specialists as lawyers, physicians, professional managers at all corporate levels, regulatory agency personnel, toxicologists, veterinarians, pharmaceutical manufacturers and clinical researchers.

Life Sciences: Biotechnology

Associate in Science Degree with a major in Biotechnology; Transfer Program

Career opportunities: Biotechnology

Transfer Program

Most career opportunities in Liberal Studies require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Life Sciences

Transfer Program

Recommended high school preparation:
biology (1 year); chemistry (1 year); physics (1 year); mathematics (algebra, 2 years; geometry, 1 year; trigonometry, 1 semester).

For those students who wish to major in Biological Science or Medical Science and have little or no high school preparation in one or more of the above subjects, the following courses should be completed prior to attempting courses in the major sequence: BIOL 110; CHEM 192; MATH 110 or other appropriate level of math; PHYS 100.

See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Life Sciences: Biological

Associate in Science Degree with a major in Biological Sciences (Botany, Forestry, Marine Biology, Zoology, etc.); Transfer Program

Career opportunities: Career opportunities for those who major in the Biological Sciences and obtain a Bachelor’s or advanced degree include a variety of interesting occupations related mainly to biology, agriculture or medicine.

Biological professions include anatomist, aquatic biologist, bacteriologist, biologist, biotechnologist, botanist, cytogeneticist, cytologist, ecologist, embryologist, entomologist, geneticist, herpetologist, ichthyologist, mammalogist, marine biologist, microbiologist, molecular biologist, morphologist, mycologist, ornithologist, paleobotanist, paleozoologist, parasitologist, pathologist, pharmacologist, photobiologist, phycologist, physiologist, protozoologist, systematist, taxonomist, toxicologist, tropical biologist, virologist, wildlife biologist, and zoologist. Many biologists are educators as well as scientists. Biologists are also employed as forensic scientists, illustrators, museum specialists, naturalists, photographers, and science writers/editors.

Agricultural professions include agricultural biologist, agrigeneticist, animal scientist, apiculturist, farmer/farm manager, field crop manager, fish and game warden, food technologist, foresters/forestry technicians, horticulturist, plant and animal breeder, plant and animal physiologist, plant quarantine/pest control inspector, range scientist, and soil scientist/conservationist.

Medical professions include audiologist, chiropractor, coroner, dentist, exercise physiologist, health care administrator, medical laboratory technologist/technician, medical librarian, nurse, nutritionist, optometrist, pharmacist, physician, podiatrist, public/environmental health specialist, sanitary, speech pathologist, and veterinarian.

Additional medical careers include specialists in sports medicine, and manual arts, music, occupational, physical, and recreational therapists.

A.S. Degree

Major requirements: BIOL 210, 220, 230; CHEM 210. Total: 19 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Transfer Program

Most career opportunities in Biological Sciences require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Life Sciences: General

Associate in Arts Degree with a major in Life Sciences

For students who wish to receive a general life sciences degree but who do not necessarily plan on transferring to a four-year institution as biology majors. Those who
plan on transferring as biology majors in various areas of life sciences should refer to the transfer programs listed below.

**Career opportunities:** The Associate in Arts degree with a major in Life Sciences is designed for those students who do not necessarily plan on transferring to a baccalaureate institution as biology majors.

### A.A. Degree

**Major requirements:** 4-5 units selected from BIOL 110, 210, 220, 230; 12-15 units selected from BIOL 102, 110, 111, 125, 130, 140, 145, 150, 160, 180, 184, 195, 200, 210, 220, 230; 3 units from physical science. Total: 19-23 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Students are encouraged to group courses as follows to emphasize their major interests and to meet personal or academic needs:

- **Human Biology:** BIOL 110, 125, 130, 160; CHEM 410 or 210.
- **Marine Biology:** BIOL 110, 111, 150, 200; OCEN 100 or GEOL 100.
- **Natural History:** BIOL 110, 111, 150, 200; GEOL 100 or METE 100 or GEOG 100.
- **Wildlife/Forestry:** BIOL 102, 110, 111, 200, 180 or 184; GEOL 100 or METE 100.

### Life Sciences: Medical

*(Pre-Medical, Pre-Dental, Pre-Veterinarian, Medicine, etc.)*

**Associate in Science Degree with a Major in Medical Sciences (Pre-Medical, Pre-Dental, Pre-Veterinarian, Medicine, etc.); Transfer Program**

**Career opportunities:** An Associate degree in the Medical Life Sciences, when followed by transfer to a baccalaureate institution for a Bachelor’s degree and continued study at medical-related professional schools, leads to career opportunities in the medical field. Careers in medicine include general practitioner, obstetrician, pediatrician, psychiatrist, surgeon, and ear, nose and throat specialist. The dental field offers careers in general dentistry, as well as endodontics, oral pathology, orthodontics, pediatric dentistry, periodontics, and prosthodontics. Most students who complete veterinary school pursue careers as veterinarians, though some choose related careers, such as laboratory animal medicine, wildlife pathology, or research.

### A.S. Degree

**Major requirements:** BIOL 210, 230; CHEM 210, 220. Total: 19 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**

Most career opportunities in the Medical Life Sciences field require not only a B.S. degree, but an advanced degree as well. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

### Life Sciences: Pre-Nursing

*(Also see Nursing)*

**Associate in Science Degree with a major in Pre-Nursing; Transfer Program**

**Career opportunities:** The Life Sciences degree in Pre-Nursing prepares students to transfer to a four-year program at a baccalaureate institution. Upon completion of a Bachelors of Science in Nursing, graduates choose from first level professional nursing staff positions in specializations which include community health, geriatrics, maternity, mental health, pediatrics, psychiatry, and surgery.

### A.S. Degree

**Major requirements:** BIOL 240, 250, 260; CHEM 210-220 or 410-420. Total: 22-24 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**

Most high paying career opportunities in the Medical field of Nursing require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

### Management

**Associate in Arts Degree with a major in Management; Certificate Program**

**Career opportunities:** This program is designed for individuals working at the supervisory level and for those interested in supervisory positions. An advisory committee composed of representatives from various types of businesses and industrial organizations has assisted the College staff in the development of the program.

Career opportunities for those with supervisory and management training are expected to be excellent during the foreseeable future. Employers in virtually every field are increasingly seeking individuals with formal training in organization and management for supervisory, mid-level, and top management positions. Specific management opportunities include administrative assistant, bank trust officer, branch manager, chief executive officer, claims adjuster, department/division manager, employment interviewer, first-line supervisor, inventory manager, management consultant, management trainee, office manager, operations manager, plant manager, president, production controller, project manager, shift supervisor, small business owner/manager, and store manager. Some of these careers require a Bachelor’s or advanced degree. The program provides readily usable skills for the student who earns an Associate degree, as well as a base for those who intend to transfer to baccalaureate institutions.

### A.A. Degree

**Management: Business Management**

**Career opportunities:** Management is an essential function of every business. Accordingly, there are a substantial number and wide variety of management positions ranging from first-line supervisor and store manager to division manager and chief executive officer. Managers need to have technical knowledge as well as interpersonal, communications, and conceptual skills. They spend much of their time making business planning and operational decisions. Managers’ salaries are significantly above those of the average worker. Managers are responsible for business performance and must lead and motivate their subordinates to accomplish business goals and objectives.
Major requirements: BUS. 100; MGMT 100, 235; ACTG 100 or 3 units from the BUSD or BUSW series plus 12 semester units selected from the following: BUS. 101; BUS. 150 or 701 and 705 and 720; BUS. 170, 180; CIS 110; MGMT 105, 110, 120, 215, 220, 641. Total: 24 semester units.

Management: Marketing Management

Career opportunities: Careers in Marketing Management are largely in wholesale and retail trade and include areas such as advertising, customer service, distribution, market research, personal selling, retailing, and wholesaling. Specific career opportunities include positions in advertising such as account executive, advertising manager, creative staff member, media planning/buyer, and traffic manager; assistant research analyst; booking agent; brand/product manager; buyer/merchandiser; consumer affairs director; financial planner; import-export agent; management trainee; manufacturer’s representative; marketing manager; market research manager; purchasing agent; retail manager; sales associate; and wholesaler. Additional career possibilities include claims adjustor, Internal Revenue investigator, securities trader, and stockbroker.

Major requirements: MGMT 100, 235; BUS. 100, 180 plus 12 semester units selected from the following: BUS. 175; CIS 110; MGMT 105, 110, 120, 215; 1.5-3 units from the BUSD or BUSW series. Total: 24 units.

Plus General Education and other requirements for the A.A. degree, (see index: General Education).

Certificate Program

The Certificate in Management can be earned in Business Management and Marketing Management. It will be awarded upon completion of the major requirements listed above with a grade of C or higher in each course.

Manufacturing Technology

Transfer Program

Career opportunities: The Manufacturing Technology major emphasizes knowledge and skills in drafting, machining, fabrication, applied mathematics, welding, industrial computer, power systems, and other related subjects. Courses focus on applied technology through a combination of theory and laboratory. The Manufacturing Technology program at CSM is designed to prepare students for immediate employment in the field through comprehensive training in the operation of all standard machine tools and metalworking equipment. In addition to achieving practical competency, instruction in drafting, welding, and industrial materials ensures that graduates are fully qualified technicians ready to enter the work force.

Since this major focuses on a wide range of subject material and is less specialized than the single field major, graduates of the program will have working knowledge in a wide range of manufacturing processes and may be qualified to work in areas which include applied design, equipment modification, machining, maintenance and repair, prototype engineering, and related industrial activities.

The field of Manufacturing Technology plays a key role in any industry that utilizes the lathe, milling and grinding machines, and other basic machining tools in production. The demand for competent machinists, tool and die makers, programmers, and technicians far exceeds the supply, particularly in the San Francisco Bay Area. Employers range from small shops that employ only a few workers manufacturing specialized products to the auto industry, which employs thousands.

Transfer Program

Many high paying career opportunities in Manufacturing Technology require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Mathematics

Associate in Science Degree with a major in Mathematics: Transfer Program

Career opportunities: Mathematics provides the foundation for studying engineering: the biological, physical and health sciences; economics; business; computer science; statistics; and many other fields. A major in mathematics itself opens up job opportunities in numerous fields, as mathematical problem-solving skills are widely applicable.

The Mathematics major may be used as a basis for professional careers which include accountant, actuary, appraiser, assessor, auditor, banker, biometrician, budget analyst, casualty rater, controller, computer programmer, data processing manager, demographer, econometrician, educator at all levels, engineering analyst, epidemiologist, financial analyst/planner, insurance agent/broker, loan officer, management trainee, market research analyst, mathematician, securities trader, statistician, surveyor, and systems analyst. Additional professional areas for which a degree in Mathematics prepares individuals are the aircraft and space industries, architectural and surveying services, civil service, communications, and science, including work in high technology industries such as research and development laboratories.

Recommended high school preparation:

Four years of high school level mathematics, physics (one year), mechanical drawing (one year), two or more years of a foreign language (German, French, or Russian).

A.S. Degree Program

Major requirements: MATH 231; MATH 251, 252, 253; 6 to 8 units selected from MATH 200, 270, 275 or CIS 240/241, 250/251. Total: 22-25 semester units.

Plus General Education and other requirements for the A.A./A.S. degree (see Index: General Education).

Transfer Program

Most career opportunities in Mathematics require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Medical Assisting

Associate in Arts Degree with a major in Medical Assisting: Certificate Programs; Certificates of Completion

Career opportunities: The ability to work well with people, be well organized, and be empathetic in dealing with patients are es-
sential qualities in a medical assistant. The Medical Assisting program at CSM is designed to provide the finest training and experience available. Through the expertise of a talented faculty and exposure to professionals in the field, students can expect to learn administrative duties such as medical/financial records management, medical report transcription, patient appointment scheduling, and clinical duties including preparation of patients for examination, assistance with minor surgery, giving injections, and operating electrocardiographs.

The field of Medical Assisting is one of the fastest-growing occupations in this decade. Career opportunities for the well-trained medical assistant are plentiful. Graduates of CSM’s program secure employment in physician’s offices, clinics, hospitals, labs, medical publishing firms, laboratories, pharmaceutical firms, public health agencies, and the claims departments of health insurance companies.

Recommended high school preparation: written and oral communication skills, typing, biology, psychology, and basic mathematics.

Career Opportunities: The field of Medical Assisting offers several career paths in various settings. Medical transcriptionists work largely in medical assistant positions in hospitals, medical labs, medical offices, and private medical offices.

Medical Billing Specialists usually perform their duties for all providers of health care services and equipment in hospitals, clinics, and private medical offices.

The employment outlook for Medical Billing Specialists is excellent and is expected to grow as health care needs continue to increase. Because of the rapid expansion in health care, employment opportunities include all providers of health care services and supplies, hospitals, clinics, health agencies, private medical offices, medical labs, educational institutions, and insurance carriers.

Major requirements: ACTG 100; MEDA 100, 110, 150, 160, 161, 162, 163, 164, 165, 166. Total: 21 semester units.

Plus General Education and other requirements for the A.A./A.S. degree (see Index: General Education).

Certificate Program
Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

Military Science
Qualified students may enroll through College of San Mateo in Military Science classes conducted by participating four-year universities at their campuses. For further information, contact the Office of the Dean of Admissions and Records, 574-6594.

Multimedia
Associate in Arts Degree with a major in Multimedia: Transfer Program; Certificate Program

Career Opportunities: Multimedia/Web Design is an interdisciplinary program that brings together various fine arts and computer skills, allowing students to work within their own individual sub-specialties. This approach enhances creativity and communication and encourages teamwork. Through hands-on creation of multimedia productions, students apply theoretical knowledge and design skills to experience the production process. With the convergence of media, Multimedia job opportunities continue to grow. Specific career opportunities, some of which may require a B.A. or further training beyond that available at College of San Mateo, include Producer, Creative Director, Art Director, Graphic Designer, Interactive Writer, Interface Designer, Video Producer, Sound Designer, Technical Director, and Programmer.

Certificate Program
Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

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Qualified students may enroll through College of San Mateo in Military Science classes conducted by participating four-year universities at their campuses. For further information, contact the Office of the Dean of Admissions and Records, 574-6594.

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Associate in Arts Degree with a major in Multimedia: Transfer Program; Certificate Program

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A.A. Degree
Major requirements

Certification Program
Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

Military Science
Qualified students may enroll through College of San Mateo in Military Science classes conducted by participating four-year universities at their campuses. For further information, contact the Office of the Dean of Admissions and Records, 574-6594.

Multimedia
Associate in Arts Degree with a major in Multimedia: Transfer Program; Certificate Program

Career Opportunities: Multimedia/Web Design is an interdisciplinary program that brings together various fine arts and computer skills, allowing students to work within their own individual sub-specialties. This approach enhances creativity and communication and encourages teamwork. Through hands-on creation of multimedia productions, students apply theoretical knowledge and design skills to experience the production process. With the convergence of media, Multimedia job opportunities continue to grow. Specific career opportunities, some of which may require a B.A. or further training beyond that available at College of San Mateo, include Producer, Creative Director, Art Director, Graphic Designer, Interactive Writer, Interface Designer, Web Designer, Webmaster, Video Producer, Sound Designer, Technical Director, and Programmer.

A.A. Degree
Major requirements (for both options): MULT 100, 105, 115, 175, 176, 304, 306, 309, 391; six units selected from ART 201, 214, 301, 350.
**Option 1: Web Design**

**Career Opportunities:** Career opportunities in the Web Design option include, but are not limited to, Web Designer, Webmaster, Web Producer, Web Project Manager, Usability Designer, and Interface Designer.

**Major Requirements:** courses listed above plus MUL 170, 171, 251, 252, 270, 271, 275, 276. Total: 31.5 semester units

**Option 2: Motion Graphics/Digital Video**

**Career Opportunities:** Career opportunities in the Motion Graphics/Digital Video option include but are not limited to 2D Animator, 2D Compositor, Special Effects Animator, Web Video Producer, Technical Director, Computer Effects Artist, and Visual Effects Artist.

**Major Requirements:** courses listed above plus MUL 180, 181, 280, 281, 302, 381, 382, 385, 386. Total: 33.0 semester units

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Some career opportunities in multimedia/web design require a B.A. degree or advanced training from selected schools. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificate Program**

**Certificate Requirements:** completion of A.A. degree major requirements listed above with a grade of C or higher in each course. Total (Option 1): 33 semester units. Total (Option 2): 34.5 semester units.

**Music**

**Associate in Arts Degree with a major in Music; Transfer Program**

**Career opportunities:** The College of San Mateo provides a creative environment where every student may become enriched through an active association with the art of music and a faculty who are active in the music profession. The Music Department at College of San Mateo places strong emphasis upon performance as well as composition in both traditional and electronic media. At the same time, the department offers the general student enhanced understanding and appreciation of all forms of music. Through this two-fold approach, the department’s purpose becomes clear: to promote excellence in all aspects of music performance and academic course work, to provide basic preparation for careers in music, and to promote interest in all music and artistic endeavors at the College and in the Bay Area community.

Career opportunities include accompanist; arranger; composer; conductor; critic; band, orchestra or recording musician; lyricist, performing instrumentalist or vocalist; music director (radio station); private music instructor; music producer; music publisher; music therapist; night-club/restaurant entertainer; recording engineer; and teacher/professor. Additional career possibilities include choir director, music librarian, music minister, piano tuner, professional manager, recreation specialist, and soloist.

**A.A. Degree**

**Major requirements:** 9 units from MUS. 100, 101, 102, 103, 131, 132, 133, 170; 3 units from MUS. 202, 240, 250, 275; 6 units from MUS. 451, 453, 490; 3 units from MUS. 301, 302, 303, 320, 371, 372, 373, 374, 401, 402, 403, 404. Total: 21 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Many career opportunities in Electronic Music require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Certificate Program**

Certificate requirements: completion of A.A. degree major requirements listed above with a grade of C or higher in each course.

**Nursing**

**Registered Nursing Program**

**Associate in Science Degree with a major in Nursing; Transfer Program; Certificate Program; Certificate of Completion**

**Career opportunities:** The College of San Mateo Nursing Program provides students with opportunities for learning at the Col-
lege, local hospitals, and related health agencies. Clinical practice begins early in the first semester. Upon graduation, the candidate receives an Associate in Science degree and is eligible to take the California Registered Nursing examination. The graduate is also eligible to transfer to a four-year nursing program.

Career opportunities are available in hospitals, physician’s offices, clinics, labs, nursing and personal care facilities, public health and other government agencies, educational services, health and allied services, outpatient care facilities, and the claims departments of health insurance companies. Many nurses specialize in areas such as cardiac care, geriatrics, intensive care, obstetrics, pediatrics, and surgery. Specific career opportunities include nursing administrator, clinic nurse, critical care nurse, emergency department nurse, flight nurse, home health nurse, hospital staff nurse, industrial nurse, medical researcher, nurse anesthetist, nurse midwife, nurse practitioner, office nurse, public health nurse, school nurse, and teacher/educator.

Admission Requirements: Contact the Nursing Department at (650) 574-6218 for an application. To be eligible for enrollment in the program, an applicant must:

1. Be eligible for English 100 by completing English 800 or 400 with a grade of C or higher (or by attaining the appropriate skill level indicated by the English placement tests and other measures as needed).
2. Have completed MATH 110 or 112 with a grade of C or higher at one of the SMCCCD colleges or have attained equivalent skill level (as measured by a satisfactory score on Math Placement Test Two in combination with a course equivalent to Mathematics 110 or 112).
3. Have completed one year of high school chemistry with a lab or Chemistry 192 or 410 or equivalent with a grade of C or higher.
4. Have completed Biology 250 or 265 or equivalent with a grade of C or higher.

If there are more applicants than spaces available, the following applicants will be given priority:
1. Applicants who are residents of San Mateo County.
2. Applicants who have completed the admission requirements and the greatest number of the major requirement courses.
3. Applicants with a grade point average (GPA) of 2.5 or higher for all admission and major requirement courses.

A.S. Degree Program

Major requirements: NURS 211, 212, 215, 221, 222, 225, 231, 232, 235, 241, 242, 245; BIOL 240, 250, 260; PSYC 100, PSYC 200; SOCI 100 or ANTH 110; SPCH 100 or 120 or 150; ENGL 100. Total: 69 semester units.

Plus General Education and other requirements for the A.S. degree (see Index: General Education).

Requirements for R.N. Licensing Exam:
1. Graduation from high school or equivalent is required.
2. All admission requirements and major requirements must be completed with a grade of C or higher.
3. If an individual has been convicted of a felony, evidence of rehabilitation will be required before taking the R.N. exam.

Students interested in an LVN upgrade through the nursing program or challenge nursing courses should also call the Nursing Department.

Transfer Program

Most career opportunities in fields related to Philosophy require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Physical Education

Transfer Program

Career opportunities: A major in Physical Education prepares students to transfer to baccalaureate institutions where they may complete a Bachelor’s degree in Physical Education or a related discipline. Courses in Physical Education teach students an appreciation of the role exercise, activity and sports play in the development of well-rounded individuals interested in physical well-being and the productive use of leisure time. The Physical Education major may be used as the basis for careers which include athletic manager, athletic trainer, camp counselor, choreographer, coach, community center leader, corrective therapist, dance therapist, exercise test technologist,
health and safety director, industrial recreation leader, league manager, playground director, physical or adaptive therapist, racquet club manager, recreation leader, recreation specialist, recruiter, referee, resort sports coordinator, sportscaster, sports editor, and teacher.

**Transfer Program**

Most career opportunities in Physical Education require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Physical Science**

*Associate in Science Degree with a major in Physical Science; Transfer Program*

**Career opportunities:** The A.S. degree in Physical Science provides students with a breadth of understanding of the physical sciences, in addition to a depth of knowledge in the specialized fields of astronomy, chemistry, geology, and physics. The program is designed to prepare students for transfer to baccalaureate institutions as majors in Physical Science or related science disciplines.

Career opportunities include astronomer, chemist, geographer, geologist, geophysicist, meteorologist, oceanographer, and physicist. Physical scientists are employed by government agencies, and the chemical, computer, construction, drug, food, industrial electronics, manufacturing and petroleum industries. Additional career opportunities exist in energy management, mineral exploration and land use planning.

**Recommended high school preparation:**

- elementary algebra, plane geometry, intermediate algebra, trigonometry, chemistry, physics.
- 284/285; MATH 251, 252, 253; MATH 275; METE 100, 101; PHYS 250, 260, 270; PSCI 100.
- Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Transfer Program**

Most career opportunities in Physical Science require a B.S. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Physics**

*Associate in Science Degree with a major in Physics; Transfer Program*

**Career opportunities:** The A.S. degree in Physics is designed to prepare students for transfer to baccalaureate institutions as Physics or other science majors. Physics is also an accepted pre-medical field of study. A large percentage of Physics majors select employment with universities as researchers and/or professors. Private industry employs approximately two-thirds of all non-academic physicists in companies manufacturing aircraft and missiles, chemicals, electrical equipment, and scientific equipment. Government, hospitals, and commercial research laboratories also employ Physics graduates. Specific careers include aerodynamicist, airplane navigator, air pollution operating specialist, ballistics expert, educator, electrical or mechanical engineer, electrician, hydrologist, industrial hygienist, and electrical, laser, mechanical or optics physicist.

**A.S. Degree**

**Major requirements:** PHYS 250, 260, 270; plus six units from CHEM 210, 220, 231, 232, 250; CIS 250/251, 284/285; MATH 200, 251, 252, 253, 270, 275. Total: 18 semester units.

**Transfer Program**

Most career opportunities in Physics require a B.S. or advanced degree. Students can

**Plumbing and Pipe Fitting**

*Associate in Science Degree with a major in Plumbing and Pipe Fitting; Certificate Program*

The courses required for this degree are administered by College of San Mateo in conjunction with the Joint Apprenticeship and Training Committee. Registration is limited to those individuals fulfilling the related instruction requirements of the State of California as an indentured apprentice. For information, contact the Plumbers JATC or the college Apprenticeship Department.

**Career opportunities:** Employment opportunities for plumbers are expected to increase moderately through the year 2005 as a result of anticipated growth in residential, industrial and commercial construction. Building renovations and repairs in old residential plumbing systems will also spur the demand for plumbers. In addition, a number of jobs will become available each year as older plumbers retire.

**Required high school preparation:** at least 18 years of age, high school graduate or GED, one semester of algebra with a grade of C or higher, and one other semester of high school math with a grade of C or higher.

**A.S. Degree**

**Major requirements:** PLUM 701, 702, 703, 704, 705, 706, 707, 708, 709, 710. Total: 35 semester units (or previously earned CSM Certificate in Plumbing).

**Certificate Program**

**Certificate requirements:** completion of A.S. degree major requirements listed above with a grade of C or higher.
Political Science

*Transfer Program*
(also see Social Science major)

**Career opportunities:** Courses in Political Science prepare students for transfer to baccalaureate institutions for a degree in Political Science or a related discipline. A background in Political Science and government prepares students for a wide range of careers in law, foreign service, political office, and with government agencies. Specific career opportunities include administrator, book critic, budget analyst, campaign aide, city manager, city planner, Congressional district aide, consular officer, diplomatic officer, educator, elected official, election supervisor, foreign service officer, foreign trade specialist, fund raising director, intelligence specialist, labor relations specialist, lawyer, legislative aide, lobbyist, military officer, occupational analyst, paralegal, personnel manager, political economist, political scientist, public information officer, public opinion surveyor, public relations specialist, research assistant, reporter, and urban planner.

**Transfer Program**
Most career opportunities in fields related to Political Science require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Psychology

*Transfer Program*
(also see Social Science major)

**Career opportunities:** Psychology is a broad discipline which employs both pure science and practical application to everyday living. Courses in Psychology prepare students for transfer to baccalaureate institutions for a degree in Psychology or a related discipline. Career opportunities include administrator, community college instructor or academic counselor, drug abuse counselor, employment counselor, human factors specialist, mental health professional, outreach specialist, personnel analyst, personnel management specialist, probation officer, psychiatric aide, psychiatrist, psychologist, psychometrist, research director, social services director, survey designer, student affairs officer, therapist, training officer, and Marriage, Family, Child Counselor.

**Transfer Program**
Most career opportunities in fields related to Psychology require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Real Estate

*Associate in Arts Degree with a major in Real Estate*
For a degree, a grade of C or higher is required in each course.

**Career opportunities:** Essentially all real estate agents are employed in real estate offices as salespersons. Some agents secure employment with developers, land buying corporations, and government agencies. Additional opportunities for those with a background in real estate include appraiser, escrow officer, loan officer, mortgage banker/broker, and property manager.

**A.A. Degree**

**Major requirements:** BUS. 100 or MGMT 100; R.E. 100, 110, 121, 131, 141, 200. Total: 18-21 semester units.

**Suggested electives:** ACTG 100 or 121; ARCH 100; BUS. 101, 170, 175, 201, 401; BUS. 315; CIS 110; ECON 100, 102; PSYC 100.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Recreation Education

*Transfer Program*

**Career opportunities:** Most full-time career opportunities for recreation education specialists are with government agencies, primarily municipal and county parks and recreation departments. Additional employers include amusement parks, apartment complexes, commercial recreation establishments, health and athletic clubs, hotels and resorts, nursing and personal care facilities, sports and entertainment centers, residential care facilities such as half-way houses and group homes, social service organizations, summer camps, tourist attractions, vacation excursion companies, and wilderness/survival enterprises. Additional opportunities exist in membership organizations with a civic, social, fraternal, or religious orientation, such as the Boy Scouts, YMCA and Red Cross.

**Transfer Program**
Most career opportunities in Recreation Education require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Refrigeration and Air Conditioning Mechanics

*Associate in Science Degree with a major in Refrigeration and Air Conditioning Mechanics: Certificate Program*

The courses required for this degree are administered by College of San Mateo in conjunction with the Joint Apprenticeship and Training Committee. Registration is limited to those individuals fulfilling the related instruction requirements of the State of California as an indentured apprentice. For information, contact the Plumbers JATC or the college Apprenticeship Department.

**Career opportunities:** Long-range employment prospects for refrigeration and air conditioning mechanics are excellent. The growing need for air conditioning and refrigeration equipment for industrial, commercial, and home use will create a demand for mechanics who can design, install, maintain and repair these systems.

**Required high school preparation:** at least 18 years of age, high school graduate or GED, one semester of algebra with a grade of C or higher, and one other semester of high school math with a grade of C or higher.

**A.S. Degree**

**Major requirements:** PLUM 741, 742, 743, 744, 745, 746, 747, 748, 749, 750. Total: 35 semester units (or previously earned CSM certificate in Refrigeration and Air Conditioning Mechanics).
Plus General Education and other requirements for the A.S. degree (see Index: General Education).

**Certificate Program**

Certificate requirements: completion of A.S. degree major requirements listed above with a grade of C or higher.

**Social Science**

Associate in Arts Degree with a major in Social Science; Transfer Program

Social Science fields are many and varied, and include such areas as Cultural Anthropology, Economics, Ethnic Studies, Geography, History, International Relations, Philosophy, Political Science, Psychology, and Sociology. Students should refer to the catalog of the college of their choice for special requirements.

Career opportunities: Social Science fields are many and varied, and include such areas as Cultural Anthropology, Economics, Ethnic Studies, Geography, History, International Relations, Philosophy, Political Science, Psychology, and Sociology. An A.A. degree prepares students for transfer to a baccalaureate institution for further study in Social Science or one of its encompassed fields.

Career opportunities for social scientists are found with federal, state and local government agencies. Additional opportunities exist with colleges and universities in research and teaching. Some social scientists are self-employed in research or special studies for business, industry or government.

**A.A. Degree**

Major requirements: ENGL 195 (recommended that this be taken concurrently with the student’s second course in the Social Sciences) plus 18 units selected from at least 3 of the following, with a minimum of 2 courses in one of the following: anthropology; economics (not including ECON 123); ethnic studies (not including ETHN 288, 350, 351, 585); geography (not including GEOG 100); history; political science; psychology (not including PSYC 121); social science (not including SOSC 111); sociology. Total: 19 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Most career opportunities in Social Science require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Sociology**

Transfer Program (also see Social Science major)

Career opportunities: Courses in Sociology prepare students to transfer to baccalaureate institutions for a degree in Sociology or a related discipline. A background in Sociology provides students with career opportunities which include child care program developer, claims examiner, criminologist, demographer, employment counselor, industrial sociologist, interviewer, population or public opinion analyst, probation officer, public health statistician, public relations consultant, recreation specialist, researcher, social ecologist, social worker, and urban planner.

**Transfer Program**

Most career opportunities in Sociology and related fields require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Spanish**

Associate in Arts Degree with a major in Spanish; Transfer Program; Departmental Certification; Certificates of Completion

Career opportunities: In addition to providing skills in understanding, speaking, reading, and writing Spanish, the major provides a greater understanding of Spanish culture and civilization and prepares students for greater international and domestic career opportunities. Given the multi-national nature of the business world today, fluency in a foreign language, such as Spanish, increases an individual’s marketability and value in the areas of banking, consular and junior foreign service, education, import/export business, international business, international relations, medicine, nursing, overseas employment, police work, social security, translating/interpreting services, and social services. Specific career opportunities include bilingual aide, border patrol officer, buyer, court interpreter, counselor, customs agent/inspector, foreign exchange clerk, foreign student advisor, interpreter, journalist, museum curator, physician, scientific linguist, tour guide, and tutor.

**A.A. Degree**

Major requirements: completion of 18 units of Spanish language courses (excluding the 800 series). Total: 18 semester units.

With Language Arts Division approval, ANTH 110 may be accepted as part of the 18 units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

**Transfer Program**

Many career opportunities in Spanish and other foreign languages require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Departmental Certification**

Students who feel written proof of their proficiency in Spanish would be beneficial to their careers may apply for Departmental Certification after they have completed SPAN 140 and a minimum of two additional units and have passed the department tests on aural comprehensive and speaking fluency.

**Certificates of Completion**

(See Foreign Languages)

**Speech Communication**

Associate in Arts Degree with a major in Speech Communication; Transfer Program; Certificate of Completion

Career opportunities: An A.A. degree in Speech Communication prepares students...
for transfer to a baccalaureate institution for a degree in Speech Communication or a related discipline. The ability to organize one’s thoughts and present them with clarity and precision are communication skills transferable to all careers. A background in speech communication is particularly applicable to careers in advertising, arts administration, cinema, copy editing and writing, corporate communications, counseling, education, entertainment, interviewing, journalism, labor relations, law, the legislature, lobbying, management, marketing, media, news analysis, personnel, play writing, politics, proofreading, public affairs, public information, public relations, radio and television, reporting, research, sales, script writing and editing, speech writing, sportscasting, supervision, television, and theatre.

A.A. Degree

Major requirements: 15 units selected from SPCH 100, 111, 112, 120, 140, 150 or 170; 6 units selected from English or literature courses. Total: 21 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Most career opportunities in Speech Communication require a B.A. or advanced degree. Students can fulfill lower division General Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

Certificate of Completion

Speech Communication: SPCH 100 and 120 plus 6 units selected from SPCH 111, 112, 140, 150, 170, or 180, all with a grade of C or higher. Total: 12 semester units.

Technical Preparation (TECH PREP)

Career opportunities: TECH PREP programs link the last two years of high school and two years of community college study. TECH PREP offers students strong academic courses and career basics within broad career clusters, such as Health Careers or Business. Hands-on technical skills are incorporated into English, mathematics, and other high school subjects. All TECH PREP classes meet high school graduation and community college entrance requirements.

TECH PREP articulation agreements have been approved by local high schools, the San Mateo County Regional Occupational Program (ROP), Opportunities Industrialization Center West (OICW), and College of San Mateo in the following occupational areas: Accounting, Business Information Processing, Computer Information Science, Drafting Technology, Electronics Technology, and Manufacturing Technology. Other approved articulation agreements exist at Canada College and Skyline College.

The articulation will be honored at any of the three colleges in the San Mateo County Community College District. Depending upon the specific Tech Prep program, students may be granted from one to six college units with a GPA of 2.0 or better and may be granted advanced placement credit by waiver of specific CSM courses.

TECH PREP instructors and counselors believe that every student can learn the skills required for success in a competitive world. High school and community college staff work together to help students learn academic and applied skills in real-world ways. They find mentors and internships for students’ on-the-job learning in what they are being taught on campus. They help students locate and secure career jobs.

TECH PREP students master the skills necessary for success in college and in high-skill, wage careers. They learn how to develop good work habits, how to work on teams, and how to be effective in real work settings. They visit and work at local companies. Some enter career employment after completing community college study; others transfer to four-year colleges and universities. Many work at good jobs while continuing their education.

TECH PREP employers tell schools and colleges what jobs are available and what skills these jobs require. They help students learn these skills on campus and in the workplace. They mentor students, coaching and encouraging them for success and to remain in college. They provide internships and other training experiences while students are in school and hire TECH PREP graduates into entry-level jobs with real futures.

TECH PREP communities have well-educated workforces, high employment rates, and strong local economies. Their young people find good jobs after high school and move easily into advanced college courses because of the skills they learned as teenagers. Relocating companies are attracted by the good schools and colleges in these communities and are impressed by the skills of local workers.

Welding Technology

Associate in Science Degree with a Major in Welding Technology; Transfer Program; Certificate Programs

Recommended high school preparation: elementary algebra, physics, mechanical drawing, drafting, keyboarding, or word processing.

Career opportunities: The welding technician is a skilled tradesperson with a thorough knowledge of intricate welding processes, equipment, drafting mathematics, and code requirements. CSM’s nationally recognized program offers training by College and industry professionals in modern, well-equipped shops. Students receive a broad base of instruction covering all aspects of the profession and are immediately employable upon completion of their A.S. degree in Welding Technology.

A good welder is part electrician, metallurgist, chemist, physicist, and design and mechanical engineer. Specific career opportunities include welder, technician, engineer, sales/service person, and manufacturing, service, maintenance or construction operations supervisor. The need for qualified welding engineers is on the rise and, once employed, the opportunities for advancement are unlimited.

A.S. Degree

Major requirements: WELD 110, 111, 120, 121, 210, 211, 220, 221, 250; DRAF 120; ELEC 110; MATH 110 or higher; MTT. 200; PHYS 100 or MANU 100. Total: 48-50 semester units.

Plus General Education and other requirements for the A.A. degree (see Index: General Education).

Transfer Program

Many high paying career opportunities in Welding require a B.A. or advanced degree. Students can fulfill lower division General
Education and major requirements at College of San Mateo. See the Transfer Planning and Major Preparation Recommendations sections of this catalog. Students should also consult the catalog of the college or university to which they plan to transfer.

**Welding Technology:**

**Welding Technician**

**Career opportunities:** Welding technicians supervise, inspect, and help develop and determine applications for a wide variety of welding processes. Some welding technicians work in research facilities to assist engineers in testing and evaluating newly developed welding equipment, metals and alloys. Employment is available with virtually every industry, including aircraft, appliances, automobiles, food processing, guided missiles, nuclear energy, radio, railroads, shipbuilding, structural engineering, and television.

**Certificate Program**

**Certificate requirements:** completion of the major requirements listed above with a G.P.A. of 2.0 or higher.

**Welding Technology:**

**General Welder**

**Career opportunities:** Arc welders, combination welders and metal fabricators are among the highly skilled specialties in this field. Positions requiring a relatively lower degree of skill include welding machine tender/feeder and production line welder. Welders are employed with the construction industry, shipbuilders and shipyards, oil companies, the military, and aircraft, automobile, electronics and metal products manufacturers. Specific career opportunities include assembly worker, auto body worker, machine tool operator, sheet metal worker, and tool and die maker.

**Certificate Program**

**Recommended high school preparation:** elementary algebra, physics, mechanical drawing.

**Certificate requirements:** WELD 110, 111, 120, 121, 250; DRAF 120; MATH 110 or higher; MTT, 200; PHYS 100 or MANU 100. Total: 27-29 semester units. Completion of the major requirements listed above with a G.P.A. of 2.0 or higher.

**District Programs Not Offered at CSM**

San Mateo County Community College District also operates Cañada College in Redwood City and Skyline College in San Bruno which offer a number of special programs not available at College of San Mateo:

**Cañada College**

4200 Farm Hill Blvd., Redwood City, CA 94061
(650) 306-3100 or (650) 364-1212

**Programs**

Center for the American Musical
Early Childhood Education (Certificate)
English Institute
Paralegal
Radiologic Technology
Small Business Development and Job Training Center (Office Automation and Small Business Development)
Theater Arts/Drama

**Athletics**

Men's Soccer
Men's Tennis
Women's Soccer
Women's Tennis

**Skyline College**

3300 College Drive,
San Bruno, CA 94066
(650) 355-7000 (day) • (650) 738-4251 (evening)

**Programs**

Automotive Technology
Cosmetician/Esthetician (Eve. & Sat.)
Early Childhood Education
Family and Consumer Sciences
Fashion Merchandising
Fiber Optics/Telecommunications
International Trade
Image Consulting
Japanese Automotive Technology
Paralegal
Public Transit Management
Recreation Education
Respiratory Therapy
Retail Management
Surgical Technology
Telecommunications Technology
Toyota Technical Education Network

**Athletics**

Men's Basketball
Men's Soccer
Men's Wrestling
Women's Badminton
Women's Soccer
Women's Volleyball