CITY COLLEGE OF SAN FRANCISCO

OFFICE OF INSTRUCTION

Curriculum/Tenure Review/Faculty Evaluation & Catalog

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Catalog Update for 2014-15 College Catalog

Last Updated: November 13, 2014

Programs

The following programs shall be considered included in the 2014-15 College Catalog, with the effective dates noted below.

New Programs

Department	Program	Effective Date
Business	Associate in Science in Business Administration for Transfer (AS-T)	Fall 2014
Earth Sciences	Associate in Science in Geology for Transfer (AS-T)	Fall 2014
Fashion	Certificate of Accomplishment in Advanced Apparel Techniques	Fall 2014
Fashion	Certificate of Accomplishment in Apparel Construction	Fall 2014
Fashion	Certificate of Accomplishment in Fashion Illustration	Fall 2014
Fashion	Certificate of Accomplishment in Fashion Portfolio	Fall 2014
Fashion	Certificate of Accomplishment in Patternmaking	Fall 2014
Interdisciplinary Studies	Certificate of Accomplishment in Critical Middle East/South West Asia	Spring 2015
	and North Africa Studies	
Interdisciplinary Studies	Certificate of Accomplishment in Critical Pacific Islands	Fall 2014
Photography	Certificate of Accomplishment in Alternative Photography Processes	Fall 2014
Photography	Certificate of Accomplishment in B & W Photography: The Print	Fall 2014
Photography	Certificate of Accomplishment in B & W Photography: The Zone System	Fall 2014
Photography	Certificate of Accomplishment in Photography Studio Practice	Spring 2015
Photography	Certificate of Accomplishment in Reportage Photography	Fall 2014
Social Science	Associate in Arts in Economics for Transfer (AA-T)	Fall 2014
Visual Media Design	Certificate of Achievement in Digital Art Foundation	Fall 2014
Visual Media Design	Certificate of Achievement in Digital Illustration	Fall 2014
Visual Media Design	Certificate of Achievement in Graphic Design	Fall 2014
Visual Media Design	Certificate of Achievement in Visual Design Foundation	Fall 2014

Revised Programs

The following revised programs are available for the 2014-15 College Catalog, with the effective dates noted below. Students with 2014-15 catalog rights may also follow the program requirements as detailed in the 2014-15 print catalog.

Department	Program	Effective Date
Business	Certificate of Completion in Basic Business Office Skills for Customer	Fall 2014
	Service	
Engineering and Technology	Associate in Science in Biotechnology (AS)	Fall 2014
Engineering and Technology	Certificate of Accomplishment in Biotechnology Lab Assistant	Fall 2014
Health Education	Associate in Science in Health Education (AS)	Fall 2014
Latin American & Latino/a	Certificate of Achievement in Latin American & Latino/a Studies	Fall 2014
Studies		

New Programs

Associate in Science in Business Administration for Transfer (AS-T)

The Associate in Science in Business Administration for Transfer is designed to prepare students who wish to transfer to pursue a baccalaureate degree in Business Administration, particularly to the California State University. This program provides the academic foundation required for various areas of business, such as accounting, management, finance, and marketing.

Learning Outcomes

Upon completion of this degree, students will be able to:

- Use business terms and concepts related to functional areas of business including: marketing, finance, human resources, management, operations, accounting, economics, and international business.
- Examine the external forces (social, economic, technological, competitive, and regulatory) that impact business decisions.
- Develop and exhibit high standards of professional practice, demonstrating awareness of ethical and social responsibilities in today's business environment.
- Critically evaluate, analyze, and interpret information to solve problems and make business decisions.
- Meet the academic requirements for transfer to a baccalaureate degree program in business administration.

Degree Requirements: Students who wish to earn the Associate in Science in Business Administration for Transfer (AS-T) must complete 60 CSU transferable units with at least a 2.0 grade point average. This must include the units required for full completion of the IGETC or CSU GE curriculum and the 27units for the major as specified below. Each course in the major must be completed with a grade of "C" or better. Courses used to meet the major requirement may also be used to meet IGETC or CSU GE requirements.

ECON 1 Principles of Macroeconomics	3
ECON 1 Principles of Macroeconomics	3
BSL 1 Business Law I	3
ECON 5 Introductory Statistics	
or MATH 80 Probability and Statistics	4
Select TWO of the Following Courses:	
MABS 160. Survey of Business Data Processing	
or MABS 60 Introduction to Computer Applications for Business	
or CNIT 100 Introduction to Computers Using PCs	
or CS 101 Intro to Information Systems	3
MATH 100A Short Calculus I	
GNBS 119 Introduction to Business	3
Total	27

Associate in Science in Geology for Transfer (AS-T)

Geology is the study of the materials of which the Earth is made (rocks, minerals, water, oil, natural gas, and magmas), the structures that are produced (Earth layers, mountains, volcanoes, basins), the processes acting upon them (earthquakes, volcanism, landslides, floods, magnetic fields), and the evolution of Earth and its materials over time (Earth formation, early history, ice ages, and climate change).

Geology courses are recommended for anyone interested in understanding and living with the natural world around us and in making informed decisions on matters pertaining to interactions between natural Earth processes and society.

Geology, an interdisciplinary science, requires expertise in chemistry, physics, mathematics, computer science, and critical thinking. It requires skill in problem solving, analysis, scientific inquiry, and communication. This Associate's of Science Transfer in Geology **is specifically designed to prepare students** for transfer to a CSU geology program at the upper division level. It may also be appropriate for transfer to other four-year institutions. To accomplish this goal, majors will complete transferable lower-division courses in geology, math, and chemistry.

Geology majors will be able to take most or all of their lower division courses at CCSF before they transfer, but should see a counselor to confirm their program of study. Additional courses might be required to transfer to particular institutions. The geology transfer major is suitable for students planning to transfer into programs in the geology, oceanography, earth sciences, and environmental sciences.

Through the core classes of the AS-T in Geology, students will gain the scientific knowledge necessary to investigate problems and ideas presented in upper division geology courses. The laboratory work will train students to use current laboratory technologies, equipment and techniques to engage in the research process using scientific methods and to investigate research questions safely.

Learning Outcomes

Upon completion of this degree, students will be able to:

- Collect, analyze, and interpret data.
- Apply scientific inquiry and investigation of evidence as well as a synthesis of ideas from multiple disciplines including physics, chemistry, biology, and geology to formulate and critically evaluate scientific arguments, especially as relates to geologic phenomena

- Apply basic field skills and techniques such as making observations, recognizing geologic clues and evidence, taking field notes, understanding the difference between observations and interpretations, and using and annotating maps.
- Evaluate how humans impact earth processes and how earth processes impact humans in a multitude of ways including economically, politically, socially, and environmentally.
- Transfer to a four-year academic program in geology, or a related field.

Degree Requirements: Students who wish to earn the Associate in Science in Geology for Transfer (AS-T) must complete 60 CSU transferable units with at least a 2.0 grade point average. This must include the units required for full completion of the IGETC or CSU GE curriculum and the 27 units for the major as specified below. Each course in the major must be completed with a grade of "C" or better. Courses used to meet the major requirement may also be used to meet IGETC or CSU GE requirements.

Courses Required for the Major in Geology for Transfer	. : 4 -
CourseUn	IIts
GEOL 10 Introduction to Geology	3
GEOL 10L Introduction to Geology Lab	
GEOL 11 Historical Geology	3
GEOL 11L Historical Geology Lab	
CHEM 101A Introductory College Chemistry	5
CHEM 101B Introductory College Chemistry	5
//ATH 110A Calculus I	
//ATH 110B Calculus II	
otal	
One of the following STRONGLY recommended physics options*: PHYC 2A + 2AL Introductory Physics + Lab	4
PHYC 2B + 2BL Introductory Physics + Lab	
PHYC 4A + AL Introductory Physics + Lab	4
PHYC 4B + 4BL Introductory Physics + Lab	
One or more of the following course options for specialization:	
GEOL 21A San- Francisco Coastal Geology	1
GEOL 21B San Francisco Geology	1
GEOL 21C Geology of the San Andreas Fault System	1
DCAN 1 Oceanography	
SEOL 30 Environmental Geology	

Other recommended activities:

- Enroll in the Earth Sciences Club
- Become part of the Earth Sciences Mentoring Program (see Department website for details).

^{*} NOTE: Students who want to increase their opportunities should choose Physics 4A/B series instead of 2A/B (especially if they plan to major in geochemistry or geophysics).

Advanced Apparel Techniques Certificate

Certain segments of the fashion industry use specialized skills and materials not used in other forms of garment production. The advanced Apparel Techniques Certificate of Accomplishment (12 units) teaches the student these specialized and advanced techniques, and prepares the student to utilize them in either production or custom settings.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Construct complex garments from a wide variety of challenging fabrics
- Employ appropriate hand and machine techniques for intimates, suitings, daywear and eveningwear
- Achieve proper fit for a wide variety of garments

Courses Required for the Certificate of Accomplishment in Advanced Apparel Techniques

Course	Units
FASH 17 Custom Tailoring	
FASH 66 Lingerie Design & Construction	
FASH 74 Sewing Haute Couture	3
FASH 69 Pants Draft	
FASH 72 Moulage	1
FASH 73 Sewing with Knits	1
Total	12

Apparel Construction Certificate

The Apparel Construction Certificate of Accomplishment (16 units) takes students from basic sewing skills through the advanced construction techniques and sequences used to sew complex garments. Students will learn both home and industry methods for proper garment construction and fitting.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Read a fashion production pattern.
- Construct multiple types of garments from a wide variety of fabrics.
- Analyze and apply the appropriate order of construction, techniques, and equipment to complete a variety of garments.
- Achieve proper fit for multiple garments.

Courses Required for the Certificate of Accomplishment in Apparel Construction

Course	Units
FASH 15A Apparel Construction 1	3
FASH 15B Apparel Construction 2	
FASH 15C Apparel Construction 3	
FASH 16 Garment Fitting Techniques	
FASH 57 Fabric Glossary	
FASH 26 Flat Pattern 1	
or FASH 27 Fashion Draping	3
Total	16

Fashion Illustration Certificate

The Certificate of Accomplishment in Fashion Illustration (15 units) prepares the student to communicate in the global language of fashion illustration, be it technical or artistic.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Render artistically a variety of garments on a variety of body types in different media.
- Create technical drawings that accurately communicate design and construction details for apparel production.
- Apply the principles and history of fashion design in creating a fashion collection.

Courses Required for the Certificate of Accomplishment in Fashion Illustration

Course	Hours
FASH 35A Illustration 1	3
FASH 35B Illustration 2	3
FASH 112 Illustrator for Fashion Design	
FASH 36A Fashion Design 1	
FASH 55 Icons of Contemporary Fashion	
or FASH 23 Fashion History	3
Total	

Fashion Portfolio Certificate

The Fashion Portfolio Certificate of Accomplishment (16 units) takes students from the fundamentals of design, through the development of a design philosophy that captures their design Identity. Upon completion, students will have a professional portfolio to aid them in their chosen career path.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Formulate and communicate a design philosophy.
- Create a collection that includes fabric and color stories based on a design philosophy.
- Create a body of work culminating in a professional portfolio.

Courses Required for the Certificate of Accomplishment in Fashion Portfolio

Course	Units
FASH 35A Illustration 1	3
FASH 36A Fashion Design 1	
FASH 36B Fashion Design 2	
FASH 33 Design Portfolio in Fashion	
FASH 23 Fashion History	
or FASH 55 Icons of Contemporary Fashion	3
FASH 57 Fabric Glossary	
Total	

Patternmaking Certificate

The Patternmaking Certificate of Accomplishment (16 units) prepares the student to create patterns for a variety of garments that meet industry standards for production. Students learn different methodologies of developing patterns from sketches or samples.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Interpret a design and create a pattern for that design using a variety of methodologies.
- Create patterns that employ standard industry pattern terminology and symbols for garment production.
- Apply the principles of pattern grading to develop a full size range for patterns.

Courses Required for the Certificate of Accomplishment in Patternmaking

Course	Units
FASH 15A Apparel Construction 1	3
FASH 26 Flat Pattern 1	
FASH 27 Fashion Draping	3
FASH 37 Flat Pattern 2	
EAGLE OZA GAD Detter De element DAD	
or FASH 67B CAD Pattern Development - PAD or FASH 67B CAD Pattern Development - Gerber	3
FASH 29 Pattern Grading	
Total	

Critical Middle East/South West Asia and North Africa Studies Certificate

The Critical Middle East Studies Certificate of Accomplishment introduces students to an analysis of the history, politics, society, culture and religions of the Middle East I South West Asia and North Africa (SWANA) with attention to major events in the region and their representations and impacts across the Diaspora, especially in the United States. The program integrates area studies, ethnic studies, gender studies, and interdisciplinary methodologies. The required 3 unit courses are University of California and California State University transferable and collectively meet graduation area requirements in D-Social Sciences, E-Humanities, and H1-Diversity.

The program appeals to diverse students, including international students, who plan careers in many areas in the Humanities and Social Sciences with an emphasis in the Middle East I SWANA such as Religious Studies, International Relations, International Law, Global Studies, Political Science, Ethnic Studies, History, Language and Literature. The program primarily serves students who are transferring to a four-year university and additionally serves as professional development for employers, community-based organizations and social and government agencies.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Describe the major religions of the Middle East I SWANA with an emphasis on the role of Islam in ideology and culture
- Compare and contrast the political systems of the Middle East I SWANA within the historical and social context of empires, colonialism, independence, authoritarian states, Islamism, secularism and revolutions
- Examine social and cultural expressions through architecture, arts, dance, film, language, literature, music and poetry within Middle Eastern I SWANA societies and Diaspora communities in the U.S. and globally

- Analyze the relationship of diverse minorities, including women, in relation to the state and society in the Middle East I SWANA and within Diaspora communities in the U.S. and globally
- Evaluate and challenge assumptions and stereotypes of anti-Semitic and anti-Arab discrimination, Islamophobia and all forms of oppression

Admission: The Critical Middle East Studies Certificate is open to any student enrolled at the City College of San Francisco.

Requirements for the Certificate of Accomplishment: The certificate requires completion of a series of courses for a total of 16 units. Each course must be completed with a grade of "C" or higher, or a pass. The series can be completed in one to two semesters.

Credit towards graduation: Credit earned to obtain the certificate satisfies areas D, E, H1.

Credit towards other certificates: In addition to counting towards the Critical Middle East Studies Certificate, courses in the series fulfill requirements for the Diversity and Social Justice Certificate and the Political Science and Women's Studies majors.

Courses Required for the Certificate of Accomplishment in Critical Middle East/South West Asia and North Africa Studies

CourseL	Jnits
IDST 29 Introduction to Islam	3
POLS 4 Government and Politics of the Middle East	3
IDST 30 Demystifying the Middle East	3
IDST 31 Women in the Middle East	3
IDST 81B Anti-Semitism I Anti-Arabism	1
Elective Courses-Choose 3 units from the following:	•
ART 104 Asian Art History	
ARCH 31A History of Architecture	
ARCH 31B History of Architecture	პ
BCST 104: Race and Media	
ECON 6 International Economics	
ENGL 44A Survey of World Literature	
ENGL 44B Survey of World Literature	
GEOG 4 Cultural GeographyHIST 48 African History	
HUM 7 Comparative Religions	
HUM 8 Philosophies of Religions	
IDST 4 Ways of Faith	
IDST 14 American Cultures in Literature and Film	
IDST 36 Poetry for the People	
IDST 37 Racial and Ethnic Groups in the United States	
IDST 80A Diversity and Social Justice, Racism	
IDST 80C Diversity and Social Justice, Sexism	5
IDST 80D Diversity and Social Justice, Heterosexism	
IDST 80E Diversity and Social Justice, Ableism	
IDST 80F Diversity and Social Justice, Classism	
IDST 80G Diversity and Social Justice, Transphobia	
IDST 81A Diversity and Social Justice, Ageism I Adultism	
LGBT 55 Global Art and Culture	
MUS 41 African Drumming Ensemble	1
POLS 2 Comparative Government	

POLS 5 International Relations	3
WOMN 20 Her/His/Ourstories	3
WOMN 25 Introduction to Women's Studies	3
Total	. 16

Critical Pacific Islands Studies Certificate

The Critical Pacific Islands Studies Certificate of Accomplishment is a 17-unit certificate that introduces students to a critical analysis of Pacific peoples and cultures in the U.S. diaspora and beyond. Privileging the voices of native Pacific Islanders, the interdisciplinary curriculum explores a plethora of historical and contemporary topics, including colonization, militarization, social movements, and immigration, through the use of academic and community-based scholarship. All required courses are University of California (UC) and California State University (CSU)-transferable and meets City College of San Francisco General Education (GE) area requirements A (Communication & Analytical Thinking), C (Natural Sciences), D (Behavioral and Social Sciences) E (Humanities), H1 (Ethnic Studies).

While the certificate program is ideal for those whose work involves native Pacific Islanders and other communities of color such as service providers, health practitioners, law enforcement, researchers, teachers, and other professionals, the primary goal is to encourage students to further their educational aspirations through the completion of an associate's degree and successfully transferring to a four-year university.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Evaluate behavioral, social, and indigenous theories and methodologies used in the study of Pacific Islander communities in relation to their cultural, economic, educational, health, immigration, political, and social conditions.
- Compare and contrast the expression of the ocean aesthetic across Pacific Islander cultural practices including architecture, arts, dance, film, language, literature, music, poetry, sports, and theater.
- Apply critical and creative analytical skills using problem-solving and decision-making techniques for improving study strategies and health and wellness information essential to mental, physical, and lifelong well-being.
- Describe the intersectionality and interrelatedness of distinct forms of social oppression in the United States, including anti-semitism and anti-arabism, adultism, ageism, ableism, classism, heterosexism, homophobia, racism, sexism, and transphobia.
- Analyze and assess the scientific effects of ocean currents, waves, tides, rising sea levels, and the general circulation of the atmosphere and its impacts to and from human society, marine life, and geographical landscapes.

Admission: The Critical Pacific Islands Studies Certificate is open to any student enrolled at the City College of San Francisco.

Requirements for the Certificate of Accomplishment: The certificate requires completion of a series of courses for a total of 17 units. Each course must be completed with a grade of "C" or higher, or pass. The series can be completed in one to two semesters.

Credit toward Other Certificates: In addition to counting towards the Critical Pacific Islands Studies Certificate, courses in the IDST 80/81 series fulfill requirements for the Diversity and Social Justice Certificate, Youth Workers Certificate, Sexual Health Educator Certificate, Trauma, Prevention, and Recovery Certificate, and Women's Studies major.

Courses Required for the Certificate of Accomplishment in Critical Pacific Islands StudiesCourseUnitsIDST 45 Pacific Islanders in the U.S.3IDST 46 Fa'a Pasefika: Oceania & the Arts3IDST 50 College Success3IDST 80/81 Diversity & Social Justice*2OCAN 1 Oceans3Elective**3Total17

Alternative Photography Processes Certificate

This certificate program combines traditional, alternative and experimental photographic techniques with emerging digital technologies. Built on the basics of photography and design, it includes hands-on instruction in the black and white darkroom for processing negatives and prints, as well as hands-on instruction for producing and printing negatives with computers. Students are able to take their work back and forth between the two arenas utilizing the unique advantages that each has to offer. Students completing this certificate program will be qualified to work in custom photography labs and for professional fine-artists, in entry-level positions in museums, and the growing industry of image conservation and restoration. Additionally, this certificate prepares students for transfer to 4-year programs of study.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Use the traditional tools and techniques of photography, such as but not limited to: measure light, estimate depth of field and motion.
- Apply design concepts, such as but not limited to: aesthetic elements and principles, create and evaluate photographic images, use iterative processes.
- Create digital negatives, for use with traditional darkroom printing techniques, through various means such as but not limited to: film recorders, image-setters, and inkjet printers.
- Examine the characteristics of various films, papers and chemicals and how they may react to different light and development techniques.
- Apply the ideas and practical uses of mixed media, alternative, experimental, and computer-assisted processes as they apply in contemporary photography.

Students must complete each course with a grade of "C" or higher.

Where applicable, grades of Pass may be used.

Students must complete 3 of 5 courses at City College of San Francisco.

All courses must be taken within a 4-year period.

^{*}To fulfill the Diversity & Social Justice requirement, students will choose any of the courses for up to two (2) units: IDST 80A, 80C, 80D, 80E, 80F, 80G, 81A, 81B

^{**}Students will choose from a list of elective courses for up to three (3) units: ASAM 8, ANTH 15, BIO 32, CINE 22, ECON 10, GEOG 4, IDST 14, 29, 30, 36, 37, 40, LALS/LGBT 9, PHST 20, 30, WOMN 20

PHOT 67 Digital Negatives for Darkroom Printing	3
PHOT 81A Intermediate Photo; B & W Film/Darkroom	
PHOT 86 Mixed Media and Photographic Image	3
Total Units1	5

Recommended Additional Coursework: PHOT 50B, 52, 83, 130.

B&W Photography: The Print Certificate

This certificate program, built on the basics of photography and design, includes hands-on instruction in traditional darkroom techniques with an emphasis on high-end black and white printing. Students will build a personal portfolio of work and achieve proficiency in what has now become an artisanal skill. Students completing this certificate program will be qualified to work in custom photography labs, to operate a darkroom facility, and to work for professional fine-artists. Additionally, this certificate prepares students for transfer to 4-year programs of study.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Use the traditional tools and techniques of photography, such as but not limited to: measure light, estimate depth of field and motion.
- Apply design concepts, such as but not limited to: aesthetic elements and principles, create and evaluate photographic images, use iterative processes.
- Analyze the characteristics of various films, papers and chemicals and how they may react to different light and development techniques.
- Process prints and negatives according to existing archival standards, such as but not limited to: exposure and contrast control, specific film and paper developer selection, standardized chemical testing.
- Produce a portfolio of high quality Black and White prints.

Students must complete each course with a grade of "C" or higher.

Where applicable, grades of Pass may be used.

Students must complete 3 of 5 courses at City College of San Francisco.

All courses must be taken within a 4-year period.

Courses required for Certificate of Accomplishment in B&W Photography: The Print

Course	Units
PHOT 51 Beginning Photography	3
DSGN 101 Design Fundamentals	
PHOT 81A Intermediate Photo; B & W Film/Darkroom	
PHOT 81B Advanced Black and White Darkroom Techniques	
PHOT 130 Portfolio Production	
Total Units	

Recommended Additional Coursework: PHOT 67, 82, 86.

B&W Photography: The Zone System Certificate

This certificate program, built on the basics of photography and design, includes in-depth and hands-on instruction in traditional black and white darkroom techniques with an emphasis on the proper exposure and development of negative films. Specifically, the "Zone System," created by Ansel Adams, is explored. Students completing this certificate program will be qualified to work in custom photography labs, to operate a darkroom facility, and to work for professional fine-artists. Additionally, this certificate prepares students for transfer to 4-year programs of study.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Use the traditional tools and techniques of photography, such as but not limited to: measure light, estimate depth of field and motion.
- Apply design concepts, such as but not limited to: aesthetic elements and principles, create and evaluate photographic images, use iterative processes.
- Analyze the characteristics of various films, papers and chemicals and how they may react to different light and development techniques.
- Produce precise, predictable results under the guidelines of the Photographic Zone System, such as but not limited to: calibrate photographic equipment and materials, place photographic values through precise light metering, development and the use of camera filters.
- Apply specific photographic business practices, such as but not limited to: compare equipment needs, produce a portfolio, develop client relationships, and determine fees and licensing.

Students must complete each course with a grade of "C" or higher.

Where applicable, grades of Pass may be used.

Students must complete 3 of 5 courses at City College of San Francisco.

All courses must be taken within a 4-year period.

Courses required for Certificate of Accomplishment in B&W Photography: The Zone System

Course	Units
PHOT 51 Beginning Photography	3
DSGN 101 Design Fundamentals	
PHOT 81A Intermediate Photo; B & W Film/Darkroom	
PHOT 82 Zone System Techniques	
PHOT 99 Business Practices of Photography	
Total Units	

Recommended Additional Coursework: PHOT 67, 81B, 86.

Photography Studio Practice Certificate

This certificate provides hands-on instruction in large format cameras, electronic strobe equipment and lighting techniques as applied to professional studio and/or portrait photography. Includes a foundation in design. Students completing this certificate program are prepared for an entry-level position as a photographer's assistant in the fields of commercial photography, product photography, portrait photography, fashion photography, food photography, graduation photography and public relations.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Use the traditional tools and techniques of photography.
- Apply design concepts to the requirements of photography.
- Apply the proper use of the techniques and aesthetics of light to the requirements of photography.
- Apply the techniques of portraiture photography.
- Apply corrective camera movements to achieve control over the photographic process.

Students must complete each course with a grade of "C" or higher.

Where applicable, grades of Pass may be used.

Students must complete 3 of 5 courses at City College of San Francisco.

All courses must be taken within a 4-year period.

Courses required for Certificate of Accomplishment in Photography Studio Practice

Course	Units
PHOT 51 Beginning Photography	
DSGN 101 Design Fundamentals	
PHOT 83 View Camera Techniques	
PHOT 85A Beginning Lighting Techniques	
PHOT 85B Advanced Studio Lighting Techniques	
or PHOT 90 Portraiture	4
Total Units	16

Recommended Additional Coursework: PHOT 52, 99, 130.

Reportage Photography Certificate

This certificate provides a foundation in reportage photography and includes instruction in ambient and electronic strobe equipment, and lighting techniques. Students completing this certificate program will be qualified for employment in the fields of editorial photography, photojournalism, documentary and social documentary photography, combat photography, public relations, and travel photography.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Use the traditional tools and techniques of photography, such as but not limited to: measure light, estimate depth of field and motion.
- Apply design concepts, such as but not limited to: aesthetic elements and principles, create and evaluate photographic images, use iterative processes.
- Apply the proper use of the techniques and aesthetics of light to the requirements of photography, such as but not limited to: studio equipment and accessories, natural and auxiliary light sources, exposure value and contrast control.
- Demonstrate the ability to create successful illustrative images and solve problems in visual story telling, from research and directing subjects to presentation, sequencing and captioning.
- Apply specific photographic business practices, such as but not limited to: compare equipment needs, produce a portfolio, develop client relationships, and determine fees and licensing.

Students must complete each course with a grade of "C" or higher. Where applicable, grades of Pass may be used.

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Students must complete 4 of 6 courses at City College of San Francisco. All courses must be taken within a 4-year period.

Courses required for Certificate of Accomplishment in Reportage Photography

. 3
2
. 3
. 3
. 4
. 2
. 2
17

Recommended Additional Coursework: PHOT 52, 130, JOUR 37, 38.

Associate in Arts in Economics for Transfer (AA-T)

The AA-T in Economics offers students a comprehensive lower division program in economics. The AA-T prepares students who wish to transfer and pursue a baccalaureate degree in Economics, particularly at California State University campuses.

Learning Outcomes

Upon completion of this program, students will be able to:

- Identify, analyze, apply and evaluate basic economic concepts, principles and methods.
- Identify and analyze important economic problems and issues, and identify, analyze, apply, compare and evaluate important economic models and theories and relevant policy alternatives.
- Describe and analyze U.S. economic development and important economic institutions in social, cultural, political and international context, including areas such as race, ethnicity, gender, and sexual orientation; identify, analyze, apply, and evaluate alternative theories and related policy recommendations.
- Identify, analyze, apply and evaluate the economic concepts, principles and alternative economic theories of
 the nature and development of international economic relations, including international trade and finance,
 considering important institutions and policies affecting international trade and finance.
- Identify, develop, apply and interpret the important concepts and methods of descriptive and inferential statistics relevant for economics, the other social sciences and statistical analysis in general.
- Meet the requirements for transfer to pursue a baccalaureate degree in Economics, particularly at the California State University campuses.

Degree Requirements: Students who wish to earn the Associate in Arts in Economics for Transfer (AA-T) must complete 60 CSU transferable units with at least a 2.0 grade point average. This must include the units required for full completion of the IGET"C" or CSU GE curriculum and the 19-21 units for the major as specified below. Each course in the major must be completed with a grade of "C" or better. Courses used to meet the major requirement may also be used to meet IGETC or CSU GE requirements.

Courses Required for the Major in Economics for Transfer

Course	Units
ECON 1 Principles of Macroeconomics	
ECON 3 Principles of Microeconomics	
ECON 5 Introductory Statistics (recommended)	
or MATH 80 Probability and Statistics	
or PSYC 5 Statistics for Behavioral Science	4

MATH 100A Short Calculus I	
or MATH 110A* Calculus I	3-4
Elective Courses (List A) Select ONE of the Following Courses (3-4 units)	
MATH 110B* Calculus II	4
ACCT 1 Financial Accounting	
ACCT 2 Managerial Accounting	4
MABS 160 Survey of Business Data Processing	3
Elective Courses (List B) Select ONE of the Following Courses (3 units)	
ECON 6 International Economics	
ECON 10 Economic History of the United States	3
ECON 25 Women in the Economy	3
ECON 30 Economics of the African-American Community	3
Total	

Digital Art Foundation Certificate

The Digital Art Foundation certificate provides essential knowledge and skills for digital artists. It can serve as a stand-alone certificate, or as the basis for continued study in digital illustration, animation, gaming or other areas. All courses must be completed with a grade of "C" or higher.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Demonstrate an understanding of iterative design process
- Demonstrate an understanding of the elements and principles of visual design
- Use drawing as a means of idea exploration
- Demonstrate an understanding of color vocabulary, selection and use in design
- Demonstrate basic proficiency with computer tools and processes used in visual communication
- Create and edit files using industry-standard software
- Analyze and critique design work in verbal and written form

Courses required for Certificate of Achievement in Digital Art Foundation

CourseUnits	S
VMD 100 Orientation to Visual Media Design1	1
VMD 101 Design Fundamentals	
or Art 125A Basic Design	3
VMD 105 Visual Media Digital Skills3	3
ART 130A Basic Drawing	3
VMD 118 Color in Design	
or ART 126 Color	3
VMD 150 Illustrator I	3
VMD 154 Photoshop I	3
Total Units19	9

^{*} NOTE: Students intending to pursue graduate study in Economics are encouraged to take MATH 110A, MATH 110B, MATH 110C, MATH 115, and MATH 120 and 125 or MATH 130

Digital Illustration Certificate

The Digital Illustration certificate builds on the Digital Art Foundation Certificate for students interested in digital illustration for a variety of applications. The Digital Illustration Certificate Program combines the study of illustration, art and design with digital tools and techniques to create communicative imagery that is disseminated through all forms of visual media. This certificate prepares students for freelance illustration positions in print and interactive media publishing, web and mobile design, advertising, animation, and gaming. This certificate requires successful completion of the Digital Art Foundation Certificate (19 units) or demonstration of equivalent knowledge and skills. All courses must be completed with a grade of "C" or higher.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Conceptualize and create original illustrations
- Use an iterative process including research, sketching, development and refinement
- Use Adobe Photoshop, Illustrator and other software to create original illustrative work
- Analyze and critique illustration work in verbal and written form
- Maintain a portfolio of illustration work
- Demonstrate an understanding of business practices for illustration

Courses required for Certificate of Achievement in Digital Illustration

Course	
ART 132A Beginning Figure Drawing	3
VMD 120 Graphic Design I	3
VMD 151 Illustrator II	3
VMD 155 Photoshop II	3
VMD 168 Visual Development for Animation	
or ART 136A Beg. Illustration	3
VMD 170 Digital Illustration I	3
VMD 172 Digital Illustration II	3
VMD 178 Portfolio Development for Illustration	
or VMD 190 Portfolio Development	3
Electives	3
Total Units	27

Electives: DSGN 110, ART 130B, ART 132B, VMD 200A

Graphic Design Certificate

The Graphic Design certificate builds on the Visual Design Foundation Certificate for students interested in working as graphic or visual designers for communications. It provides advanced study and application of design thinking to a broad range of communications projects (both interactive and print). Students will refine their skills in Emerge Studio, our on-campus design studio practicum. The CCSF AIGA Student Group provides additional educational, networking and outreach opportunities within the professional design community. The certificate requires key courses, but allows the student to customize the program to meet their personal goals through electives. *This certificate requires successful completion of the Visual Design Foundation Certificate (25 units) or demonstration of equivalent knowledge and skills. All courses must be completed with a grade of "C" or higher.*

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Select and use various design process models in developing design solutions
- Combine appropriate aesthetic form and content to create evocative and engaging work
- Select and use typefaces, create type hierarchies and demonstrate attention to typographic detail
- Demonstrate proficiency with computer tools and processes used in visual communication
- Create, edit and troubleshoot files using industry-standard software
- Select appropriate tools, materials and processes for print and interactive projects
- Produce graphic design work both independently and collaboratively
- Analyze and critique communications design work in verbal and written form
- Employ professional design/production studio practices, such as project management, record keeping, asset management, file naming and archiving
- Maintain a portfolio of visual design work

Courses required for Certificate of Achievement in Graphic Design

Course	Units
VMD 118 Color and Design	3
VMD 110 History of Graphic Design	
VMD 111 Print Processes for Designers	3
VMD 122 Graphic Design II	
VMD 124 Graphic Design III	3
VMD 126 Design for Interactive Media	
VMD 131 Typography II	3
VMD 153 InDesign II	3
VMD 190 Portfolio Development	3
VMD 200A Design Studio Practicum	3
Electives	4–6
Total Units	34–36

Recommended Electives: DSGN 110, VMD 114A, 116A, 141,151, 155, 156, 194A

Visual Design Foundation Certificate

The Visual Design Foundation certificate provides essential knowledge, processes, principles and skills for visual design and production for print and interactive communications. It can serve as a stand-alone certificate, or as the basis for advanced study in graphic design, visual media production or other areas. *All courses must be completed with a grade of "C" or higher.*

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Demonstrate an understanding of iterative design process
- Demonstrate an understanding of the elements and principles of visual design
- Demonstrate an awareness of type selection, specification and practices
- Demonstrate awareness of computer tools and processes used in visual communication
- Create and edit files using industry-standard software
- Analyze and critique communication design work in verbal and written form

Courses required for Certificate of Achievement in Visual Design Foundation

Cour	SeUI	าแร
VMD	100 Orientation to Visual Media Design	1
	101 Design Fundamentals	
	105 Visual Media Digital Skills	
VMD	120 Graphic Design I	3
VMD	130 Typography I	3
VMD	140 Web Production I	3
VMD	150 Illustrator I	3
VMD	152 InDesign I	3
VMD	154 Photoshop I	3
Total	Units	. 25

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Revised Programs

Basic Business Office Skills for Customer Service Noncredit Certificate

Program Goal. To develop both written and oral communication skills as well as effective ways to service and maintain customers or clients in business.

Learning Outcomes

Upon completion of this certificate, students will be able to:

- Apply the basics of quality customer service
- Identify customer needs and complaints
- Demonstrate effective telephone manners and e-mail etiquette
- Establish proper techniques for keyboarding

Courses Required for the Certificate of Completion in Basic Business Office Skills for Customer Service

Course	Hours
BOSS 3501 Customer Service Skills	15
BOSS 5500 Keyboarding for Computers	45
COMP 9950 E-mail Writing	
or COMP 9952 Internet & E-mail for the Business Office	5-15
WOPR 9991 Microsoft Word Essentials I	15
Total	80–90

Exit Requirements. Successful completion of all courses with a passing grade of "C" or higher. Minimum attendance of 80% in all courses.

Biotechnology Major

In the biotechnology curriculum, a two-year course of study, the Engineering and Technology Department offers students specialized training for employment as bio-technicians engaged in research, design, manufacturing, operation, maintenance, testing, or sales related to this field. All students in this field of study complete the required

core courses. Specialization is offered from the second through the fourth semester course work and will lead to a certificate of accomplishment concurrently. The program advisers work closely with each student to assure normal progress. Upon successful completion of the curriculum, students receive the Associate in Science degree with Biotechnology as the Major.

Training in the Major. Training in the first year is designed to provide students with a sound working knowledge of the applied principles of mathematics, chemistry and biology and introductory biotechnology. In the second year, students complete more advanced courses in biotechnology.

Employment. Students who complete the curriculum satisfactorily are qualified for positions as quality control, research and development, and bio-manufacturing technicians in hundreds of pharmaceutical and biotechnology companies in the Bay Area.

Major. Students who complete the curriculum with final grades of "C" or higher in the major technical courses receive the Associate in Science degree in Biotechnology.

Four-year Degree Preparation. Besides preparing students who complete this curriculum for careers in the biotechnology industries, the students can also transfer to universities to pursue a BS degree, most likely in industrial technology with focus on biotechnology. The department currently has a formal articulation agreement with California State University at Fresno. Please contact the program advisor in the Biotechnology Program office In S259 for details.

Learning Outcomes

Upon completion of this program, students will be able to:

- Demonstrate proper aseptic technique and skills in culturing and analyzing cells.
- Demonstrate and apply knowledge of methods of quantitating and analyzing cellular biological molecules.
- Define and use SI units
- Describe, apply and perform molecular biology techniques in a project-related, step-wise manner, properly
 utilize materials, and properly operate and care for the standard laboratory equipment commonly used in
 biotechnology-related academic and industry laboratories.
- Employ the principles of proper documentation handling in experimental data collection and recordkeeping
 including proper methods of laboratory report development and presentation using a computer for data
 analysis and report generation.
- Perform common laboratory-based mathematical operations and apply critical thinking in data analysis including statistical and graphical analysis in the interpretation of experimental results.

Courses Required for the Major in Biotechnology

Course	Units
BTEC 108A Practical Math I	
or ET 108A Practical Math I	
or an equivalent math course	3
ET 108B Practical Math II	
or an equivalent math course	3
BIO 11 Intro to the Science of Living Organisms	4
CHEM 32 Intro to Medical Chemistry	4
CHEM 40 Intro to Chemical Principles	4
SPCH 12 Fundamentals of Oral Communication	
or BTEC 107/ET 107 Language Skills for Technicians	3
Technical Elective Courses: a minimum of 24 units must be taken from the list below:	
Course	
BTEC 5 Briefings in Biotechnology	1
BTEC 10 Research Skills for Career Opportunities in Biology	

BTEC 12A GLP and GMP Principles	1
BTEC 12A GLP and GMP Principles BTEC 12B GMP Compliance	1
BTEC 14A Biotechnology Laboratory	2
BTEC 14B Biotechnology Internship	
BTEC 15 Organizing a Scientific Conference	
BTEC 21A Mammalian Cell Culture	2
BTEC 21B Fluorescent Cell Technology	2
BTEC 21C Stem Cell Technology	3
BTEC 22 Immunoassay: ELISA	1
BTEC 23 Western Blotting Techniques	
BTEC 24 Introduction to PCR	1
BTEC 25 Analytical PCR Technology	1
BTEC 93 Biotechnology Work Experience	1
BTEC 102 Bioreactor Technology	2.5
BTEC 103 Protein Purification	2.5
BTEC 115 Recombinant DNA Biotechnology	5
BTEC 120 Molecular and Cell Biotechnology	
BTEC 221 Biotech Process Instrumentation	2
BTEC 222 Biotech Calibration and Validation	1
BTEC 223 Introduction to Environmental Monitoring	1
Total	45

Up to 6 units of course work may be taken from related areas with the approval of the program advisor. These courses may include courses from related departments such as Biology.

Biotechnology Lab Assistant Certificate

Over the past several years the biotech industry has grown tremendously and this has generated an increasing number of entry-level positions. In turn there is now a large demand for workers who are qualified for these positions. This entryway certificate program is designed to give a rigorous and engaging introduction to the biosciences while strengthening the math and language skills needed for success in these entry level positions. Our one-year Laboratory Assistant Certificate will prepare students for jobs as media prep technicians, laboratory aids or laboratory safety monitors. No previous experience or coursework in science is necessary, and you will gain valuable work experience in an internship as a lab assistant.

Learning Outcomes

Students in the Biotechnology Lab Assistant Certificate will be prepared to work at a biotech company or academic research lab as a Laboratory Assistant. Upon completion of the certificate, students will be able to:

- Demonstrate knowledge of cGMP (current Good Manufacturing Practices) and GLP (Good Laboratory Practices) compliance.
- Perform basic mathematical operations in the context of chemistry and biology.
- Document, write, communicate and perform laboratory protocols.
- Prepare to interview for a laboratory Assistant position.
- Demonstrate proficiency in the laboratory techniques commonly used in the biotechnology industry.

The requirements for the certificate are completion of the following courses with a grade of "C" or higher.

Courses Required for the Certificate of Accomplishment in Biotechnology Lab Assistant Course Units BTEC 10 Research Skills for Career Opp. in Biology 2 ET108A Practical Mathematics I 3 ET107 Language Skills for Technicians 3 BTEC 14A Biotechnology Laboratory Techniques 2 BTEC 12A GLP and GMP Principles 1 BTEC 12B GMP Compliance 1 BTEC 14B Biotechnology Internship 4 Total 16

Health Education Major

The Health Education Department offers a Major in Health Education designed to prepare students for transfer to the California State University (CSU) system for further study in health education, public health and related academic fields. With a Bachelor's Degree in Health Education, students are prepared for careers with a wide range of public and private employers. The Health Education Major is open to all students who are admitted to City College of San Francisco and who have satisfied the prerequisites listed next to each course before enrolling in that course.

The purpose of CCSF's Health Education Major is to provide students with coursework in public health content to prepare them to transfer to the California State University system in health education, public health and related academic fields. The major prepares students with an analysis of the major determinants of health and illness, indepth health content, an overview of necessary skills in the field, including interpersonal and quantitative reasoning skills. The goal of this program is to prepare a diverse student body to address the health needs of our communities.

The 20-unit Associate of Science degree program in Health Education includes core courses related to public health and health education and a selection of electives from a variety of health-related subject areas. The course of study is designed to give flexibility to students who want to pursue specific areas of interest within health. The degree may be combined with any of the programs or certificates offered by the Department.

Core courses in the major: The major consists of 14 units of required courses. Students interested in the major should note that the quantitative skills courses all have mathematics prerequisites and should plan their course of study accordingly.

Electives in the major: Students majoring in Health Education are required to take at least six (6) units of approved electives described below. Requirements for Bachelor's Degrees in the Health Education or Health Science field vary widely. Students are advised to check the specific major requirements for the institution they plan to transfer to.

Prerequisites: There are no specific prerequisites for the Health Education Major except for those prerequisites and advisories required of certain classes. This includes one of the core classes in the major, Psychology 5 (or MATH 80 or ECON 5), which requires students to take the Math Placement Test and to either place into the class or take MATH 60 or 860 or MATH 45 or 845 as a prerequisite. Some of our elective courses also have prerequisites. These courses are highlighted with an asterisk (*) in the list of elective course options.

Learning Outcomes

Upon completion of this program, the student will be able to:

- Analyze the various factors that shape health and illness of individuals and communities and propose and compare strategies to improve health.
- Demonstrate communication skills that enhance interpersonal relations and value cultural awareness and sensitivity.
- Examine the causes of health inequities and critically analyze theoretical models and research findings.

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- Access, interpret and analyze health data; design tools, measures and apply statistical models to understand and improve community health.
- Meet the requirements for transfer to health education and related programs in the California State University System.

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Courses Required for the Major in Health Education

HLTH 53 Health in Society	Jinto
or HLTH 27 Men's Health Issues	
or HLTH 25 Women's Health Issues	3
HLTH 54 Introduction to Public Health	
BIO 9 Human Biology	0
or BIO 11 Intro to the Science of Living Organisms	4
PSYC 5 Statistics for Behavioral Sciences	т
or ECON 5 Introductory Statistics	
or MATH 80 Probability and Statistics	4
of WiATTT 60 T Tobability and Statistics	т
Six units must be taken from the following elective courses:	
HLTH 6 End of Life Issues in the U.S.	3
HLTH 9A Elder Abuse Prevention	
HLTH 10 Health and Aging	
HLTH 30 Drugs and Society*	
HLTH 36 Health at Every Size: Shifting the Paradigm	
HLTH 38 Trauma Response and Recovery*	
HLTH 48 Violence as Public Health Issue	
HLTH 50 Tai Chi for Health	
HLTH 52 Critical Perspectives in Global Health	
HLTH 64 Health Education and Prevention	
HLTH 65 Youth Development and Leadership	
HLTH 66 Health Education and Chronic Disease Management	
HLTH 67 HIV/STI Prevention Education	
HLTH 72 Cultural Aspects of Addiction*	
HLTH 73 Case Management/Individual Intervention*	
HLTH 80 Interpreting in Health Care I	
HLTH 83 Motivational Counseling Skills*	
HLTH 91C Hepatitis ABC's	
HLTH 95 Transgender Health, Working with Clients & Communities	
HLTH 97 Health & Stress in Society	
HLTH 102 Helping Relationships: Recovery and Wellness	
HLTH 103 Community and Group Forums	
HLTH 110 Health Impacts of Incarceration	
HLTH 116 Conflict Resolution Skills in the Health Care Workplace	
HLTH 120 Health and Educational Justice	
HLTH 171 Nutrition for Health	
HLTH 221 Health and Social Justice	_
HLTH 231 Urban Health Policy	2
ADMJ 59 Organized Crime and Gangs: A Social, Cultural and Legal Perspective	
ANAT 25 General Human Anatomy	
CDEV 67 The Child, the Family, and the Community	
CDEV 100 Violence and Its Impact on Children and Their Families	
IDST 17 Human Sexuality	
IDST 37 Racial and Ethnic Groups in the United States-A Comparative Survey	
LBCS 79 Health and Safety in the Workplace	
LBCS 81 Organizing for Economic and Social Justice	
MB 12 Introduction to Microbiology	
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NUTR 12 Introduction to Nutrition	3
POLS 4 The Politics of Globalization	3
POLS 22 Environmental Politics and Policy	3
PSYC 22 or 23 Psychology of Race & Ethnic Relations	3
PHYS 1 Introduction to Human Physiology	3
WOMN 54 The Politics of Sexual Violence	
Total	20

Latin American & Latino/a Studies Certificate

The Certificate of Achievement in LALS is a 12-unit program that introduces the Latino/a experience in the United States. The certificate is comprised of a 3-unit core course and 9 elective units, providing students with theoretical and methodological tools to understand and analyze the complexity of Latino/a lives in the United State. It is designed for students who wish to pursue a specialization in Latino/a studies and for professionals in the public, private and nonprofit sector and/or who work with or wish to learn about Latino/a communities in the United States to further their career goals.

Learning Outcomes

Upon completion of this certificate, the student will be able to:

- Understand and analyze the Latino/a national and transnational experience in the state of California and the United States.
- Compare and contrast Latin American cultures and societies.

Courses Required for the Certificate of Achievement in Latin American & Latino/a Studies	
Course	Jnits
LALS 1 Latino/a Diaspora: The Impact of Latinos/as Living in the U.S	3
Electives (9 units in any of these courses)	
LALS 9/LGBT 9 Latin American and Latino/a LGBT	3
LALS 10 Latinas in the U.S./Voces	
LALS 11 Drug Wars in the Americas	3
LALS 13/POLS 13 Latin American & Latino/a Cross-Border Social Movement	
LALS 14 Diego Rivera Art and Social Change	3
LALS 15 Latin American Workers in the Americas	3
ART 106 Latin America Art History	3
ANTH 11 Latin American Cultures & Societies	
HIST 21 History of Mexican American/Chicano	
MUS 25 Music of Latin America and the Caribbean	
POLS 8 Political Problems of Latin Americans	
Total	12