The Liberal Arts and Sciences Degree is designed to enable students to complete the requirements for an Associate in Arts Degree with a minimum of 18 units in an area of emphasis and transfer to a University of California, a California State University or an independent/private college and university. To meet the Liberal Arts and Sciences Degree requirements a student must complete the following:

1. One of the following four general education options
   - San Diego Community College District General Education and District Requirements. This GE pattern may fulfill all lower division general education requirements at an independent/private college or university. (See City College catalog page 73.)
   - CSU General Education - Breadth (CSU GE Pattern). This GE pattern will fulfill all lower-division general education requirements at all CSU campuses. (See City College catalog page 105.)
   - Intersegmental General Education Transfer Curriculum (IGETC) pattern. This GE pattern will fulfill all lower-division general education requirements at all CSU campuses, most UC campuses/majors and some independent/private colleges and universities. (See City College catalog page 97.)
   - San Diego Community College District General Education and additional courses needed to meet all lower division general education requirements of an accredited U.S. postsecondary institution which awards the baccalaureate degree, as detailed in an inter-institutional articulation or transfer agreement and certified by a City counselor. (See City College Catalog page 73.)

2. A minimum of 18 units in an Area of Emphasis or Specialization. These include:
   - Area of Emphasis in Visual and Performing Arts:
     These courses emphasize the study of artistic activities and artistic expression of human beings. Students evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in artistic and cultural creation. Students also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments.
   - Area of Emphasis in Language Arts and Humanities
   - Area of Emphasis in Scientific Studies:
     - Biological Sciences Specialization
     - Mathematics and Pre-Engineering Specialization
     - Physical and Earth Sciences Specialization
   - Area of Emphasis in Elementary (Multiple Subject) Teaching Preparation
   - Area of Emphasis in Social and Behavioral Sciences

3. A minimum of 60 transferable units to a University of California, a California State University or an independent/private college and university.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this degree should be selected with the assistance of a City College counselor. Completion of the Liberal Arts and Sciences Degree does not guarantee acceptance into a four year institution nor into a major.

**Area of Emphasis in Visual and Performing Arts:**
These courses emphasize the study of artistic activities and artistic expression of human beings. Students evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in artistic and cultural creation. Students also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments.
Common university majors in this emphasis include: Applied Design, Art, Art History, Arts and Crafts, Dance, Drama, Graphic Communications, Graphic Design, Industrial Arts, Painting and Printmaking, Photography, Sculpture, Studio Arts, Theatre Arts, Performing Arts.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

**Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Visual and Performing Arts**

**Courses Required for the Major:**
Students should complete a minimum of 18 units including both Visual and Performing Arts courses:

- ARTF 100  Art Orientation
- ARTF 109  History of Modern Art
- ARTF 110  Art History: Prehistoric to Gothic
- ARTF 111  Art History: Renaissance to Modern
- ARTF 113  African, Oceanic, and Native American Art
- ARTF 115  African Art
- ARTF 150A  Two-Dimensional Design
- ARTF 150B  Beginning Graphic Design
- ARTF 151  Three-Dimensional Design
- ARTF 155A  Freehand Drawing I
- ARTF 155B  Freehand Drawing II
- ARTF 165A  Composition in Painting I
- ARTF 165B  Composition in Painting II
- ARTF 170A  Contemporary Crafts I
- ARTF 170B  Contemporary Crafts II
- ARTF 175A  Sculpture I
- ARTF 175B  Sculpture II
- ARTF 195A  Ceramics I
- ARTF 195B  Ceramics II
- ARTF 197A  Handbuilding Ceramics I
- ARTF 197B  Handbuilding Ceramics II
- ARTF 210A  Life Drawing I
- ARTF 210B  Life Drawing II
- ARTF 220A  Life Sculpture I
- ARTF 220B  Life Sculpture II
- ARTG 100  Basic Graphic Design
- ARTG 106  Typography
- ARTG 118  Graphic Design History
- ARTG 125  Digital Media
- DANC 110  Ballet
- DANC 111  Ethnic Dance Forms
- DANC 115  Tap
- DANC 120  American Street Dance
- DANC 127  Body Modalities and Injury Prevention
- DANC 130  Dance Repertoire
- DANC 135  Jazz Dance
- DANC 140  Modern Dance I
- DANC 145  Ballroom and Social Dance
- DANC 150  Dance Making: Ballet
- DANC 151  Dance Making: Jazz
- DANC 152  Dance Making: Modern
- DANC 153  Dance Making: Dance Theatre
- DANC 177  Dance Improvisation
- DANC 178  Advanced Contemporary Dance
- DANC 179  Advanced Classical Dance
- DANC 181  Introduction to Dance
- DANC 183  Music for Dance
- DANC 253  Choreography
- DANC 261  Dance Performance
- DANC 271  Dance Production
- DRAM 103  Acting for Non-majors
- DRAM 105  Introduction to Dramatic Arts
- DRAM 108  Playwriting
- DRAM 109  Theatre and Social Issues
- DRAM 122  Makeup for the Stage
- DRAM 123  Beginning Stagecraft
- DRAM 126  Advanced Stagecraft
- DRAM 132  Beginning Acting
- DRAM 133  Intermediate Acting
- DRAM 134  Beginning Voice for Actors
- DRAM 136  History of Canonized Theatre-Ancient Greece to the Restoration
- DRAM 137  History of Canonized Western Theatre-Restoration to the Present
- DRAM 143  Beginning Costuming
- DRAM 165  Introduction to Stage Movement
- DRAM 200A  Fundamentals of Performance and Production III
- DRAM 250  Rehearsal, Production and Performance
- DRAM 251  Musical Comedy Rehearsal, Production and Performance
- MUSI 100  Introduction to Music
- MUSI 108  The Business of Music
- MUSI 109  World Music
- MUSI 111  Jazz - History and Development
- MUSI 115A  Class Piano I
- MUSI 115B  Class Piano II
- MUSI 120  Beginning Voice Class
- MUSI 121  Intermediate Voice
- MUSI 130A  College Chorus I
- MUSI 130B  College Chorus II
- MUSI 150A  Basic Musicianship
- MUSI 190  The Electronic Music Studio
- MUSI 201  Recording Arts
- MUSI 202  Computer Music
- MUSI 215A  Class Piano III
- MUSI 215B  Class Piano IV
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MUSI 230A  Jazz Improvisation
MUSI 230B  Jazz Improvisation
MUSI 230C  Jazz Improvisation
MUSI 268A  Beginning Ear Training Laboratory I
MUSI 268B  Beginning Ear Training Laboratory II
PHOT 100  Basic Black-and-White Photography
PHOT 105  Introduction to Photography
PHOT 135  Intermediate Black-and-White Photography

Area of Emphasis in Language Arts and Humanities: These courses emphasize the study of cultural, literary, and humanistic activities of human beings. Students evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in cultural creation. Students also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments. Common university majors in this emphasis include: Advertising, American Studies, Broadcast Media, Classics, Communication, Comparative Literature, Creative Writing, English, Ethics, Foreign Languages, Humanities, Journalism, Language Studies, Linguistics, Literature, Media Studies, Mass Communications, Philosophy, Public Relations, Religious Studies, Speech Communication, Television and Film, Women’s Studies.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

Courses Required for the Major:

Students should complete a minimum of 18 units in Arts and Humanities courses:

AMSL 115  American Sign Language Level I
AMSL 116  American Sign Language Level II
AMSL 215  American Sign Language Level III
AMSL 216  American Sign Language Level IV
ANTH 103  Introduction to Cultural Anthropology
ARAB 101  First Course in Arabic
ARAB 102  Second Course in Arabic
ARAB 105  Elementary Spoken Egyptian Arabic
BLAS 110  Afro-American Art
BLAS 120  Black Music
BLAS 155  Afro-American Literature
CHIC 130  Mexican Literature in Translation
CHIC 135  Chicano Literature
CHIC 190  Chicano Images in Film
CHIC 210  Chicano Culture
ENGL 101  Reading and Composition
ENGL 105  Composition and Literature
ENGL 202  Introduction to Linguistics
ENGL 205  Critical Thinking and Intermediate Composition
ENGL 208  Introduction to Literature
ENGL 209  Literary Approaches to Film
ENGL 210  American Literature I
ENGL 211  American Literature II
ENGL 215  English Literature I: 800-1799
ENGL 216  English Literature II: 1800 - Present
ENGL 220  Masterpieces of World Literature I: 1500 BCE - 1600 CE
ENGL 221  Masterpieces of World Literature II: 1600 - Present
ENGL 230  Asian American Literature
ENGL 237  Women in Literature
ENGL 238  Evaluating Children’s Literature
ENGL 240  Shakespeare
ENGL 245  Writing Creative Nonfiction
ENGL 247  Writing Seminar - Poetry

Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Language Arts and Humanities

Description

These courses emphasize the study of cultural, literary, and humanistic activities of human beings. Students evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them in cultural creation. Students also learn to value aesthetic understanding and incorporate these concepts when constructing value judgments. Common university majors in this emphasis include: Advertising, American Studies, Broadcast Media,
ENGL 249 Introduction to Creative Writing
ENGL 253 Fundamentals of Fiction Writing
FREN 101 First Course in French
FREN 102 Second Course in French
FREN 201 Third Course In French
FREN 202 Fourth Course in French
GERM 101 First Course in German
GERM 102 Second Course in German
GERM 201 Third Course in German
HIST 100 World History I
HIST 101 World History II
HIST 105 Introduction to Western Civilization I
HIST 106 Introduction to Western Civilization II
HIST 120 Introduction to Asian Civilizations
HIST 121 Asian Civilizations in Modern Times
HUMA 101 Introduction to the Humanities I
HUMA 102 Introduction to the Humanities II
HUMA 103 Introduction to the New Testament
HUMA 106 World Religions
HUMA 201 Mythology
ITAL 101 First Course in Italian
ITAL 102 Second Course in Italian
ITAL 201 Third Course in Italian
JOUR 200 Introduction to Newswriting and Reporting
JOUR 201 Advanced Newswriting and Reporting
JOUR 202 Introduction to Mass Communication
JOUR 205 Editing for Print Journalism
JOUR 206 Online Journalism
JOUR 210A Newspaper Production
JOUR 210B Newspaper Production 2
JOUR 210C Newspaper Production 3
JOUR 210D Newspaper Production 4
LABR 100 American Labor Movement
LIBS 101 Information Literacy and Research Skills
MATH 119 Elementary Statistics
PHIL 100 Logic and Critical Thinking
PHIL 101 Symbolic Logic
PHIL 102A Introduction To Philosophy: Reality and Knowledge
PHIL 102B Introduction To Philosophy: Values
PHIL 104A History Of Western Philosophy
PHIL 104B History of Western Philosophy
PHIL 106 Asian Philosophy
PHIL 107 Reflections on Human Nature
PHIL 108 Perspectives on Human Nature and Society
PHIL 111 Philosophy In Literature
PHIL 125 Philosophy of Women
PHIL 126 Introduction to Philosophy of Contemporary Gender Issues
POLI 101 Introduction to Political Science
POLI 102 The American Political System
PSYC 101 General Psychology
PSYC 258 Behavioral Science Statistics
RTVC 107 Audio Production
RTVC 110 Introduction to Scriptwriting
RTVC 115 Radio and Television Management Principles
RTVC 100 Introduction To Radio and Television
RTVC 105 Media Performance
RTVC 118 Television Studio Operations
RTVC 122 Television Production
RTVC 124 Electronic Field Production
RTVC 126 Art Direction for Film and Television
RTVC 128 Lighting for Television and Film
RTVC 140 Radio and TV Newswriting
RTVC 160 Introduction to Cinema
RTVC 167 Motion Picture Production
RTVC 247A Radio Broadcasting Practicum
RTVC 247B Radio Broadcasting Practicum
RUSS 101 First Course in Russian
RUSS 102 Second Course in Russian
SPAN 101 First Course in Spanish
SPAN 102 Second Course in Spanish
SPAN 201 Third Course in Spanish
SPAN 215 Spanish for Spanish Speakers I
SPAN 202 Fourth Course in Spanish
SPAN 216 Spanish for Spanish Speakers II
SPEE 101 Voice and Articulation
SPEE 103 Oral Communication
SPEE 104 Advanced Public Communication
SPEE 111 Oral Interpretation
SPEE 135 Interpersonal Communication
SPEE 160 Argumentation
SPEE 170 Small Group Communication
SPEE 180 Intercultural Communication

Area of Emphasis in Scientific Studies:
These courses emphasize the study of mathematical and quantitative reasoning skills and impart knowledge of the facts and principles that form the foundations of living and non-living systems. Students recognize and appreciate the methodologies of science as investigative tools, as well as the limitations of scientific endeavors. This area is divided into the following specializations: Biological Science, Mathematics and Pre-engineering, Physical and Earth Sciences.

Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Scientific Studies Biological Sciences Specialization
The specialization in Biological Science is intended for students who plan to complete a bachelor’s degree at a transfer institution in a biology-related major. Common university majors in this field include:
Agricultural Science, Biochemistry, Bioengineering, Bioinformatics, Biological Sciences, Biophysics, Biotechnology, Botany, Cell Biology, Conservation, Developmental Biology, Ecology, Entomology, Life Science, Genetics, Marine Biology, Medical Sciences, Microbiology, Molecular Biology, Natural Sciences, Neuroscience, Psychobiology, Toxicology, and Zoology/Animal Sciences.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

Courses Required for the Major:

Students should complete a minimum of 18 units in Biological Science courses:
- BIOL 101, Issues in Environmental Biology (C)
- BIOL 107, General Biology - Lecture and Laboratory
- BIOL 110, Introduction to Oceanography (C, M)
- BIOL 115, Marine Biology
- BIOL 130, Human Heredity
- BIOL 135, Biology of Human Nutrition
- BIOL 180, Plants and People
- BIOL 200, Biological Statistics (C, M)
- BIOL 205, General Microbiology
- BIOL 210A, Introduction to the Biological Sciences I
- BIOL 210B, Introduction to the Biological Sciences II
- BIOL 215, Introduction to Zoology
- BIOL 230, Human Anatomy
- BIOL 235, Human Physiology
- CHEM 200, General Chemistry I - Lecture
- CHEM 200L, General Chemistry I - Laboratory
- CHEM 201, General Chemistry II Lecture
- CHEM 201L, General Chemistry II Laboratory
- CISC 150, Introduction to Computer and Information Sciences (C, M)
- CISC 181, Principles of Information Systems
- CISC 186, Visual Basic Programming
- CISC 187, Data Structures and Object Orientation (C, M)
- CISC 189A, Introduction to Programming I(C, M) and CISC 189B Introduction to Programming II (C, M) or CISC 190, Java Programming
- CISC 192, C/C++ Programming
- CISC 205, Object Oriented Programming Using C++ (C, MMR)
- CISC 220, Fundamentals of Computer Game Programming
- ELCT 111, Electrical Theory I
- ELCT 111L, Electrical Laboratory I
- ELCT 121, Electrical Theory II
- ELDT 121L, Electrical Laboratory II
- ELDT 124, Basic DC/AC Electronics
- ELDT 124L, Basic DC/AC Laboratory

Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Scientific Studies Mathematics and Pre-Engineering Specialization


This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

Courses Required for the Major:

Students should complete a minimum of 18 units including both Mathematics and Pre-Engineering courses:
- CHEM 200, General Chemistry I - Lecture
- CHEM 200L, General Chemistry I - Laboratory
- CHEM 201, General Chemistry II Lecture
- CHEM 201L, General Chemistry II Laboratory
- CISC 150, Introduction to Computer and Information Sciences (C, M)
- CISC 181, Principles of Information Systems
- CISC 186, Visual Basic Programming
- CISC 187, Data Structures and Object Orientation (C, M)
- CISC 189A, Introduction to Programming I(C, M) and CISC 189B Introduction to Programming II (C, M) or CISC 190, Java Programming
- CISC 192, C/C++ Programming
- CISC 205, Object Oriented Programming Using C++ (C, MMR)
- CISC 220, Fundamentals of Computer Game Programming
- ELCT 111, Electrical Theory I
- ELCT 111L, Electrical Laboratory I
- ELCT 121, Electrical Theory II
- ELDT 121L, Electrical Laboratory II
- ELDT 124, Basic DC/AC Electronics
- ELDT 124L, Basic DC/AC Laboratory
ELDT 125, DC/AC Circuit Analysis with Pspice
ELDT 125L, DC/AC Circuit Analysis Laboratory
ELDT 230, Advanced Computer Designs
ELDT 230L, Advanced Computer Designs Laboratory
ENGE 101, Introduction to Engineering (C)
ENGE 116, Computational Methods in Engineering
ENGE 151, Engineering Drawing (C, M)
ENGE 152, Engineering Design (C)
ENGE 200, Statics (C, M)
ENGE 210, Properties of Materials (C, M)
ENGE 240, Digital Systems (C, M)
ENGE 250, Dynamics (C, M)
ENGE 260, Electric Circuits (C, M)
MATH 104, Trigonometry
MATH 107, Introduction to Scientific Programming (C, M)
MATH 107L, Introduction to Scientific Programming Lab (C, M)
MATH 108, Intermediate Scientific Programming (C, M)
MATH 108L, Intermediate Scientific Programming Lab (C, M)
MATH 116, College and Matrix Algebra
MATH 118, A Survey of Modern Mathematics
MATH 119, Elementary Statistics
MATH 121, Basic Techniques of Applied Calculus I
MATH 122, Basic Techniques of Applied Calculus II
MATH 141, Precalculus
MATH 150, Calculus with Analytic Geometry II
MATH 151, Calculus with Analytic Geometry II
MATH 181, Mechatronics College Algebra and Trigonometry (C)
MATH 183, Mechatronics Calculus I (C)
MATH 237, Machine and Assembly Language (C, M)
MATH 237L, Assembly Language Lab (C, M)
MATH 245, Discrete Mathematics
MATH 252, Calculus with Analytic Geometry III
MATH 254, Introduction to Linear Algebra
MATH 255, Differential Equations
MCTR 102A, DC Circuits
MCTR 103A, AC Circuits
MCTR 120A, Basic Physics for Technical Applications I
MCTR 120B, Basic Physics for Technical Applications II
MCTR 120C, Basic Physics for Technical Applications III
MFET 101, Introduction to Manufacturing Engineering Technology or
MFET 101A, Introduction to Manufacturing I
MFET 110, Industrial Safety
MFET 120, Manufacturing Processes
MFET 210, Statistical Process Control
PHYS 180A, General Physics I
PHYS 181A, General Physics Lab I
PHYS 195, Mechanics
PHYS 196, Electricity and Magnetism
PHYS 197, Waves, Optics and Modern Physics

Physical and Earth Sciences Specialization:
The specialization in Physical and Earth Sciences is intended for students who plan to complete a bachelor’s degree at a transfer institution in a physical and earth science-related major. Common university majors in this field include: Astronomy, Astrophysics, Biochemistry, Biophysics, Chemical Engineering, Chemical Physics, Chemistry, Earth Sciences, Environmental Chemistry, Environmental Sciences, Engineering Physics, Geographic Information Science, Geology, Hydrologic Sciences, Meteorology, Natural Sciences, Oceanography, Physical Geography, Physical Science and Physics.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Scientific Studies Physical and Earth Sciences Specialization

Courses Required for the Major:
Students should complete a minimum of 18 units including both Physical and Earth Science courses:
ASTR 101 Descriptive Astronomy
ASTR 109 Practice in Observing
ASTR 111 Astronomy Laboratory
BIOL 200 Biological Statistics
CHEM 100 Fundamentals of Chemistry
CHEM 100L Fundamentals of Chemistry Laboratory
CHEM 111 Chemistry in Society
CHEM 111L Chemistry in Society Laboratory
CHEM 130 Introduction to Organic and Biological Chemistry
CHEM 130L Introduction to Organic and Biological Chemistry Laboratory
CHEM 152 Introduction to General Chemistry
CHEM 152L Introduction to General Chemistry Laboratory
CHEM 200 General Chemistry I - Lecture
CHEM 200L General Chemistry I - Laboratory
CHEM 201 General Chemistry II - Lecture
CHEM 201L General Chemistry II - Laboratory
CHEM 231 Organic Chemistry I - Lecture
CHEM 231L Organic Chemistry I - Laboratory
CHEM 233 Organic Chemistry II - Lecture
CHEM 233L Organic Chemistry II - Laboratory
CHEM 251 Analytical Chemistry
CISC 181 Principles of Information Systems
CISC 190 Java Programming
CISC 192 C/C++ Programming
GEOG 101 Physical Geography
GEOG 101L Physical Geography Laboratory
GEOG 102 Cultural Geography
GEOG 104 World Regional Geography
GEOL 100 General Geology
GEOL 101 General Geology Laboratory
GEOL 104 Earth Science
GISG 104 Geographic Information Science and Spatial Reasoning
GISG 110 Introduction to Mapping and Geographic Information Systems
MATH 119 Elementary Statistics
MATH 150 Calculus with Analytic Geometry I
MATH 151 Calculus with Analytic Geometry II
MATH 252 Calculus with Analytic Geometry III
PHYN 100 Survey of Physical Science
PHYN 101 Survey of Physical Science Laboratory
PHYS 100 Introductory Physics
PHYS 181A General Physics Laboratory I
PHYS 181B General Physics Laboratory II
PHYS 125 General Physics
PHYS 126 General Physics II
PHYS 180A General Physics I
PHYS 180B General Physics II
PHYS 195 Mechanics
PHYS 196 Electricity and Magnetism
PHYS 197 Waves, Optics and Modern Physics
PSYC 258 Behavioral Science Statistics

**Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Elementary (Multiple Subject) Teaching Preparation**

**Courses Required for the Major:**
Students should complete a minimum of 33 units in Elementary (Multiple Subject) Teaching Preparation courses:
- AMSL 116 American Sign Language Level II
- ARAB 102 Second Course in Arabic
- ARTF 100 Art Orientation
- BIOL 107 General Biology-Lecture and Laboratory
- BIOL 210A Introduction to the Biological Sciences I
- BLAS 106 Black Oral Expression and Interpretation
- BLAS 140A History of the U.S., Black Perspectives
- BLAS 140B History Of The U.S., Black Perspectives
- CHEM 111 Chemistry in Society
- CHEM 111L Chemistry in Society Laboratory
- CHIC 141A United States History from a Chicano Perspective
- CHIC 141B United States History from a Chicano Perspective
- CHIL 101 Human Growth and Development
- DANC 181 Introduction to Dance
- DRAM 103 Acting for Non-majors
- DRAM 105 Introduction to Dramatic Arts
- EDUC 200 Teaching as a Profession
- EDUC 203 Service Learning for Prospective Teachers
- ENGL 101 Reading and Composition
- ENGL 105 Composition and Literature
- ENGL 205 Critical Thinking and Intermediate Composition
- ENGL 208 Introduction to Literature
- ENGL 220 Masterpieces of World Literature I: 1500 BCE - 1600 CE
- ENGL 221 Masterpieces of World Literature II: 1600 - Present
- FREN 102 Second Course in French
- GEOG 104 World Regional Geography
- GEOL 101 General Geology Laboratory
- GEOL 104 Earth Science
- GERM 102 Second Course in German
- HEAL 190 Health Education For Teachers
- HIST 100 World History I
- HIST 101 World History II
- HIST 109 History of the United States I
- HIST 110 History of the United States II
- HUMA 106 World Religions
- ITAL 102 Second Course in Italian
- LIBS 101 Information Literacy and Research Skills
- MATH 210A Concepts of Elementary School Mathematics I

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**Area of Emphasis in Elementary (Multiple Subject) Teaching Preparation:**

These courses are intended for students who plan to complete a bachelor's degree at a transfer institution in preparation for a California Multiple Subject Teaching Credential. Most students pursue this credential with the goal of becoming an elementary school or special education teacher. Common university majors in this field include: Liberal Studies, Human Development, Interdisciplinary Studies, and Teacher Preparation.

This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.
MATH 210B Concepts of Elementary School Mathematics II
MATH 212 Children’s Mathematical Thinking
MUSI 100 Introduction to Music
MUSI 108 The Business of Music
MUSI 109 World Music
MUSI 110 Music for Elementary School Teachers
MUSI 111 Jazz - History and Development
PHIL 100 Logic and Critical Thinking
PHIL 102A Introduction To Philosophy: Reality and Knowledge
PHIL 103 Historical Introduction To Philosophy
PHIL 205 Critical Thinking and Writing in Philosophy
PHYE 240 Physical Education in the Elementary Schools
PHIL 102B Introduction To Philosophy: Values
PHIL 104A History Of Western Philosophy
PHIL 104B History of Western Philosophy
PHYN 100 Survey of Physical Science
PHYN 101 Survey of Physical Science Laboratory
POLI 102 The American Political System
PSYC 101 General Psychology
PSYC 230 Psychology of Lifespan Development
SPAN 101 First Course in Spanish
SPAN 102 Second Course in Spanish
SPEE 103 Oral Communication
SPEE 135 Interpersonal Communication
SPEE 170 Small Group Communication
SPEE 160 Argumentation
SPEE 160 Argumentation

Area of Emphasis in Social and Behavioral Sciences:

These courses emphasize a multidisciplinary approach to the understanding and study of human behavior. Students evaluate and interpret human societies; the institutions, organizations and groups that compose them; and the way individuals and groups relate to one another. Students develop an appreciation of the various approaches and methodologies of the disciplines.


This degree is designed to accommodate the differing requirements of a wide variety of transfer institutions and major options. Because admission and major preparation requirements vary at each transfer institution, courses used to complete this major should be selected with the assistance of a San Diego City College counselor.

Associate in Arts Degree: Liberal Arts and Sciences with an Emphasis in Social and Behavioral Sciences

Courses Required for the Major:
Students should complete a minimum of 18 units including both Social and Behavioral Science courses:
ADJU 101 Introduction to Administration of Justice
ADJU 102 Criminal Law I
ANTH 102 Introduction to Physical Anthropology
ANTH 103 Introduction to Cultural Anthropology
ANTH 104 Laboratory in Physical Anthropology
ANTH 107 Introduction to Archaeology
ANTH 115 Introduction to Archaeological Field Work
ANTH 210 Introduction to California Indians
ANTH 215 Cultures of Latin America
BIOL 200 Biological Statistics
BLAS 100 Introduction to Black Studies
BLAS 104 Black Psychology
BLAS 106 Black Oral Expression and Interpretation
BLAS 115 Sociology from a Black Perspective
BLAS 116 Contemporary Social Problems from a Black Perspective
BLAS 120 Black Music
BLAS 130 The Black Family
BLAS 135 Introduction to Black Politics
BLAS 140A History of the U.S., Black Perspectives
BLAS 140B History Of The U.S., Black Perspectives
BLAS 145A Introduction to African History
BLAS 145B Introduction to African History
BLAS 150 Black Women in Literature and the Media
BLAS 155 Afro-American Literature
BLAS 165 Sexuality and Black Culture
CHIC 110A Introduction to Chicano Studies
CHIC 110B Introduction to Chicano Studies
CHIC 130 Mexican Literature in Translation
CHIC 135 Chicano Literature
CHIC 138 Literature of La Raza in Latin America in Translation
CHIC 141A United States History from a Chicano Perspective
CHIC 141B United States History from a Chicano Perspective
CHIC 150 History of Mexico
CHIC 170 La Chicana
CHIC 190 Chicano Images in Film
CHIC 201 Pre-Columbian Cultures of MesoAmerica
CHIC 210 Chicano Culture
CHIL 101 Human Growth and Development
CHIL 121 Curriculum: Art
CHIL 131 Curriculum: Language/Science
CHIL 141 The Child, Family and Community
CHIL 151 Program Planning
CHIL 152 School Age Program Planning
CHIL 160 Observing and Understanding Children
CHIL 161 Observations and Issues in Child Development
CHIL 162 Observing and Guiding Child Behavior
CHIL 165 Children With Special Needs
CHIL 175 Infant-Toddler Growth and Development
CHIL 176 Principles of Infant/Toddler Caregiving
CHIL 180 Nutrition, Health and Safety for Children
CHIL 202 Administration of Early Childhood Programs
CHIL 210 Supervision of Early Childhood Programs
CISC 181 Principles of Information Systems
CISC 190 Java Programming
FUTR 101 Introduction to Futures Studies
GEND 101 Introduction to Gender Studies
GEOG 102 Cultural Geography
GEOG 104 World Regional Geography
HIST 100 World History I
HIST 101 World History II
HIST 105 Introduction to Western Civilization I
HIST 106 Introduction to Western Civilization II
HIST 109 History of the United States I
HIST 110 History of the United States II
HIST 115A History of the Americas I
HIST 115B History of the Americas II
HIST 120 Introduction to Asian Civilizations
HIST 121 Asian Civilizations in Modern Times
HIST 123 U.S. History from the Asian Pacific American Perspective
HUMS 101 Introduction to Human Aging
HUMS 110 Social Work Fields of Service
HUMS 120 Introduction to Social Work
LIBS 101 Information Literacy and Research Skills
MATH 119 Elementary Statistics
POLI 101 Introduction to Political Science
POLI 102 The American Political System
POLI 103 Comparative Politics
POLI 140 Contemporary International Politics
PSYC 101 General Psychology
PSYC 135 Marriage and Family Relations
PSYC 137 Human Sexual Behavior
PSYC 155 Introduction to Personality
PSYC 166 Introduction to Social Psychology
PSYC 211 Learning
PSYC 230 Psychology of Lifespan Development
PSYC 245 Abnormal Psychology
PSYC 255 Introduction to Psychological Research
PSYC 258 Behavioral Science Statistics
PSYC 260 Introduction to Physiological Psychology
SOCO 101 Principles of Sociology
SOCO 110 Contemporary Social Problems
SOCO 125 Sociology of the Family
SOCO 150 Sociology of Latinos/Latinas
SOCO 201 Advanced Principles of Sociology
SOCO 223 Globalization and Social Change
SPAN 201 Third Course in Spanish

There is currently no program in Library Science. The following course is offered and may be used as an associate degree elective.

**Courses**

**Library Science (LIBS)**

**101 Information Literacy and Research Skills**
1 hour lecture, 1 unit
Letter Grade or Pass/No Pass Option

Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels RS and W5; or English 37A, English 37B, or English 64 each with a grade of “C” or better, or equivalent.

This course is an overview of information resources and the skills required to use them effectively. Students learn how to use library resources such as electronic indexes and databases, online services, and the Internet, as well as learn to develop strategies for conducting research. This course is intended for students who wish to acquire skills that enable them to find information for academic research, career
Mathematics

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Machine and Manufacturing Technology
“Engineering Technology” on page 257

Description
Mathematics is the study of numbers, structures, and associated relationships using rigorously defined literal, numerical and operational symbols. Given certain conditions about systems of numbers or other structures mathematicians derive conclusions based on logical arguments. Basic mathematical skills enable a person to solve numerical problems encountered in daily life, and more advanced skills have numerous applications in the physical, social and life sciences.

Program Emphasis
The mathematics curriculum includes courses that range from basic skills through differential equations. The basic skills and associate degree level courses provide students with the mathematical preparation necessary for study in other disciplines, as well as for degree and transfer requirements. Successful completion of a mathematics degree will develop competence in mathematics through differential and integral calculus, providing an adequate background for employment in many technological and scientific areas. Furthermore, it provides a firm foundation for students planning to study mathematics, engineering, economics, computer science, physical, or life sciences.

Faculty

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<thead>
<tr>
<th>Name</th>
<th>Office</th>
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<tbody>
<tr>
<td>Misael Camarena</td>
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<td>Theresa Gallo</td>
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<td>Carlos de la Lama</td>
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<tr>
<td>Lan Hong</td>
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<td>Karon Klipple</td>
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<td>Kirsten Lollis</td>
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<td>Jim Mahler</td>
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<td>Nick Slinglend</td>
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<td>Manfred C. Smith</td>
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<tr>
<td>Yu-Hua A. Sun</td>
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<tr>
<td>Carolyn R. Thomas</td>
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<tr>
<td>Mathematics Center</td>
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<td>619-388-3580</td>
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</table>

Career Options
Most of these occupations require education beyond the associate degree, and some may require a graduate degree. The following list is not intended as a comprehensive list of career options in mathematics: actuary, appraiser, assessor, auditor, biometrician, budget analyst, controller, computer analyst, computer programmer, demographer, econometrician, engineering analyst, epidemiologist, financial analyst, investment analyst, management scientist, operations researcher, research mathematician, statistician, surveyor, systems analyst, teacher, technical writer, and urban planner.

Student Learning Outcomes

Math Developmental Program
Students who complete the program will be able to:

- Provide examples of on-campus resources for math support.
- Perform mathematical operations on various structures, including fractions, without the use of technology.
• Translate word problems into mathematical expressions or equations.
• Solve equations properly, logically and with written explanations.

Math Transfer Program
Students who complete the program will be able to:
• Analyze, model, and clearly and effectively communicate a solution to a math problem.
• Apply mathematical skills to solve real-world situations relevant to their major.
• Analyze functions by several means and incorporate these into the use of problem solving.
• Apply technology to enhance mathematical thinking and understanding and to solve mathematical problems.

Academic Programs
The associate degree in Mathematics requires completion of the courses listed below. Additional general education and graduation requirements for the associate degree are listed in the catalog. The associate degree requires a minimum of 60 units.

Associate in Arts Degree: Mathematics

Courses Required for the Major: Units
MATH 150, Calculus & Analytical Geometry I ................5
MATH 151, Calculus & Analytical Geometry II ...............4
MATH 245, Discrete Mathematics......................................3
MATH 252, Calculus & Analytical Geometry III..............4
MATH 254, Introduction to Linear Algebra ....................3
Select three to four units from:
MATH 107, 107L, Introduction to Scientific Programming and Lab ...................................................3,1
MATH 108, 108L, Intermediate Scientific Programming & Lab ...................................................3,1
MATH 150, Calculus & Analytical Geometry I..............5
MATH 151, Calculus & Analytical Geometry II............4
MATH 237, 237L, Machine & Assembly Language & Lab ...................................................3,1
MATH 245, Discrete Mathematics.................................3
MATH 252, Calculus & Analytical Geometry III.........4
MATH 254, Introduction to Linear Algebra.................3
Total Units = 22-23


Transfer Information
Common university majors related to the field of Mathematics include:

Course Requirements for Transfer Students
Students who plan to transfer to a four year college or university and earn a bachelor’s degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student’s specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

Courses

Basic Skills Courses
All courses at this level are offered for college credit. Credit for these courses will not apply toward the associate degree but will count toward the
determination of a student’s workload and eligibility for financial aid.

15A Prealgebra Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed the math assessment with a level of M20 (prealgebra) and wish to improve their placement level; those students who have successfully completed Mathematics 38 but need more review; or students who unsuccessfully attempted Mathematics 46 and need review of prealgebra skills. The course will consist of lecture classes and/or independent study using a computer program to refresh those concepts identified as needed for each student. Successful completion of this course may serve as a basis for a petition to challenge Mathematics 38. This course will not replace a failing grade in Mathematics 38. Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

15B Elementary Algebra and Geometry Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed the math assessment with a level of M30 (beginning algebra and geometry) and wish to improve their placement level; students who have successfully completed Math 15A; students who have successfully completed Math 46 but need more review; or students who unsuccessfully attempted Math 96 and need review of beginning algebra and geometry skills. The course will consist of personalized computer assisted instruction to refresh those concepts identified as needed for each student. Successful completion of this course may serve as a basis for a petition to challenge Mathematics 38. This course will not replace a failing grade in Mathematics 38. Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

15C Intermediate Algebra and Geometry Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed the math assessment with a level of M40 (intermediate algebra and geometry) and wish to improve their placement level; students who have successfully completed Math 15B; students who have successfully completed Math 96 but need more review; or students who unsuccessfully attempted Math 104, 116, 141 or 210A and need review of intermediate algebra and geometry skills. The course will consist of personalized computer assisted instruction to refresh those concepts identified as needed for each student. Successful completion of this course may serve as a basis for a petition to challenge Math 96. This course will not replace a failing grade in Math 96. Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

15D Geometry Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed a high school geometry course or for those students who have completed Math 96 and need to review geometric principles prior to taking Math 210B or trigonometry. The course will consist of independent study using a computer program to refresh those concepts identified as needed for each student. (FT) Not Applicable to Associate Degree, pre-collegiate basic skills, English as a Second Language.

15E Trigonometry Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed the math assessment with a level of M50 who need to review their trigonometry knowledge prior to taking precalculus or calculus. Students begin at the level of their original placement and, working at their own pace, may improve their placement up to M60 (precalculus level). This course consists of independent study using a computer program to refresh those concepts identified as needed for each student. (FT) Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

15F College Algebra Refresher

3 hours lab, 1 unit
Pass/No Pass Only

This course is intended for those students who have completed the math assessment with a level of M50 and need to review their college algebra knowledge prior to taking either calculus sequence. This course will consist of personalized computer assisted instruction to refresh those concepts identified as needed for each student. Students will begin at the level of their original placement and, working at their own pace, may improve their placement. Successful completion of this course may serve as a basis for a petition to challenge College Algebra. Students wishing to challenge Pre-calculus must also show
competence in Trigonometry, which may be done by completing Math 15E. (FT) Not applicable to the Associate Degree.

34A Basic Mathematics and Study Skills
4 hours lecture, 4 units
Letter Grade or Pass/No Pass Option
(Formerly Mathematics 32)
Advisory: English 42 or English for Speakers of Other Languages 31, with a grade of "C" or better, or equivalent, or Assessment Skill Levels R4 or L40.
Limitation on Enrollment: This course is not open to students with previous credit for Mathematics 32.
This course is an introduction to fundamental concepts of arithmetic. Emphasis is placed on par addition, subtraction, multiplication, division and exponentiation on whole numbers, fractions, and decimals. Topics also include simple percents and ratios, systems of measurement, and applications of these topics. Students learn basic study skills necessary for success in mathematics courses. This course is intended for students preparing for Pre-algebra. (FT) Not applicable to the Associate Degree.

38 Pre-Algebra and Study Skills
4 hours lecture, 4 units
Letter Grade or Pass/No Pass Option
(Formerly Mathematics 35)
Advisory: English 42 or English for Speakers of Other Languages 31 and Mathematics 34A, with a grade of "C" or better, or equivalent, or Assessment Skill Levels R4 or L40 and M20.
Limitation on Enrollment: This course is not open to students with previous credit for Mathematics 32.
This course is a study of the fundamentals of arithmetic operations with signed numbers, including fractions and decimals as well as an introduction to some elementary topics in beginning algebra. Topics also include ratios and proportions, perfect squares and their square roots, elementary topics in geometry, systems of measurement, and monomial arithmetic. Students learn basic study skills necessary for success in mathematics courses. This course is intended for students preparing for Beginning Algebra. (FT) Not applicable to the Associate Degree.

42 Fundamentals of Mathematics
3 hours lecture, 3 units
Pass/No Pass Only
Limitation on Enrollment: This course is not open to students with previous credit for Mathematics 34A or 95.
This course is intended for students who have not passed the California State University Entry-Level Mathematics Examination (ELM). This course reviews arithmetic and geometric concepts, and covers topics in elementary algebra including operations with polynomials, factoring, rational expressions, expressions involving radicals, solving non-linear equations, graphing linear equations, and solving linear systems of equations in two variables. Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

43 Algebra for Math Placement
3 hours lecture, 3 units
Pass/No Pass Only
Advisory: Mathematics 42 with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Mathematics 96, 100 or 91.
This course is a continuation of Mathematics 042 and is intended for those students who have not passed the California State University Entry-Level Mathematics Examination (ELM). This course is designed to prepare students for college algebra and consists of a review of intermediate algebra concepts. Topics for the class include set and function notation, simplifications and solutions to equations involving rational and radical expressions, quadratic equations and functions, complex numbers, exponential and logarithmic functions and applications. Not Applicable to Associate Degree, pre-collegiate basic skills - reading, writing, computation.

46 Elementary Algebra and Geometry
5 hours lecture, 5 units
Letter Grade or Pass/No Pass Option
(Formerly Mathematics 95)
Prerequisite: Mathematics 38 with a grade of "C" or better, or equivalent, or Assessment Skill Level M30.
Advisory: Completion of or concurrent enrollment in: English 43 and English 48, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels W4 and R5.
Limitation on Enrollment: This course is not open to students with previous credit for Mathematics 95 with a grade of "C" or better.
Elementary algebra and geometry serves as the foundation for the other math courses and is the first of a two-course integrated sequence in algebra and geometry intended to prepare students for transfer level mathematics. This course covers the real number system; writing, simplifying, solving and graphing of linear equations in one variable; solving linear inequalities in one variable; solving systems of linear equations in two variables; algebraic operations with
polynomial expressions and factoring; functions; operations involving rational expressions and related equations; and geometric properties of lines, angles, and triangles. This course is intended for students preparing for higher-level geometry and algebra courses. (FT) Not Applicable to Associate Degree, basic skills.

### Associate Degree Credit Courses

**85 Practical Career Mathematics**

3 hours lecture, 3 units  
Grade Only

**Prerequisite:** Mathematics 46 with a grade of "C" or better, or equivalent, or Assessment Skill Level M40.  
**Advisory:** English 43 with a grade of "C" or better, or equivalent, or Assessment Skill Level W4.  
This course is a study of the practical applications of linear, quadratic and exponential growth models. Topics also include statistical methods, geometry, right triangle trigonometry and finance math. This course will develop math literacy through the use of current events and real life applications. This course is designed for students who are earning an associate's degree and who are not planning to transfer to a four-year institution. (FT) Associate Degree Credit only and not Transferable.

**96 Intermediate Algebra and Geometry**

5 hours lecture, 5 units  
Letter Grade or Pass/No Pass Option

**Prerequisite:** Mathematics 46 with a grade of "C" or better, or equivalent or Assessment Skill Level M40.  
**Advisory:** English 43 and English 48, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.  
Intermediate Algebra and Geometry is the second of a two-semester integrated sequence in algebra and geometry. This course covers systems of equations and inequalities; radical and quadratic equations; quadratic functions and their graphs; complex numbers; nonlinear inequalities; exponentials and logarithmic functions; conic sections; sequences and series; and solid geometry. The course will also include application problems involving the topics covered. This course is the prerequisite for numerous collegiate level/transfer level mathematics courses. (FT) Associate Degree Credit only and not Transferable.

**98 Technical Intermediate Algebra and Geometry**

4 hours lecture, 4 units  
Letter Grade or Pass/No Pass Option

**Prerequisite:** Mathematics 46 with a grade of "C" or better, or equivalent or Assessment Skill Level M40.  
**Advisory:** English 48 and English 49, each with a grade of "C" or better, or equivalent or Assessment Skill Levels R5 and W5.  
This course introduces an applied technology approach to problem solving in Intermediate Algebra and Geometry, and it is intended to support the curriculum required in the Engineering and applied technologies majors. Students are expected to apply problem solving techniques to technology-based situations in their technical physics and applied technology courses. Topics include scientific notation, algebra of functions, linear systems of equations, graphing using log and semi-log paper, technology applications of quadratic, exponential and logarithmic functions, right triangle trigonometry, applications in electronics of vectors and phasors. Special emphasis will be placed on the use of the graphing calculator and mathematical software packages to solve application problems. (FT) Associate Degree Credit only and not Transferable.

### Transfer Level Courses

**104 Trigonometry**

3 hours lecture, 3 units  
Grade Only

**Prerequisite:** Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.  
This course is a study of the numerical, analytical, and geometric properties of right and oblique triangles, of trigonometric and inverse trigonometric functions, and their applications. The course content includes right angle trigonometry, radian measure, circular functions, graphs of circular functions and their inverses, trigonometric identities, equations involving trigonometric and inverse trigonometric functions, an introduction of the complex plane, vectors and their operations, and the trigonometric form of complex numbers. This course is designed as a preparation for calculus and it is intended for the transfer student planning to major in mathematics, engineering, economics, or disciplines included in the physical or life sciences. This course meets CSU general education requirements. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.
107 Introduction to Scientific Programming
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.
Corequisite: Mathematics 107L.
Advisory: English 48 with a grade of "C" or better, or equivalent, or Assessment Skill Level R5.
This course is an introduction to mathematical and scientific problem-solving on a computer; focusing on designing algorithms of a high level programming language. Extensive programming is required. Students are expected to plan and write programming projects with documentation. This course is recommended for students transferring to majors in Computer Science and/or mathematics. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

107L Introduction to Scientific Programming Lab
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Mathematics 107.
This is a lab course to be taken concurrently with Mathematics 107. Extensive programming is required. Students are expected to plan and write programming projects with documentation. This course is recommended for students transferring to majors in Computer Science and/or mathematics. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

108 Intermediate Scientific Programming
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 107 with a grade of "C" or better, or equivalent.
Advisory: Concurrent enrollment in Mathematics 108L.
This course provides further training in program design and development, especially with regard to large projects. Advanced techniques in programming are studied along with basic data structures and algorithms. Problem-solving techniques in the fields of engineering, mathematics, and the sciences are covered. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

108L Intermediate Scientific Programming Lab
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Mathematics 108.
This is a lab course open only to those concurrently enrolled in Mathematics 108. Extensive programming is required. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

116 College and Matrix Algebra
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.
This course is designed to strengthen the algebra skills of students seeking Business or Natural Science degrees who are required to take an applied calculus course. Topics in the course include the theory of functions; graphing functions; exponential and logarithmic functions; solving equations involving algebraic, exponential and logarithmic functions; solving systems of linear equations; matrix algebra; linear programming; modeling; and applications problems. Analytical reading and problem solving skills are required for success in this course. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 116 and 141 combined: maximum credit, one course.

118 A Survey of Modern Mathematics
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6.
This course covers topics in probability, statistics, logical reasoning, quantitative literacy, the history of mathematics, and applications of mathematics to the real world. This is a general education course designed for students who do not intend to prepare for a career in science or business. Analytical reading and problem solving are required for success in this course. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

119 Elementary Statistics
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.
This course covers descriptive and inferential statistics. The descriptive portion analyzes data through graphs, measures of central tendency and spread. Other statistical practices utilize basic probability, binomial and normal distributions, estimation of population parameters, hypothesis testing, linear regression and correlation. Analytical reading and problem solving are required for success in this course. This course meets district G.E. requirements. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 119, Biology (BIOL) 200, or Psychology (PSYC) 258 combined: maximum credit, one course.

**121 Basic Techniques of Applied Calculus I**  
*3 hours lecture, 3 units*  
**Letter Grade or Pass/No Pass Option**  
*Prerequisite*: Mathematics 116 with a grade of "C" or better, or equivalent.  
This course examines the study of calculus using numerical, graphical, and analytical methods to analyze calculus problems encountered in real-world applications in business, natural/life sciences, and social sciences. Topics include limits, derivatives, and integrals of algebraic, exponential, and logarithmic functions, curve sketching, optimization, and areas under and between curves and partial derivatives and optimization of multivariable functions. This is the first course in a sequence of mathematics courses for students intending to major in business, economics, or natural and social sciences. This course does not fulfill a mathematics requirement for mathematics, chemistry, physics, or engineering majors at most universities. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 116 and 141 combined: maximum credit, one course.

**122 Basic Techniques of Calculus II**  
*3 hours lecture, 3 units*  
**Letter Grade or Pass/No Pass Option**  
*Prerequisite*: Mathematics 121 with a grade of "C" or better, or equivalent.  
This second course in a math sequence covers methods of integration, multivariable functions and optimization problems, differential equations, Taylor series development and application, derivatives and integrals of trigonometric functions, and their usage in solving problems encountered in real-world applications in business, life and social sciences and economics. It is intended for students majoring in business, natural science, social science and economics. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 122 and 151 combined: maximum credit, one course.

**141 Precalculus**  
*5 hours lecture, 5 units*  
**Letter Grade or Pass/No Pass Option**  
*Prerequisite*: Mathematics 104 with a grade of "C" or better, or equivalent.  
This course is a study of numerical, analytical, and graphical properties of functions. The course content includes polynomial, rational, irrational, exponential, logarithmic, and trigonometric functions. Additional topics include: inverse functions, complex numbers, polar coordinates, matrices, conic sections, sequences, series and the binomial theorem. This course is designed as a preparation for calculus and is intended for the transfer student planning to major in mathematics, engineering, economics, or disciplines included in the physical or life sciences. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 141 combined: maximum credit, one course.

**150 Calculus with Analytic Geometry I**  
*5 hours lecture, 5 units*  
**Letter Grade or Pass/No Pass Option**  
*Prerequisite*: Mathematics 141 with a grade of "C" or better, or equivalent.  
This course is a primary introduction to university level calculus. The topics of study include analytic geometry, limits, differentiation and integration of algebraic and transcendental functions. Emphasis is placed on calculus applications. Analytical reading and problem solving are required for success in this course. This course is intended for the transfer student planning to major in mathematics, computer science, physics, chemistry, engineering, or economics. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Mathematics (MATH) 121 and 150 combined: maximum credit, one course.

**150L Calculus I Laboratory**  
*3 hours lab, 1 unit*  
**Letter Grade or Pass/No Pass Option**  
*Prerequisite*: Mathematics 141 with a grade of "C" or better, or equivalent.  
This course is a workshop, project-oriented course dealing with exploration and development of the calculus topics introduced in Calculus and Analytic Geometry I. This course directly supports the calculus
Mathematics

151 Calculus with Analytic Geometry II
4 hours lecture, 4 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 150 with a grade of "C" or better, or equivalent.
This is a continuation of Mathematics 150. This course covers more advanced topics in analytic geometry, differentiation and integration of algebraic and transcendental functions, infinite series, Taylor series, and parametric equations. This course also covers a general introduction to the theory and applications of power series, techniques of integration, and functions in polar coordinates, at it serves as a basis for multivariable calculus and differential equations, as well as most upper division courses in mathematics and engineering. It is intended for the transfer student planning to major in mathematics, computer science, physics, chemistry, engineering and economics. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

181 Mecomtronics College Algebra and Trigonometry I
3 hours lecture, 3 units
Grade Only
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50. Advisory: This course is intended for students enrolled in the first semester Engineering Technology/ Mecomtronics program.
This course is the first semester of a four-semester sequence in applied college algebra and trigonometry, and applied technical calculus. Students are expected to apply the mathematical problem solving techniques developed in this course in the real world situations presented and discussed in the program's technology and science courses. Topics include the algebra of functions, graphing algebraic functions, exponential and logarithmic functions, linear systems of equations, matrices and matrix operations, trigonometric functions and their graphs, trigonometric identities, complex numbers, vector algebra, descriptive statistics, an introduction to series and summation notation, an introduction to Boolean algebra and symbolic logic, and the use of the graphing calculator to solve application problems. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

182 Mecomtronics College Algebra and Trigonometry II
3 hours lecture, 3 units
Grade Only
Prerequisite: Mathematics 181 with a grade of "C" or better, or equivalent.
Advisory: This course is intended for students enrolled in the second semester Engineering Technology/ Mecomtronics program.
This course is the second semester of a four-semester sequence in applied college algebra and trigonometry, and applied technical calculus. Students are expected to implement the mathematical problem solving techniques developed in this course in the real world situations presented and discussed in the Mecomtronics technology and science courses. Topics covered are a continuation of those introduced in Mathematics 181. Topics include applications of exponential and logarithmic functions, graphs of trigonometric functions, inverse trigonometric functions, Riemann sums, polynomial approximations of special transcendental functions, vector algebra, spherical and cylindrical coordinates, conic sections, the binomial theorem, an introduction to Boolean algebra and symbolic logic, and the use of the graphing calculator to solve application problems. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

183 Mecomtronics Calculus I
3 hours lecture, 3 units
Grade Only
Prerequisite: Mathematics 182 with a grade of "C" or better, or equivalent.
Advisory: This course is intended for students enrolled in the third semester Engineering Technology/ Mecomtronics program.
This course is the third semester of a four-semester sequence in applied college algebra and trigonometry, and applied technical calculus. Students are expected to implement the
mathematical problem solving techniques developed in this course in the real world situations presented and discussed in the Engineering Technology/Mecomtronics program's technology and science courses. Topics include limits, continuity, differentiation of algebraic and transcendental functions, an introduction to multivariable functions and their partial derivatives, Riemann sums, integration by substitution and by parts, separable and linear first order differential equations, applications in technology and physics, and the use of the graphing calculator to solve application problems. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

184 Mecomtronics Calculus II
3 hours lecture, 3 units
Grade Only
Prerequisite: Mathematics 183 with a grade of "C" or better, or equivalent.
Advisory: This course is intended for students enrolled in the fourth semester Engineering Technology/Mecomtronics program.
This course is the fourth semester of a four-semester sequence in applied college algebra and trigonometry, and applied technical calculus.
Students are expected to apply analytical reading and mathematical problem solving techniques developed in this course in real world situations presented and discussed in the Engineering Technology/Mecomtronics program's technology and science courses. Topics include Taylor series, Fourier series, techniques of multivariable calculus including partial derivatives, multiple integrals, line and surface integrals, applications in physics and technology of vector calculus theorems, first and second order differential equations, variation of parameters, and Laplace transforms. A strong emphasis is placed on calculus applications in the engineering technology field. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

210A Concepts of Elementary School Mathematics I
3 hours lecture, 3 units
Grade Only
Prerequisite: Mathematics 96 with a grade of "C" or better, or Assessment Skill Level M50.
Advisory: English 101 with a grade of "C" or better, or Assessment Skill Level R6/W6 or English 105 with a grade of "C" or better, or equivalent.
This course is the second course in a one-year sequence in the study of the mathematical concepts needed for teaching elementary school mathematics with emphasis on geometry, transformational geometry, and measurement. This course also promotes an appreciation of the importance of logical thinking and applications of mathematics in problem solving and critical thinking. It studies the understanding and explanation of the basic mathematical concepts and the connections between them. It is designed especially for students preparing for credentials in elementary education. Analytical reading and problem solving are required for success in this course. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course Limitation: UC Transfer Limitation: Mathematics (MATH) 210A and 210B combined: maximum credit, one course.

212 Children's Mathematical Thinking
1 hour lecture, 1 unit
Grade Only
Corequisite: Completion of or concurrent enrollment in: Mathematics 210A with a grade of "C" or better, or Assessment Skill Level R6/W6 and R6.
This course focuses on children's mathematical thinking and includes an in-depth study of place-value, fractions and how children solve mathematical problems.
problems. Students observe children and evaluate the problem strategies that are used. This course is intended for students pursuing a Multiple Subject Credential. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

237 Machine and Assembly Language

3 hours lecture, 3 units

Letter Grade or Pass/No Pass Option

Prerequisite: Mathematics 108 with a grade of "C" or better, or equivalent.
Corequisite: Mathematics 237L.
Limitation on Enrollment: This course is not open to students with credit for Mathematics 137.
This course covers general concepts of machine and assembly languages, including data representation, looping and addressing techniques, subroutine linkage, and use of system and programmer-defined macros. Problem-solving techniques in the fields of engineering, mathematics, and the sciences are covered. This course is designed for computer science and mathematics majors who are intending to transfer to a four-year university. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

237L Assembly Language Lab

3 hours lab, 1 unit

Letter Grade or Pass/No Pass Option

Corequisite: Mathematics 237.
Limitation on Enrollment: This course is not open to students with credit for Mathematics 137L.
This is a lab course to be taken concurrently with Mathematics 237. Practice is provided in applying programming techniques and problem solving skills using assembly language. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

245 Discrete Mathematics

3 hours lecture, 3 units

Letter Grade or Pass/No Pass Option

Prerequisite: Mathematics 122 or 151 with a grade of "C" or better, or equivalent.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Level W6 and R6.
This course is an introduction to the theory of discrete mathematics and introduces elementary concepts in logic, set theory, number theory, and combinatorics. The topics covered include prepositional and predicate logic, methods of proof, set theory, Boolean algebra, number theory, equivalence and order relations, counting techniques, and recursion. This course forms a basis for upper division courses in mathematics and computer science and it is intended for the transfer student planning to major in these disciplines. Associate Degree Credit & transfer to CSU and/or Private colleges and universities. UC Transfer Course List.
255 Differential Equations
3 hours lecture, 3 units
Grade Only

Prerequisite: Mathematics 252 and 254, each with a grade of “C” or better, or equivalent.

Limitation on Enrollment: This course is not open to students with credit for Mathematics 253.

This course covers first order and higher order equations and their applications. Topics include linear first order and higher order equations, homogeneous and nonhomogeneous equations with constant or variable coefficients, and systems of ordinary differential equations. Methods used to solve equations include substitution methods, integrating factors, reduction of order, variation of parameters, power series solutions, and Laplace Transforms. This course is intended as an introduction to the theory and applications of differential equations and is the basis for many upper division courses in engineering, physics, and mathematics. It is intended for the transfer student planning to major in mathematics, engineering, operational research, physics, or other physical science. This course meets CSU general education requirements. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

290 Independent Study
Hours by Arrangement, 1-3 units
Letter Grade or Pass/No Pass Option

Limitation on Enrollment: Must obtain an Add Code from instructor for registration.

This course is for advanced students who wish to pursue special investigations. This course may be taken four times with different content for a maximum of six units. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Music
See “Visual and Performing Arts” on page 409.

Multimedia
See “Communications” on page 192.
Inquiries regarding accreditation may be made by contacting the BRN at 400 R Street, Suite 4030, Sacramento, CA 94244, (916) 322-3350 or NLNAC at 3343 Peachtree Rd. NE, Suite 500 Atlanta, GA 30326.

Directed Clinical Practice Requirement
Students accepted into this program will be required to successfully complete Directed Clinical Practice/clinically-based courses held in health care facilities. These facilities require background checks and urine drug screening as a condition of placement.

Refusal to submit to a background check, or failure to meet clearance criteria established by the health care facility, may prevent placement in the Directed Clinical Practice/clinically-based course and thus, it may not be possible to successfully progress or complete the program.

Health care facilities also require adherence to strict standards of conduct. Facilities may refuse educational access to any person who does not adhere to the facility's standards of safety, health and ethical behavior. This may be cause for removal from the program.

Career Options
Some careers in nursing require education beyond the associate degree. The Registered Nurse cares for clients of all ages in a variety of clinical areas. Registered Nurses may be employed at the entry level in a variety of settings such as hospitals, skilled nursing facilities, clinics and home health agencies.

Student Learning Outcomes
Students who complete the program will be able to:

- Make clinical judgments and management decisions to ensure accurate and safe client care.
- Practice within the ethical, legal and regulatory frameworks of professional nursing practice.
- Use standards of nursing practice to perform and evaluate client care.
- Participate in life-long learning.

Academic Programs
The Associate in Science degree in Nursing requires completion of the nursing courses. Additional general education and graduation requirements for the associate degree are listed on page 73 in the catalog.

Associate in Science Degree:
Nursing Education

Program Prerequisites
Prerequisites in this program will be enforced. All program prerequisites must be completed with a grade of “C” or better. In addition, the combined grade-point average for prerequisites must be 2.5 or higher.

Prerequisites

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIOL 205</strong>, General Microbiology</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>BIOL 230, Human Anatomy</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>BIOL 235</strong>, Human Physiology</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Must be completed within a seven-year period preceding qualifying date of eligibility. Eligibility refers to the date completed application materials, including official transcripts, are filed with the Nursing Admissions Advisor. Students may also be required to complete Biology 107 and Chemistry 100 and 100L. Refer to Biology course descriptions for specific information.

Sample Curriculum Plan

Courses Required for the Major:   Units

Semester I:
NRSE 101, Interactions in Nursing .............................. 1
NRSE 102, Fundamental Nursing Concepts & Skills I ......................... 4.5
NRSE 103, Fundamental Nursing Concepts & Skills II ................................................. 4.5
NRSE 104, Pharmacology for Nursing Practice ........................................................ 1
* ENGL 101, Reading & Composition or equivalent ........................................... 3
*Physical Education activity course .................................................................. 1

**Semester II:**
NRSE 105, Adult Health Nursing I ...................................................................... 5
NRSE 107, Adult Health Nursing II .................................................................... 5
* SOC 101, Principles of Sociology or
* SOC 110, Contemporary Social Problems or equivalent .................................... 3
* PSYC 101, General Psychology ...................................................................... 3

**Semester III:**
NRSE 202, Adult Health Nursing III .................................................................... 4.5
NRSE 203, Psychosocial & Gerontological Nursing ............................................. 4.5
* SPEE 103, Oral Communication or
* SPEE 135, Interpersonal Communication ..................................................... 3
* Humanities .................................................................................................... 3

**Semester IV:**
NRSE 204, Family Health Nursing ...................................................................... 5
NRSE 205, Transition to the Registered Nurse Role ............................................. 4
* SOC 101, Principles of Sociology or
* SOC 110, Contemporary Social Problems or equivalent .................................... 3
* SPEE 103, Oral Communication or
* SPEE 135, Interpersonal Communication ..................................................... 3

**Total Program Units = 72**

**Recommended Electives:** Nursing Education 108, 206, 290, 296.

*It is strongly recommended that all of the general education requirements be completed prior to admission to the nursing education program or during summer sessions.

**Associate in Science Degree:**
Nursing Education

**Licensed Vocational Nurse to Registered Nurse (Advanced Placement)**

**Program Prerequisites**
All program prerequisites must be completed with a grade of “C” or better. In addition, the combined grade-point average for prerequisites must be 2.5 or higher. A copy of a current and active California Vocational Nursing License must also be submitted with application materials.

**Prerequisites**

** BIOL 205, General Microbiology .................................................. 5
 BIOL 230, Human Anatomy ............................................................... 4
 ** BIOL 235, Human Physiology ................................................... 4

**Total Program Units = 71**

**Recommended Electives:** Nursing Education 108, 206, 290, 296.

*It is strongly recommended that all general education requirements be completed prior to admission to the nursing education program.

**Nursing Education**
Registered Nurse Program,
LVN Thirty-Unit Option

**Program Prerequisites**
All program prerequisites must be completed with a grade of “C” or better. A copy of a current and active California Vocational Nursing License must also be submitted with application materials.

**Prerequisites**

** BIOL 205, General Microbiology .................................................. 5
 ** BIOL 235, Human Physiology ................................................... 4**

including official transcripts, are filed with the Nursing Admissions Advisor. Students may also be required to complete Biology 107 and Chemistry 100 and 100L. Refer to Biology course descriptions for specific information.

**Sample Curriculum Plan**

**Courses Required for the Major:**

**Spring Semester (or when offered):**
NRSE 201, Transition to Associate Degree Nursing .................................... 2
* ENGL 101, Reading & Composition or equivalent .................................... 3

**Semester I:**
NRSE 202, Adult Health Nursing III ............................................................. 4.5
NRSE 203, Psychosocial & Gerontological Nursing ....................................... 4.5
* PSYC 101, General Psychology ................................................................ 3
* Humanities .................................................................................................. 3

**Semester II:**
NRSE 204, Family Health Nursing ................................................................. 5
NRSE 205, Transition to the Registered Nurse Role ........................................ 4
* SPEE 103, Oral Communication or
* SPEE 135, Interpersonal Communication ................................................ 3
* SOC 101, Principles of Sociology or
* SOC 110, Contemporary Social Problems or equivalent .......................... 3

**Total Program Units = 72**

Additional courses required for the associate degree:
* American Institutions .............................................................................. 6
* Physical Education activity courses ......................................................... 2
Credit for previous Vocational Nursing Education is given as earned credit upon completion of Associate Degree requirements ..................................................... 15

**Total Program Units = 71**

**Recommended Electives:** Nursing Education 108, 206, 290, 296.
**Must be completed within a seven-year period preceding the qualifying date of eligibility. Eligibility refers to the date completed application materials including official transcripts are filed with the Nursing Admissions Advisor. Students may also be required to complete Biology 107 and Chemistry 100 and 100L. Refer to Biology course descriptions for specific information.

Sample Curriculum Plan

Spring Session (or when offered):
NRSE 201, Transition to Associate Degree Nursing.....2

Semester I:
NRSE 202, Adult Health Nursing III......................... 4.5
NRSE 203, Psychosocial & Gerontological Nursing . 4.5

Semester II:
NRSE 204, Family Health Nursing ............................5
NRSE 205, Transition to the Registered Nurse Role.....4

Total Units = 29

Note: Other states may not recognize the LVN Thirty-Unit Option as a method to satisfy the requirements for licensure as a Registered Nurse. Interested candidates are urged to contact the respective Boards of Nursing for additional information.

Transfer Information

Common university majors related to the field of Nursing include: Nursing.

Course Requirements for Transfer Students

Students who plan to transfer to a four year college or university and earn a bachelor’s degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences. This degree can be tailored to each student’s specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Guide section of the catalog.

Courses

Nursing Education (NRSE)

The hours listed in the catalog are based on an 18 week session. Nursing courses are scheduled in 9 week blocks, doubling weekly lecture and lab hours listed.

101 Interactions in Nursing

1 hour lecture, 1 unit
Grade Only

Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.

This course is intended for first year students pursuing an Associate of Science Degree in Nursing. Emphasis is placed on assisting the learner to develop and implement interpersonal communication skills within personal, professional and therapeutic relationships. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

102 Fundamental Nursing Concepts and Skills I

2.5 hours lecture, 6 hours lab, 4.5 units
Grade Only

Prerequisite: Biology 205, 230, and 235, each with a grade of "C" or better, or equivalent.

Corequisite: Completion of or concurrent enrollment in Nursing Education 101 with a grade of "C" or better, or equivalent.

Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.

The course is intended for first year students pursuing an Associate of Science Degree in Nursing. This course introduces the learner to the philosophy and conceptual framework of the nursing program and roles of the associate degree nurse. Emphasis is on meeting the client’s basic needs throughout the life cycle, utilizing the steps of the nursing process. Basic skills of client care are practiced in the college laboratory with supervised clinical experiences in acute care, long-term care, or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

103 Fundamental Nursing Concepts and Skills II

2.5 hours lecture, 6 hours lab, 4.5 units
Grade Only

Prerequisite: Nursing Education 101 and Nursing Education 102, each with a grade of "C" or better, or equivalent.

Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
Limitation on Enrollment: Students must be enrolled in the nursing program. This course is intended for first year students pursuing an Associate of Science Degree in Nursing. The emphasis is on the development of physical assessment skills and fundamental principles of nursing care of clients throughout the life cycle. Basic skills of client assessment and care are practiced in the college laboratory with supervised clinical experiences in acute care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

104 Pharmacology for Nursing Practice  
1 hour lecture, 1 unit  
Grade Only  
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5. This course is intended for first year students pursuing an Associate of Science Degree in Nursing. Emphasis is placed on introduction to basic concepts of pharmacology. Legal, ethical, psychological, cultural and age-specific aspects of drug therapy will be presented. A nursing process approach to the principles of medication administration and dosage calculation will be included. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

105 Adult Health Nursing I  
2.5 hours lecture, 7.5 hours lab, 5 units  
Grade Only  
Prerequisite: Nursing Education 101, 103, and 104, each with a grade of "C" or better, or equivalent  
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5. This course is intended for first year students pursuing an Associate of Science Degree in Nursing. Emphasis is placed on the need for nutrition, elimination, activity/rest/sleep, and neurological integrity in the adult client, utilizing the nursing process to achieve and maintain maximum functioning. Advanced nursing care skills are practiced in the college laboratory with supervised clinical experiences in acute care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

107 Adult Health Nursing II  
2.5 hours lecture, 7.5 hours lab, 5 units  
Grade Only  
Prerequisite: Nursing Education 101, 103, and 104, each with a grade of "C" or better, or equivalent  
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5. This course is intended for first year students pursuing an Associate of Science Degree in Nursing. Emphasis is placed on the need for nutrition, elimination, activity/rest/sleep, and neurological integrity in the adult client, utilizing the nursing process to achieve and maintain maximum functioning. Advanced nursing care skills are practiced in the college laboratory with supervised clinical experiences in acute care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

108 Nursing Skills Laboratory I  
.5 hour lecture, 1.5 hours lab, 1 unit  
Pass/No Pass Only  
Corequisite: Current enrollment in the Nursing Education program. This course is intended for first year students pursuing an Associate of Science Degree in Nursing. It provides students an additional opportunity for practice and mastery of designated psychomotor skills. There is a review of related theoretical concepts and supervised practice of basic client care skills that are concurrently presented in the regular program. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

140 Foundations of Nursing  
2 hours lecture, 7.5 hours lab, 4.5 units  
Grade Only  
Prerequisite: Biology 205, 230 and 235, each with a grade of "C" or better, or equivalent  
Corequisite: Completion of or concurrent enrollment in: Nursing Education 141 with a grade of "C" or better, or equivalent  
Advisory: English 101 and Mathematics 96, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6, W6 and M50. Limitation on Enrollment: Special Admission - must be admitted to program. This course provides an introduction to nursing and the roles of the associate degree nurse, the nursing process, critical thinking, knowledge and foundational skills necessary for beginning level assessment and interventions (procedures) for adults. It also introduces the learner to the philosophy and
conceptual framework of the nursing program. The emphasis is on meeting the client’s basic needs throughout the life cycle. Introductory skills of client care are practiced in the skills and simulation laboratories with supervised clinical experiences in a variety of health settings. This course is offered to students enrolled in the first semester of the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

141 Pharmacology for Nursing
1 hour lecture, 1 unit
Grade Only
Corequisite: Completion of or concurrent enrollment in: Nursing Education 140 with a grade of "C" or better, or equivalent.
Advisory: English 101 and Mathematics 96, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6, W6 and M50.
Limitation on Enrollment: Special Admission - must be admitted to program.
This course introduces basic concepts of pharmacology. Legal, ethical, psychological, cultural and age-specific aspects of drug therapy are presented. A nursing process approach to the principles of medication administration and dosage calculation is included. This course is offered to students enrolled in the first semester of the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

142 Medical Surgical Nursing I
2 hours lecture, 7.5 hours lab, 4.5 units
Grade Only
Prerequisite: Nursing Education 140 and 141, each with a grade of "C" or better, or equivalent.
Limitation on Enrollment: Special Admission - must be admitted to program.
The course is an introduction to nursing concepts and practices as they relate to the young adult through geriatric adult in the medical surgical environment. Through utilization of the nursing process, the student begins to recognize alterations in physical and physiological functioning or illness and formulates age-appropriate nursing interventions. Selected psychomotor skills associated with the basic human needs, medication administration and intravenous therapy are studied and practiced. This course is offered to students enrolled in the first semester of the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

143 Pharmacology for Nursing II
1 hour lecture, 1 unit
Pass/No Pass
Corequisite: Completion of or concurrent enrollment in: Nursing Education 142.
This course provides supplementary instruction on pharmacologic intervention for medical surgical disorders. Emphasis is placed on drug categories and medications used in medical surgical nursing care environments. A nursing process approach to the principles of medication administration and dosage calculation is included. This course is offered to students enrolled in the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

144 Medical Surgical Nursing II
2 hours lecture, 7.5 hours lab, 4.5 units
Grade Only
Prerequisite: Nursing Education 142 with a grade of "C" or better, or equivalent.
Limitation on Enrollment: Special Admission - must be admitted to program.
This course develops the first year nursing student's knowledge and skills as they relate to the adult non-critical moderately complex medical-surgical client. Through utilization of the nursing process, the student recognizes alterations in functioning or illness and formulates age-appropriate nursing interventions. Psychomotor skills associated with moderately complex needs, medication administration and intravenous therapy are studied and practiced. The impact of multiple nursing diagnoses on client outcomes is introduced. This course is offered to nursing students enrolled in the second semester of the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

145 Pharmacology for Nursing III
1 hour lecture, 1 unit
Pass/No Pass
Corequisite: Completion of or concurrent enrollment in: Nursing Education 144.
This course emphasizes drug categories and medications used in acute medical/surgical environments. A nursing process approach to the principles of medication administration and dosage calculation is included. This course is offered to students enrolled in the Associate of Science Degree in Nursing program. Associate Degree Credit &
146 Maternal-Child Health Nursing
2.25 hours lecture, 6.75 hours lab, 4.5 units
Grade Only

Prerequisite: Nursing Education 142 with a grade of "C" or better, or equivalent.
Limitation on Enrollment: Special Admission - must be admitted to program.
This course focuses on integration and application of the nursing process as it relates to the nursing care of the childbearing family, children and their families. Emphasis is on the concepts and skills related to age-appropriate, family centered care. Clinical experiences provide opportunities for students to participate in therapeutic activities in a variety of pediatric and obstetrical settings. This course is offered to nursing students enrolled in the second semester of the Associate of Science Degree in Nursing program. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

147 Pharmacology for Nursing IV
1 hour lecture, 1 unit
Pass/No Pass

Corequisite: Completion of or concurrent enrollment in: Nursing Education 146.
This course emphasizes drug categories and medications used in Reproductive Health, Obstetrics and Pediatrics. A nursing process approach to the principles of medication administration and dosage calculation is included. This course is offered to students enrolled in the Associate of Science Degree in Nursing program. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

201 Transition to Associate Degree Nursing
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only

Prerequisite: BIOL 205, 230 and 235, each with a grade of "C" or better, or equivalent.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
This course is intended to facilitate the transition of advanced placement students (Licensed Vocational Nurses) into the Associate of Science Degree in Nursing. Emphasis is placed on concepts related to program philosophy, conceptual framework, cultural sensitivity, growth and development, nursing process, and role expectations. Advanced assessment skills are practiced in the on campus laboratory. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

202 Adult Health Nursing III
2 hours lecture, 7.5 hours lab, 4.5 units
Grade Only

Prerequisite: Nursing Education 105 and 107 or 201.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
This course is intended for second year students pursuing an Associate of Science Degree in Nursing. Emphasis is placed on the need for oxygenation, circulation, regulation and safety in the adult client, utilizing the nursing process to achieve and maintain maximum functioning. Clinical experiences may include acute care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

203 Psychosocial and Gerontological Nursing
2 hours lecture, 7.5 hours lab, 4.5 units
Grade Only

Prerequisite: Nursing Education 105 and 107 or 201.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
This course is intended for second year students pursuing an Associate of Science Degree in Nursing. It has two distinct components. The emphasis of the psychosocial component is on the effect of psychophysiologic problems on the client's ability to meet the need for love, belonging and self-esteem. The emphasis of the gerontological component is on the physiological and psychosocial changes of the older adult. The nursing process is utilized to achieve and maintain maximum functioning of the client throughout the life cycle. Clinical experiences may include acute care, chronic care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

204 Family Health Nursing
2 hours lecture, 9 hours lab, 5 units
Grade Only

Prerequisite: Nursing Education 202 and 203.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
This course is intended for second year students pursuing an Associate of Science Degree in Nursing. Emphasis is on the needs of the childbearing family and the well/ill child, utilizing the nursing process to
assist the family to achieve and maintain maximum functioning. Clinical experiences may include acute care, long-term care or community settings. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

205 Transition to the Registered Nurse Role
1.5 hours lecture, 7.5 hours lab, 4 units
Grade Only
Prerequisite: Nursing Education 202 and 203.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Level R5 and W5.
This course is intended for second year students pursuing an Associate of Science Degree in Nursing. The course focuses on the transition from student to staff nurse, emphasizing the responsibilities of planning, organizing, directing, and coordinating client care. The course includes the principles of leadership, delegation, time management, decision-making, collegial communication, group dynamics, conflict resolution and change. The clinical preceptorship experience requires the application of all previously learned concepts and skills. Acute care, long-term care or community settings will be utilized. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

206 Nursing Skills Laboratory II
.5 hour lecture, 1.5 hours lab, 1 unit
Pass/No Pass Only
Corequisite: Current enrollment in the Nursing Education program.
This course is intended for first year students pursuing an Associate of Science Degree in Nursing. It provides students an additional opportunity for practice and mastery of designated psychomotor skills. There is a review of related theoretical concepts and supervised practice of advanced client care skills that are concurrently presented in the regular program. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

270 Occupational Work Experience in Nursing Education
Hours by Arrangement (One unit of credit is earned for each 75 hours of paid employment or 60 hours of volunteer work.), 1-4 units
Grade Only
Prerequisite: Nursing 101, 102, 103, 104, 105, and 107, each with a grade of "C" or better, or equivalent.
A work-experience course authorized by the Board of Registered Nursing whereby a student is employed by or volunteers at a clinical site with which the Nursing Education Program has a current affiliation agreement. The clinical site supports the objectives of the course and provides direct supervision of students through RN mentors and preceptors. The student applies previously learned nursing theory and clinical skills to the performance of client care. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

290 Independent Study
Hours by Arrangement, 1-3 Units
Pass/No Pass Only
Limitation on Enrollment: Must obtain an Add Code from Program Director for registration.
This course provides students with an opportunity for additional research and academic or clinical experience in a particular area of nursing. This course may be taken four times with different content for a maximum of six units. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Vocational Nursing
Description
Nursing is a profession which provides health care to individuals of all ages. Nursing encompasses many activities including health promotion, health maintenance, health care during illness and injury, and rehabilitation. Nurses apply knowledge from the biological, physical, behavioral and nursing sciences to care for clients in varied settings. The purpose of the San Diego City College Vocational Nursing program is to provide an educational opportunity for qualified individuals interested in a career in nursing. Upon successful completion of program requirements, graduates are eligible to take the National Council Licensure Examination for Practical Nurses (NCLEX-PN). Inquiries regarding program approval may be made by contacting the Board of Vocational Nursing at 2535 Capitol Oaks Rd., Sacramento, CA 95833, 916-263-7800.
Clinically Based Course Requirements
Students accepted into this program will be required to successfully complete clinically based courses held in health care facilities. These facilities may require background checks, including fingerprinting, as a condition of placement. Refusal to submit to a background check, or failure to meet clearance criteria established by the health care facility, may prevent placement in the clinically-based course, and thus, it may not be possible to successfully progress or complete the program. Health care facilities also require adherence to strict standards of conduct. Facilities may refuse educational access to any person who does not adhere to the facility’s standard of safety, health and ethical behavior. This may be cause for removal from the program.

Career Options
Licensed Vocational Nurse

Student Learning Outcomes
Students who complete the program will be able to:
• Be eligible to sit for the National Council Licensure Exam for Practical Nurses (NCLEX-PN).
• Utilize the nursing process to provide care to clients throughout the life span.
• Demonstrate caring behavior, an understanding of client physical and psychosocial needs, and cultural sensitivity.
• Collaborate with members of the health care team to implement comprehensive patient care while demonstrating ethical and professional practice within the scope of practice of a Licensed Vocational Nurse (LVN).

Certificate of Achievement: Vocational Nursing

Program Prerequisites
Admission to this program requires a High School Diploma or GED, successful completion of ROP Health Care Essentials with grade of 75% or higher, or equivalent, and current, valid Certified Nurse Assistant certification by the California Department of Health Services.

Courses Required for the Major: Units
VNUR 60, Pharmacology for Vocational Nurses I ........... 1.5
VNUR 61, Fundamentals of Vocational Nursing .......... 9.5
VNUR 62, Pharmacology for Vocational Nurses II ....... 1.5
VNUR 64, Nutrition for Vocational Nurses ................. 1.5
VNUR 65, Medical Surgical Vocational Nursing I ...... 10.5
VNUR 66, Vocational Nursing Leadership .................. 1.5
VNUR 67, Maternal/Child and Mental Health Vocational Nursing .................................................. 12
VNUR 69, Medical Surgical Vocational Nursing II ....... 4.5
Total Units = 42.5

Courses

Vocational Nursing (VNUR)

50 Healthcare Essentials
5.5 hours lecture, 5.5 units
Grade Only

Limitation on Enrollment: This course is not open to students with previous credit for Vocational Nursing 40. This course is designed for students interested in entering a nursing or other health career program. Topics include strategies for success, interpersonal dynamics, medical terminology, safety issues, computer literacy, body structure and function, growth and development, ethical and legal responsibilities, and employment readiness. (FT) Associate Degree Credit only and not Transferable.

60 Pharmacology for Vocational Nurses I
1.5 hours lecture, 1.5 units
Grade Only

Prerequisite: Vocational Nursing 50 with a grade of “C” or better, or equivalent.
Corequisite: Vocational Nursing 61.
Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 42. Pharmacology for Vocational Nursing I is the first of two pharmacology courses in the Vocational Nursing program. It provides a solid foundation for the nursing student including a basic understanding of the nurse’s role in medication administration and the uses of medications to treat and prevent illnesses. Drug actions, interactions, side effects, therapeutic monitoring, and adverse reactions are discussed and related to pathophysiology. (FT) Associate Degree Credit only and not Transferable.

61 Fundamentals of Vocational Nursing
4.5 hours lecture, 16 hours lab, 9.5 units
Grade Only

Prerequisite: Vocational Nursing 50 with a grade of “C” or better, or equivalent.
Corequisite: Vocational Nursing 60 with a grade of "C" or better, or equivalent.  
Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 41.

The Fundamentals of Vocational Nursing course is the introductory theory course in the Vocational Nursing program. It provides a solid foundation for the nursing student to learn the background, basic skills, legal aspects, ethics, and processes of nursing. (FT)  
Associate Degree Credit only and not Transferable.

62 Pharmacology for Vocational Nurses II  
1.5 hours lecture, 1.5 units  
Grade Only  
Prerequisite: Vocational Nursing 60 and Vocational Nursing 61, each with a grade of "C" or better, or equivalent.  
Corequisite: Completion of or concurrent enrollment in: Vocational Nursing 65 with a grade of "C" or better, or equivalent.  
Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 48.

Pharmacology for Vocational Nurses II is the second of two pharmacology courses in the Vocational Nursing program. It builds on the basic pharmacology course to enable the nursing student to develop a broader understanding of the nurse's role in medication administration and how medications are used to treat and prevent illnesses. Drug actions, interactions, side effects, therapeutic monitoring, and adverse reactions are discussed and related to pathophysiology. Drug categories not studied in the introductory course are explored to complete the study of pharmacology in healthcare. The course is designed for the student progressing through the Vocational Nursing Program with a base knowledge obtained in prerequisite courses. (FT)  
Associate Degree Credit only and not Transferable.

64 Nutrition for Vocational Nurses  
1.5 hours lecture, 1.5 units  
Grade Only  
Prerequisite: Vocational Nursing 60 and Vocational Nursing 61, each with a grade of "C" or better, or equivalent.  
Corequisite: Completion of or concurrent enrollment in: Vocational Nursing 69 with a grade of "C" or better, or equivalent.  
Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 43.

The Nutrition for Vocational Nurses course provides an introductory study of nutrition in health care to the Vocational Nursing student. Nutrition is considered a vital component of the care of the whole person. The nursing student needs to have a basic understanding of the importance of nutrition to be able to assist and teach clients about making good choices according to their healthcare needs. The course is designed for the student progressing through the Vocational Nursing program. (FT)  
Associate Degree Credit only and not Transferable.

65 Medical Surgical Vocational Nursing I  
5.5 hours lecture, 15 hours lab, 10.5 units  
Grade Only  
Prerequisite: Vocational Nursing 60 and 61, each with a grade of "C" or better, or equivalent.  
Corequisite: Completion of or concurrent enrollment in: Vocational Nursing 64 with a grade of "C" or better, or equivalent.  
Limitation on Enrollment: Special Admission - must be admitted to program.  
Limitation on Enrollment: This course is not open to students with previous credit for Vocational Nursing 45.

The Medical Surgical Vocational Nursing course is the first of two courses in the Vocational Nursing program covering nursing care of medical/surgical patients. The course includes a clinical component and focuses on each body system with related disorders, the pathophysiology, assessment findings, medical, surgical and nursing management of these specific disorders. The course covers related nutritional, pharmacological, growth and development, and psychosocial issues as appropriate. In addition, the special needs of older adults are explored. The course is designed to build upon knowledge and skills set obtained in prerequisite courses that comprise the Vocational Nursing program. (FT)  
Associate Degree Credit only and not Transferable.

66 Vocational Nursing Leadership  
1.5 hours lecture, 1.5 units  
Grade Only  
Prerequisite: Vocational Nursing 65 and 69, each with a grade of "C" or better, or equivalent.  
Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 49.

This Vocational Nursing Leadership course prepares the student for professional practice and leadership as
a licensed vocational nurse. It builds on the foundations of basic and advanced medical surgical nursing and provides an opportunity to learn the critical path to leadership development in the transition from nursing student to nursing leader. Students explore such areas as paradigm thinking, theoretical frameworks for management, searching for the perfect job, mentoring, the application process, becoming a change agent, conflict resolution, employee motivation, team building, assignments, coaching, and performance analysis within the context of the 21st Century healthcare system. The course is designed for the student in the final portion of the Vocational Nursing program. (FT) Associate Degree Credit only and not Transferable.

67 Maternal/Child and Mental Health Vocational Nursing

7 hours lecture, 16 hours lab, 12 units

Prerequisite: Vocational Nursing 60 and Vocational Nursing 65 with a grade of "C" or better, or equivalent.

Limitation on Enrollment: Special Admission - must be admitted to program. This course is not open to students with previous credit for Vocational Nursing 46.

The Maternal/Child and Mental Health Vocational Nursing course enables the student to participate in the nursing care of the maternity client, newborn and family throughout pregnancy, labor, delivery, pediatric and the postpartum period in both normal and high-risk circumstances. It also provides a solid foundation in mental health nursing. The clinical component provides practical applications of the course objectives. The course is designed for the student progressing through the Vocational Nursing program. (FT) Associate Degree Credit only and not Transferable.

69 Medical Surgical Vocational Nursing II

3.5 hours lecture, 3 hours lab, 4.5 units

Prerequisite: Vocational Nursing 64, 65 and 67, each with a grade of "C" or better, or equivalent.

Corequisite: Completion of or concurrent enrollment in: Vocational Nursing 62 and 66, each with a grade of "C" or better, or equivalent.

Limitation on Enrollment: Special Admission - must be admitted to program.

Limitation on Enrollment: This course is not open to students with previous credit for Vocational Nursing 47.

The Advanced Medical Surgical Vocational Nursing course is the second of two medical/surgical courses in the Vocational Nursing program. This course builds on the skills and knowledge base developed during Medical/Surgical Vocational Nursing I and continues to cover nursing care of medical surgical patients. The course focuses on body systems with related disorders, and the pathophysiology, assessment findings, medical, surgical and nursing management of these specific disorders. The course covers related nutritional, pharmacological, growth and development, and psychosocial issues as appropriate. In addition, the special needs of young and middle adults are also explored. This course is designed for the student in the last portion of the Vocational Nursing Program. (FT) Associate Degree Credit only and not Transferable.

Office Information Systems

See “Computer Business Technology” on page 208.

Peace Studies

Certificate of Performance

<table>
<thead>
<tr>
<th>Peace Studies</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>Peace Studies</td>
<td>17</td>
</tr>
</tbody>
</table>

Associate in Art

| Peace Studies | 26-28* |

*and courses to meet graduation requirements, general education and electives as needed to meet minimum of 60 units required for the degree.

Description

The Peace Studies Certificate and Associate Degree offers an interdisciplinary, theoretical, and practical approach for students to enter into the academic and/or professional field of Peace Studies. Students gain skills to critically analyze current affairs related to peace and conflict. Students evaluate global consequences of events leading to violent conflict to offer alternative solutions to create more peaceful, just and equitable societies. The Peace Studies program allows students to gain professional experience with
Program Goals
To provide the opportunity for the student to contemplate, analyze, and discuss issues related to peace and conflict on all levels; to apply theory in academic disciplines such as literature, anthropology, environmental science and philosophy to the field of peace studies; to critically think about their role in the world and their possible contributions to a more peaceful world; to demonstrate theories related to both positive and negative peace; to gain an understanding of the role of human rights and other moral and ethical concepts.

Program Emphasis
The four main pillars of the Peace Studies program are human rights, conflict studies, peace processes and the concept of justice in relation to peace. The program explores issues related to these four pillars on an inter/intra personal, communal, and global level. An emphasis is placed upon 1) the interdisciplinary nature of addressing issues related to peace and conflict, 2) active participation and involvement in the service learning component of the required capstone course, and 3) affective and analytical responses to concepts related to the four pillars.

Career Options:
This Associate Degree prepares students to enter into academic and professional fields related to peace studies. Available career tracks include working for non-profit agencies, international organizations, governmental agencies, public institutions and educational institutions. Students may select a professional or academic focus such as peace building, conflict management, mediation, international law, international relations, political science, history, environmental science, anthropology, comparative literature, peace psychology or philosophy. Most career options directly related to Peace Studies require a four year degree; however, some examples of career options may include: Program Coordinator, Human Rights Advocate, Community Liaison, Relief / Aid Worker, Peace Activist, Mediator, Resource Developer, Educator, Philanthropist, Environmentalist, Anthropologist, Event Coordinator, and Board Member for a Non-Profit Organization.

Certificate of Performance: Peace Studies*
Description
This certificate will provide students the tools to critically analyze issues related to peace, justice, and conflict.

Courses Required for the Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAC 101, Introduction to Peace Studies</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101, Issues in Environmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>ANTH 103, Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 102B, Introduction To Philosophy: Values</td>
<td>3</td>
</tr>
<tr>
<td>PEAC 277C, Service Learning -- Peace Studies</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 101, Reading and Composition or ENGL 105, Composition and Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Units = 17

*This is a department award in recognition of information on the transcript and does not imply that a graduation requirement has been met.

Associate in Arts: Peace Studies*

This Associate Degree provides students the tools to critically analyze issues related to peace, justice, and conflict.

Courses Required for the Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEAC 101, Introduction to Peace Studies</td>
<td>3</td>
</tr>
<tr>
<td>PEAC 277C, Service Learning -- Community: Peace Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>PEAC 102, Nonviolence and Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 101, Issues in Environmental Biology</td>
<td>4</td>
</tr>
<tr>
<td>PHIL 102B, Introduction To Philosophy: Values</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 103, Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>POLI 140, Contemporary International Politics</td>
<td>3</td>
</tr>
<tr>
<td>PEAC 201, Environmental Sustainability, Justice and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 208, Introduction to Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Units = 26-28

The following groups are recommended electives and will not lead to an individual certificate or emphasis but may meet the required 60 units for the Associate Degree in Peace Studies.
Recommended electives for students interested in Gender Studies: Gender Studies 101, History 141, 142, Philosophy 125, 126 and English 237.


Recommended electives for students interested in a Historical Perspective: History 100, 101, 120, 130, 132, 151, 168.

Recommended electives for students interested in Philosophy and Ethics: Humanities 106, 202, Philosophy 107, 108.

Recommended electives for students interested in Environmental Science and Sustainability: Biology 120, 180, Geographic Information Systems 104, 110, Sociology 223 and Futures Studies 101.

Recommended electives for students interested in English: English 205, 220, 221 and 245.

Courses

Peace Studies (PEAC)

101 Introduction to Peace Studies
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Level R6 and W6. This course provides an overview of the field of peace studies and offers an in-depth look into theories related to peace, conflict studies and non-violence. Students gain an understanding of the various tools and processes that are used internationally in working towards a more equitable, just and peaceful world. Contemporary case studies are explored offering students an interdisciplinary approach to the field in order to address the four main pillars of the Peace Studies program which are human rights, conflict studies, peace processes and the concept of justice in relation to peace. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities UC Transfer Course List.

201 Environmental Sustainability, Justice and Ethics
3 hours lecture, 3 units
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6. This course analyzes environmental issues related to sustainability, justice and ethics. Environmental sustainability theories are examined by addressing economic, cultural, social, political and ecological issues. The philosophical basis of environmental ethics provides a framework of the various worldviews and theoretical orientations. Students apply theories learned to assess international and national environmental justice case studies. This course is intended for students interested in Peace Studies, Sustainability and Environmental Ethics. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities UC Transfer Course List.
Personal Growth

Description
The Personal Growth program is designed for the first-time student at San Diego City College. The primary focus of the program is to help students develop critical thinking skills in relation to career, academic and life-planning goals.

Program Emphasis
Students are exposed to a variety of career assessment instruments which lead to greater self-understanding in relation to the decision making process in career and educational planning. Students become well versed in learning styles and theories, multicultural issues, and academic, community and campus resources.

Faculty Office Telephone
Catherine Lopez 619-388-3775
Rigo Reyes ECC 619-388-4910
John Rivera A-112E 619-388-3176

25 Student Government
1 hour lecture, 3 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Limitation on Enrollment: This course is not open to students with credit for Speech Communications 126A, B, or C.
The fundamentals of Student Government with emphasis on technique or democratic action among groups. Actual practice in various phases of Student Government will be provided. (FT) Associate Degree Credit only and not Transferable.

30 Career Planning
1-3 hours lecture, 1-3 units
Letter Grade or Pass/No Pass Option
This course is designed to assist students in making career choices. Topics include self-concept, values, interests, skills assessment, understanding the data/people/things orientation of work, job satisfiers, exploration of career information, and the decision-making process. (FT) Associate Degree Credit only and not Transferable.

32 Academic and Financial Planning
.44 - .5 hours lecture, 0 units
Pass/No Pass Only
Limitation on Enrollment: This course is open only to students who have completed the Mathematics and English Assessment Skill Level tests.
This course is designed to familiarize students with financial aid resources available to help them meet educational expenses. These resources include college and financial aid satisfactory academic progress policies; federal/state regulations for determining and maintaining eligibility for financial aid; student rights and responsibilities in receiving aid; strategies on becoming responsible consumers; money management; and accessing outside student aid resources. Emphasis is placed on effective use of all available on-campus resources and the development and implementation of a Student Educational Plan to meet educational objectives. (FT) Credit does not apply to the associate degree.

120 College Success and Lifelong Learning
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
Limitation on Enrollment: This course is not open to students with previous credit for Personal Growth 127.
This course teaches success strategies to enhance academic and lifelong learning skills. Students explore topics such as motivation and attitudes, values, goal setting, decision-making processes, critical and creative thinking, personal health topics, interpersonal communication, developmental psychology, and learning and personality theories, as well as other techniques for maximizing their abilities to succeed as lifelong learners. Students apply these topics as they relate to their self-development as integrated physiological and psychological entities and acquire strategies to effectively deal with issues in their personal lives and educational and career plans. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.
127 College Success Skills
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 with a grade of "C" or better, or equivalent, or Assessment Skill Level R5; and
completion of or concurrent enrollment in English 49
with a grade of "C" or better, or equivalent, or
Assessment Skill Level WS.
This course examines the techniques used to enhance
academic skills in order to achieve subject matter
mastery and develop strategies for success in a diverse
society. Critical thinking skills are interwoven
throughout the course by exploring areas such as
motivation and attitudes, stress management,
creativity, interpersonal communication, and personal
health. Topics from developmental psychology,
learning theory and personality theory are presented
as a foundation for this course. The course is designed
for new or re-entry students and others who can
benefit. (FT) Associate Degree Credit & transfer to CSU
and/or private colleges and universities. UC Transfer
Course List.

130 Career - Life Planning
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: Completion of or concurrent enrollment in:
English 48 and English 49, each with a grade of "C" or
better, or equivalent, or Assessment Skill Levels R5 and
WS.
Limitation on Enrollment: This course is not open to
students with previous credit for Personal Growth 30.
This course is designed to assist students with self-
exploration, career transitions and career-life planning
in order to achieve success in a diverse society. Critical
thinking skills will be utilized through a systematic
approach to career development by examining values,
interests, skills, life roles, personality type, personal
self-management, decision-making and goal-setting
throughout the life span. The course is designed for
new and re-entry students and others who can
benefit. (FT) Associate Degree Credit & transfer to CSU
and/or private colleges and universities.

140 Life Skills and Personal Adjustment
1-3 hours lecture, 1 - 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade
of "C" or better, or equivalent, or Assessment Skill
Levels R5 and WS.
This course is designed for students who want to learn
and acquire effective ways for developing their
emotional, social, educational, and professional life
skills. This course is a practical study of the principles
and application of strategies that assist in the
development of coping and life skills. Topics include
self-esteem and compassion, self-discipline, self-
responsibility, self-assertion, and living a consciously
balanced life in pursuit of defined educational, career,
and life goals. (FT) Associate Degree Credit & transfer
to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in
one or more of the following areas: Supervised
Tutoring (044), Experimental Topics (265),
Independent Study (290), Individualized Instruction
(296), Service Learning (277), or Work Experience
(270). Detailed course descriptions are listed on
page page 120. Please refer to the class schedule
and/or see the dean or department chair for
availability.

Description
The first objective of the philosophy program is to
teach students how to think critically emphasizing
analytic reasoning. In addition, students are prepared
for university-level philosophy courses. The study of
philosophy acquaints students with the nature of
philosophical activity and helps them increase critical
thinking skills about fundamental philosophic
concerns such as the nature of correct reasoning, the
scope and limits of human knowledge, characteristics
of reality and questions of value and obligation.
Philosophy relates to many other academic disciplines
and stresses systematic and abstract thought.
**Program Emphasis**
The Philosophy curriculum meets general education Humanities requirements for both the associate degree and universities, and prepares for transfer to university majors.

**Faculty**
- Catherine Harlow C-224A 619-388-3013
- William Stewart T-309A 619-388-3602

**Career Options**
Most careers in this list require education beyond the associate degree. A sample list of careers in which background knowledge of philosophy is appropriate include: education, human service vocations, law, management, medicine, publishing, scientific research, teaching, and theology.

**Academic Programs**
The associate degree in philosophy requires completion of the courses listed for the degree. Additional general education and graduation requirements for the associate degree are listed in the catalog. The associate degree requires a minimum of 60 units.

**Student Learning Outcomes**
- To increase the student's critical thinking skills in considering fundamental philosophical concerns such as the nature of correct reasoning, the scope and limits of human knowledge, characteristics of reality and questions of value and obligation.

**Associate in Arts Degree: Philosophy**

**Courses Required for the Major:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 100</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 101</td>
<td>Symbolic Logic</td>
<td>3</td>
</tr>
</tbody>
</table>

**Select one of the two-semester sequences:**

- PHIL 102A, Introduction To Philosophy: Reality and Knowledge
- PHIL 102B, Introduction To Philosophy: Values or
- PHIL 104A, History Of Western Philosophy
- PHIL 104B, History of Western Philosophy

**Select six units from:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 102A</td>
<td>Introduction To Philosophy: Reality and Knowledge</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 102B</td>
<td>Introduction To Philosophy: Values</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 104A</td>
<td>History Of Western Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 104B</td>
<td>History of Western Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 106</td>
<td>Asian Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 107</td>
<td>Reflections on Human Nature</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 110</td>
<td>Philosophy of Religion</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 111</td>
<td>Philosophy In Literature</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 125</td>
<td>Philosophy of Women</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 290</td>
<td>Independent Study</td>
<td>1-3</td>
</tr>
<tr>
<td>PHIL 296</td>
<td>Individualized Instruction in Philosophy</td>
<td>0.5-2</td>
</tr>
</tbody>
</table>

**Total Units = 18**

**Recommended electives:** Humanities 106, Philosophy 205.

**Transfer Information**
Common university majors related to the field of Philosophy include:
Human Communication, Liberal Studies, Philosophy, Religious Studies, Pre-Law.

**Course Requirements for Transfer Students**
Students who plan to transfer to a four year college or university and earn a bachelor’s degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student’s specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

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**Courses (PHIL)**

**100 Logic and Critical Thinking**
3 hours lecture, 3 units

*Letter Grade or Pass/No Pass Option*

*Advisory:* English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent.

This course explores the relationship of communications and critical thinking with a focus on good reasoning and the impediments to its mastery. This course emphasizes the development of skills in logical processes including familiarity with the more common fallacies. This course is designed for students learning to apply principles of critical thinking to the practical problems of everyday life. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.
101 Symbolic Logic
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50; and Philosophy 100 with a grade of "C" or better, or equivalent.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This course studies the elements of symbolic logic, sentential calculus and quantification theory, identity, definite descriptions, natural deduction and structure of language. This course may be of interest to students pursuing studies in computer science. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

102A Introduction To Philosophy: Reality and Knowledge
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 or English 105, with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6 and W6.
This course is an introductory study of the aims, methods, types and problems of philosophy and philosophical inquiry. Emphasis is placed on the nature of reality and knowledge. Materials for this survey of philosophy may draw from classical and contemporary thinkers. Students are encouraged to articulate, analyze, and evaluate their own beliefs/positions in the context of meaningful philosophical inquiry. This course is intended for anyone concerned with human existence and humanity's place in the universe. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

102B Introduction to Philosophy: Values
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; English 105 with a grade of "C" or better, or equivalent. This course provides an introductory study of the aims, methods, types and problems of philosophy and philosophical inquiry focusing on values and their place in an individual's daily life. Materials for this survey of philosophical activity, orientations and views of philosophers may be drawn from classical and contemporary thinkers. Students are encouraged to articulate, analyze and evaluate their own beliefs/positions in the context of meaningful philosophical inquiry regarding value theory. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

104A History of Western Philosophy
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This course explores the issues and problems associated with philosophy and philosophical activity as they are illustrated in the history of Western philosophy. Studies in this course focus on representative thinkers of the Classical and/or Medieval periods, their cultural milieu, and their attempts to resolve perennial philosophical issues and problems. This course may be of interest to students pursuing studies in History and Humanities. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

104B History of Western Philosophy
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This course explores the problems associated with philosophy and philosophical activity as they are illustrated in the history of Western philosophy from the Renaissance period through the 19th Century. Studies in this course focus on representative thinkers of the Renaissance and/or Modern periods, their cultural milieu, and their attempts to resolve perennial philosophical issues and problems. This course may be of interest to students pursuing studies in History and Humanities. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

105 Contemporary Philosophy
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6 and W6; or English 105 with a grade of "C" or better, or equivalent. This course explores the issues and problems associated with philosophy in the 20th and 21st centuries. Emphasis is placed on the representative thinkers of the modern and post-modern eras. Students are encouraged to engage in independent research, analysis and formulation. This course is
designed for students interested in contemporary society and current events. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

106 Asian Philosophy

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent. This course explores the aims, methods, issues and problems exemplified in Asian philosophy and philosophical activity. Studies in this course survey significant inquiries, orientations and perspectives exemplified in Asian philosophy as well as Asian perspectives on perennial questions relating to the nature of the universe, the status and meaning of mankind, and the qualities characterizing the good life. Students are encouraged to engage in independent research, analysis and formulation. This course may be of special interest to students pursuing Pacific Rim or International Studies. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

107 Reflections on Human Nature

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent. This course explores the issues and problems exemplified in process of meaningful philosophical activity relating to the topic of human nature. Studies in this course survey representative theories and philosophical reflections relating to the notions of human nature, the individual person, and human characteristics in general. Material for this survey may be drawn from classical and contemporary thinkers, scientific and religious orientations. Students are encouraged to engage in independent research, analysis and formulation. This course may interest students pursuing studies in behavioral and/or social sciences. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

108 Perspectives on Human Nature and Society

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent. This course explores the topics of human nature and human societal configurations. Material for study may be selected from classical and contemporary thinkers. Studies in this course survey representative theories and philosophical reflections that explore the relation between theories regarding human nature and the nature of society, the state, and government with an emphasis on experiential elements of meaningful human existence and notions of ideal society. This course may be of particular interest to students pursuing studies in behavioral, social or political science. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

111 Philosophy in Literature

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent. This course is designed to provide an introduction to the aims, methods, issues and problems associated with philosophy and philosophical activity. In this course students read and analyze selected classical and/or contemporary literature which portrays or dramatizes perennial philosophical questions, issues and themes relating to such topics as the nature of reality, the notion of the self, the issue of choice and determinism, the problem of good and evil, and characteristics of the good life. This offering may be of interest to students pursuing studies in literature or in the behavioral and/or social sciences. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

125 Philosophy of Women

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of “C” or better, or equivalent. This general education course is of interest to students wishing to explore the philosophical study of questions relating to women. It provides an introductory study of concepts of womanhood and feminism as they have found expression in mythic,
classic, medieval and major modern philosophical traditions. Images, roles, and beliefs about women are explored with respect to their historical and global impact and philosophical relevance. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

126 Introduction to Philosophy of Contemporary Gender Issues

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Level W6 and R6.
This lower division course provides an introduction to the concepts of gender and gender relations for the student interested in the development of contemporary gender issues as they relate to philosophy. The images, roles, and beliefs about gender and gender relations as they vary across cultures will be explored with respect to their impact in our everyday lives and the larger societies within which we live. This course may be of special interest to students going into gender studies and women's studies. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities UC Transfer Course List.

130 Philosophy of Art and Music

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6 and W6; or English 105 with a grade of "C" or better, or equivalent. This course employs philosophical methods to explore the concepts, principles, and criteria used in the creation and evaluation of art and music. In addition to students interested in philosophy, this course is designed for any student seeking to gain a better understanding of why we appreciate art and music and how we develop standards for evaluating them. A variety of arts may be discussed including painting, sculpture, architecture, design, music, dance, theatre, and literature. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities UC Transfer Course List.

205 Critical Thinking and Writing in Philosophy

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This critical thinking and writing seminar in Philosophy is designed to enhance the student's critical thinking, writing, and research skills in preparation for upper division academic activity. Issues addressed in this class may involve various areas of human experience and aspiration: metaphysical, cosmological, scientific, political, ethical, aesthetic, and religious. Together with the application of basic principles of deduction and induction, special attention is given to identifying and avoiding fallacies in reasoning and to techniques and aids to research, reasoning, and writing. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

290 Independent Study

Hours by Arrangement, 1-3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5. Limitation on Enrollment: Must obtain an Add Code from instructor for registration. For students who wish to study special problems. This course may be taken four times with different content for a maximum of six units. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

296 Individual Instruction in Philosophy

1.5 - 6 hours lab, .5 - 2 units
Pass/No Pass Only
Limitation on Enrollment: Enrollment in an approved related course; Must obtain an Add code from instructor for registration. This course employs self-paced multimedia systems to assist students to reach specific learning objectives, and is intended to be supplementary to designated courses. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

Photography

See “Visual and Performing Arts” on page 409.
**Physical and Earth Sciences**
Astronomy, Chemistry, Geography, Geographic Information Systems, Geology, Physics

### Description
Earth and physical sciences, including astronomy, chemistry, geography, geology, and physics are disciplines classified as natural sciences. They generally involve nonliving materials and the principles of fundamental relationships and laws in the universe.

### Program Emphasis
These programs are designed to prepare students with basic concepts in astronomy, chemistry, geography, geology and physics which provide the foundation for upper division study in a baccalaureate institution and also satisfy general education requirements.

### Faculty Office Telephone
James Covalt M-208 619-388-3355  
Nancy Crispen M-207 619-388-3612  
Ram Gurumurthy M-210 619-388-3641  
Poovan Murugesan M-210 619-388-3360  
Gerardo Scappaticci M-209 619-388-3356  
Lisa Will M-207 619-388-3364

### Career Options
Most careers in earth and physical sciences fields require education beyond the associate degree and many require a graduate degree. A brief list of career options in the physical sciences includes: astronomer, biophysicist, biochemist, chemist, earth scientist, environmentalist, geographer, geologist, geophysicist, meteorologist, oceanographer, paleontologist, physicist and physical science instructor.

### Academic Programs
The associate degrees in Physical and Earth Sciences, Astronomy, Chemistry, Geography, Geology and Physics, require completion of the courses listed for each degree. Additional general education and graduation requirements for the associate degree are listed in the catalog. The associate degree requires a minimum of 60 units.

### Transfer Information
Common university majors related to the field of Physical and Earth Studies include:
Astronomy, Biochemistry, Chemical Engineering, Chemical Physics, Chemistry, Earth Studies and Sciences, Environmental Chemistry, Geographic Information Systems, Geography, Geology, Hydrologic Science, Meteorology and Oceanography, Physical Sciences, Physics.

### Course Requirements for Transfer Students
Students who plan to transfer to a four year college or university and earn a bachelor's degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student's specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

### Associate in Science Degree: Physical and Earth Sciences
#### Astronomy

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 101, Descriptive Astronomy</td>
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</tr>
<tr>
<td>ASTR 109, Practice in Observing</td>
<td></td>
</tr>
<tr>
<td>MATH 150, Calculus with Analytic Geometry I</td>
<td>5</td>
</tr>
<tr>
<td>MATH 151, Calculus with Analytic Geometry II</td>
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</tr>
<tr>
<td>MATH 252, Calculus with Analytic Geometry III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 195 Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS 196, Electricity &amp; Magnetism</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 197, Waves, Optics &amp; Modern Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total Units = 32**

**Recommended electives:** Chemistry 200, 200L.
### Associate in Science Degree: Physical and Earth Sciences

#### Chemistry

<table>
<thead>
<tr>
<th>Courses Required for the Major:</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHEM 200, General Chemistry I - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 200L, General Chemistry I - Laboratory</td>
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</tr>
<tr>
<td>CHEM 201, General Chemistry II - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201L, General Chemistry II - Laboratory</td>
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<td>CHEM 231, Organic Chemistry I - Lecture</td>
<td>3</td>
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<td>CHEM 231L, Organic Chemistry I - Laboratory</td>
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<tr>
<td>CHEM 251, Analytical Chemistry</td>
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<td>MATH 150, Calculus with Analytic Geometry I</td>
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<td>MATH 252, Calculus with Analytic Geometry III</td>
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<td>PHYS 195, Mechanics</td>
<td>5</td>
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<td>5</td>
</tr>
<tr>
<td>PHYS 197, Waves, Optics and Modern Physics</td>
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</table>

**Total Units = 48**

**Recommended electives:** Chemistry 233, 233L, 290, 296; Physics 125, 126.

#### Geography

<table>
<thead>
<tr>
<th>Courses Required for the Major:</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>GEOG 101, Physical Geography</td>
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</tr>
<tr>
<td>GEOG 101L, Physical Geography Laboratory</td>
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<tr>
<td>GEOG 102, Cultural Geography</td>
<td>3</td>
</tr>
<tr>
<td>ECON 120, Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 121, Principles of Microeconomics</td>
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**Select eight units from:**

<table>
<thead>
<tr>
<th>Courses Required for the Major:</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>BIOL 107, General Biology-Lecture and Laboratory</td>
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</tr>
<tr>
<td>CHEM 100, Fundamentals of Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 100L, Fundamentals of Chemistry Laboratory 1</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 200, General Chemistry I - Lecture</td>
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<tr>
<td>CHEM 200L, General Chemistry I - Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>MATH 107, Introduction to Scientific Programming</td>
<td>3</td>
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<tr>
<td>MATH 107L, Introduction to Scientific Programming Lab</td>
<td>1</td>
</tr>
<tr>
<td>MATH 119, Elementary Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 121, Basic Techniques of Applied Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 150, Calculus with Analytic Geometry I</td>
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<tr>
<td>MATH 151, Calculus with Analytic Geometry II</td>
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<td>5</td>
</tr>
<tr>
<td>PHYS 197, Waves, Optics, and Modern Physics</td>
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</tbody>
</table>

**Total Units = 21**

**Recommended electives:** Geography 290; Mathematics 107, 107L, 151, 252; a foreign language; and a course in mechanical drawing.

#### Geology

<table>
<thead>
<tr>
<th>Courses Required for the Major:</th>
<th>Units</th>
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<tbody>
<tr>
<td>GEOL 100, General Geology</td>
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<tr>
<td>GEOL 101, General Geology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 107, General Biology-Lecture and Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 200, General Chemistry I - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201, General Chemistry II - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201L, General Chemistry II - Laboratory</td>
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<td>MATH 151, Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 151, Calculus with Analytic Geometry II</td>
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</tr>
</tbody>
</table>

**Total Units = 33 - 38**

**Recommended electives:** Geology 290; Mathematics 107, 107L, 151, 252; a foreign language; and a course in mechanical drawing.

#### Physics

<table>
<thead>
<tr>
<th>Courses Required for the Major:</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 200, General Chemistry I - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 200L, General Chemistry I - Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 201, General Chemistry II - Lecture</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201L, General Chemistry II - Laboratory</td>
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<td>5</td>
</tr>
<tr>
<td>PHYS 197, Waves, Optics, and Modern Physics</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total Units = 38**

**Recommended electives:** Physics 125, 126, 290; Astronomy 101 and 109.
Astronomy (ASTR)

101 Descriptive Astronomy
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
This course is an introductory survey of contemporary astronomy. Topics covered include the solar system, stars and stellar evolution, the Milky Way galaxy and cosmology. This course is designed for students planning to take advanced courses in the Physical and Earth Sciences and for transfer students planning to major in astronomy. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

109 Practice in Observing
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Completion of or concurrent enrollment in Astronomy 101 with a grade of "C" or better, or equivalent.
This laboratory course, emphasizing field experience, includes constellation study, interpretation of celestial cycles, and descriptive observations (with and without telescopes) of a wide variety of astronomical objects and events. The course is designed to supplement Astronomy 101 as a general education laboratory course in the natural science area. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Astronomy (ASTR) 109 and 111 combined: maximum credit, one course.

111 Astronomy Laboratory
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Completion of or concurrent enrollment in: Astronomy 101 with a grade of "C" or better, or equivalent.
This laboratory course features exercises and experiments covering topics ranging across the spectrum of astronomy. The course deals with the foundations of astronomy, and may include telescopes, planetary astronomy, stellar astronomy and galactic astronomy. Indoor exercises may involve computer simulations. Outdoor exercises may be required. The course is designed to supplement

Chemistry (CHEM)

100 Fundamentals of Chemistry
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 46 with a grade of "C" or better, or equivalent, or Assessment Skill Level M40. Corequisite: Completion of or concurrent enrollment in: Chemistry 100L with a grade of "C" or better, or equivalent.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
Limitation on Enrollment: This course is not open to students with previous credit for or concurrent enrollment in Chemistry 152 and 200.
This course is an introductory study of the language and tools of chemistry. Basic concepts of the structure, properties, interactions of matter and energy are studied, both qualitatively and quantitatively. Emphasis is placed on matter, chemical changes, chemical conversions, chemical bonding, and acid-base chemistry. This course is taken by students majoring in nursing, nutrition, or animal health technology and provides a foundation for further coursework in chemistry, in particular for introductory organic chemistry. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Chemistry (CHEM) 100, 100L and 152, 152L combined: maximum credit, four units. No credit will be given for 100, 100L or 152, 152L if taken after CHEM 200. Engineering Technology (ENGN) 110, Chemistry (CHEM) 100 and Physics (PHYS) 100 combined: maximum credit, one course.
100L Fundamentals of Chemistry Laboratory  
3 hours lab, 1 unit  
Letter Grade or Pass/No Pass Option  

Corequisite: Chemistry 100.  
Advisory: English 48 and English 49 and Mathematics 46, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5 and M40.  
This laboratory course is designed to illustrate the principles of inorganic and physical chemistry as presented in Chemistry 100 and to familiarize students with common laboratory equipment and data collection methods. Along with Chemistry 100, this course is taken by students majoring in nursing or allied health sciences and provides a foundation for further lab work in chemistry. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Chemistry (CHEM) 100, 100L and 152, 152L combined: maximum credit, four units. No credit will be given for 100, 100L or 152, 152L if taken after CHEM 200.

111 Chemistry in Society  
3 hours lecture, 3 units  
Grade Only  

Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5; Chemistry 111L with a grade of "C" or better, or equivalent.  
This is an introductory chemistry course for non-science majors. The course emphasizes conceptual topics in chemistry and scientific thinking. Students learn to understand how society uses chemistry-based technologies and how to analyze current trends or news involving chemistry. Topics include a basic understanding of matter and energy, physical and chemical changes, the atom, nuclear chemistry, bonding, acids and bases, organic chemistry, and biochemistry. Current issues in environmental chemistry such as energy resources, air and water pollution are explored. Students discuss the effects and controversy surrounding the use of different forms of energy. In addition, current issues in organic and biochemistry are examined including trends in diets, certain medicines and drugs, and personal care items. Students planning on taking further courses in chemistry should take Chemistry 100 or Chemistry 152. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

111L Chemistry in Society Laboratory  
3 hours lab, 1 unit  
Grade Only  

Corequisite: Completion of or concurrent enrollment in: Chemistry 111 with a grade of "C" or better, or equivalent.  
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.  
This laboratory course is intended for non-science majors. It is designed to illustrate the principles of chemistry presented in Chemistry 111 in order for the student to understand how chemistry is used in our society. Experiments explore not only basic concepts in chemistry such as matter, energy, and the atom, but also explore real world applications of chemistry. This includes performing experiments related to the chemistry of the environment, household products, and biochemistry. Students learn how to work safely within the laboratory. Students who need to take further chemistry courses should enroll in Chemistry 152L or Chemistry 100L. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

130 Introduction to Organic and Biological Chemistry  
3 hours lecture, 3 units  
Letter Grade or Pass/No Pass Option  

Prerequisite: Chemistry 100 and Chemistry 100L, each with a grade of "C" or better, or equivalent.  
Corequisite: Chemistry 130L.  
Chemistry 130 is a one-semester course that introduces the basic physical, chemical and structural features of organic and biological compounds. Topics such as bonding, saturated and unsaturated hydrocarbons, the chemistry of organic functional groups, and the properties of important biological compounds such as carbohydrates, fats, and proteins are covered. The importance of these compounds in our daily lives is emphasized. The course is designed for nursing, nutrition, and allied health majors. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Chemistry (CHEM) 130, 130L and 231, 231L combined: maximum credit, one course (with lab).

130L Introduction to Organic and Biological Chemistry Laboratory  
3 hours lab, 1 unit  
Letter Grade or Pass/No Pass Option  

Prerequisite: Chemistry 100 and Chemistry 100L, each with a grade of "C" or better, or equivalent.
Corequisite: Chemistry 130.
This is a one-semester laboratory course that illustrates the principles presented in Chemistry 130. Students are introduced to common organic chemistry laboratory equipment, fundamental organic and biochemical reactions, tests and techniques. Techniques covered include chromatography, recrystallization, and distillation. Tests and reactions of common organic functional groups, carbohydrates, fats, and amino acids are covered. Synthesis of a medicinal compound such as aspirin or a nitrogen-based analgesic is also covered. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Chemistry (CHEM) 130, 130L and 231, 231L combined: maximum credit, one course (with lab).

152 Introduction to General Chemistry
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of “C” or better, or equivalent, or Assessment Skill Level M50.
Corequisite: Chemistry 152L.
Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels R5 and W5.
Limitation on Enrollment: This course is not open to students with previous credit for Chemistry 151. This is a one-semester preparatory course in chemistry consisting of an intensive study of some of the principles of inorganic and physical chemistry that are needed before taking Chemistry 200. Topics include but are not limited to atomic structure, chemical nomenclature, periodicity, chemical equations, stoichiometry, solutions, intermolecular forces, and gas laws. The course emphasizes problem solving and chemical calculations. It is intended for those students majoring in one of the natural sciences, engineering or related curricula who do not meet entrance requirements of Chemistry 200. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course Limitation: Chemistry (CHEM) 100, 100L and 152, 152L combined: maximum credit, four units. No credit will be given for 100, 100L or 152, 152L if taken after CHEM 200.

152L Introduction to General Chemistry Laboratory
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 96 with a grade of “C” or better, or equivalent, or Assessment Skill Level M50.
Corequisite: Completion of or concurrent enrollment in Chemistry 152 with a grade of “C” or better, or equivalent.
Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels R5 and W5.
Limitation on Enrollment: This course is not open to students with previous credit for Chemistry 151L. Chemistry 152L is a one-semester laboratory course intended as the companion course for Chemistry 152. Topics include chemical measurement, significant figures, laboratory safety, laboratory techniques, chemical reactions and stoichiometry. An emphasis is placed on problem solving, data analysis and chemical calculations. It is intended for those students majoring in one of the natural sciences, engineering or related curricula who do not meet entrance requirements of Chemistry 200. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course Limitation: Chemistry (CHEM) 100, 100L and 152, 152L combined: maximum credit, four units. No credit will be given for 100, 100L or 152, 152L if taken after CHEM 200.

200 General Chemistry I - Lecture
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 152 and 152L (formerly Chemistry 151), each with a grade of “C” or better, or equivalent; and Mathematics 96 with a grade of “C” or better, or equivalent, or Assessment Skill Level M50.
Corequisite: Chemistry 200L.
This is the first course in a two-course sequence in general chemistry and is intended for students majoring in science or satisfying prerequisites for professional schools. The course covers the principles and laws of inorganic chemistry with emphasis on quantitative mathematical problem solving. Topics include chemical equations, stoichiometry, atomic theory and its relationship to periodicity of the elements, bonding theories, molecular geometry, solution chemistry, liquids, solids, and the gas laws. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

200L General Chemistry I - Laboratory
6 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Corequisite: Chemistry 200.
This is the first semester laboratory course in a two-course sequence in general chemistry. It is intended for students majoring in science or satisfying prerequisites for professional schools. The course
illustrates the fundamental principles and laws of chemical behavior and the properties of matter in terms of laboratory experiments, with emphasis on quantitative, mathematical problem-solving. Topics include techniques of data analysis, chemical formulae and nomenclature, chemical equations and stoichiometry, atomic theory and its relationship to the periodic properties of the elements, theories of chemical bonding, molecular geometry, states of matter, solution chemistry, and gaseous behavior. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

201 General Chemistry II Lecture
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 200 and Chemistry 200L, each with a grade of "C" or better, or equivalent.
Corequisite: Chemistry 201L.
This is the second course in a two-course sequence in general chemistry and is intended for students majoring in science or satisfying prerequisites for professional schools. The course covers the principles and laws of physical and inorganic chemistry with emphasis on quantitative, mathematical problem solving. Topics include chemical kinetics, chemical equilibrium, acid-base theory, thermochmistry, thermodynamics, electrochemistry, coordination chemistry, and nuclear chemistry. The course also includes an introduction to organic and biochemistry. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

201L General Chemistry II Laboratory
6 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Corequisite: Chemistry 201.
This is the second semester laboratory course in a two-course sequence in general chemistry and is intended for students majoring in science or satisfying prerequisites for professional schools. The course illustrates the fundamental principles of physical and inorganic chemistry with some organic chemistry in terms of laboratory experiments. Topics include techniques of data analysis, chemical kinetics, chemical equilibrium, acids, bases, and salts, thermochemistry, electrochemistry, coordination chemistry and organic chemistry. Wherever appropriate and whenever possible, computer skills are introduced and applied to data analysis, laboratory simulations, and computer interfacing with laboratory equipment. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

231 Organic Chemistry I - Lecture
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 201 and Chemistry 201L, each with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in Chemistry 231L with a grade of "C" or better, or equivalent.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This course is the first semester of a one-year course in Organic Chemistry. Major themes include, but are not limited to, bonding and molecular structure, nomenclature, reaction mechanisms, synthesis, and an introduction to conjugated and aromatic carbon based compounds. An emphasis is placed on the reactions of aliphatic compounds such as alkanes, cycloalkanes, alkenes, alkynes, and alkyl halides. The organic chemistry literature, and spectral interpretation using techniques such as infrared and nuclear magnetic resonance spectroscopies, are introduced to support the above topics. This course is designed for undergraduates pursuing a degree in the chemical sciences, training in chemical technology, and other transfer students who need organic chemistry as part of the formal preparation for their major; for example, molecular biology, premedical, predental, and pharmacy. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Chemistry (CHEM) 130, 130L and 231, 231L combined: maximum credit, one course (with lab).

231L Organic Chemistry I - Laboratory
6 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 201 and Chemistry 201L, each with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in Chemistry 231 with a grade of "C" or better, or equivalent.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent. This is a laboratory course designed to illustrate the principles presented in Chemistry 231. The emphasis is on the determination of physical properties and the separation, purification and identification of organic compounds. The course acquaints students with the
equipment, glassware, techniques and safe practices specific to the organic chemistry laboratory. Techniques such as measurements of physical constants, recrystallization, extraction, distillation and chromatography are used in the synthesis and/or characterization of selected classes of organic compounds. These classes include, but are not limited to, alkanes, alkenes, alkynes, alkyl halides, and alcohols. The organic chemistry literature, and spectral interpretation using techniques such as infrared and nuclear spectroscopies, are introduced to support the above topics. This course is designed for undergraduates pursuing a degree in the chemical sciences, training in chemical technology, and those students who need organic chemistry as part of the formal preparation for their major; for example, molecular biology, premedical, predental, and pharmacy. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

233 Organic Chemistry II - Lecture
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 231 and Chemistry 231L, each with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in Chemistry 233L with a grade of "C" or better, or equivalent.
This course is the second semester of a one-year sequence in Organic Chemistry. It is designed to illustrate the principles presented in Chemistry 233. It is intended for students pursuing a baccalaureate degree in the chemical sciences or in majors such as premedical, predental or pharmacy; and for students training for careers in some chemical technology fields. The emphasis is on synthesis, purification and/or characterization of selected classes of organic compounds, including but not limited to aromatics, alcohols, aldehydes and ketones, carboxylic acids, amines, and simple examples of bio-organic molecules. Additional emphasis is placed on multi-step synthetic pathways and product identification using selected methods of qualitative organic analysis such as wet chemical and advanced spectroscopic techniques. Variation of scale from micro- to macro-quantities, and more advanced separation and analytical techniques, distinguish the level of this course from Organic Chemistry I Laboratory. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

233L Organic Chemistry II - Laboratory
6 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 231 and Chemistry 231L, each with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in Chemistry 233 with a grade of "C" or better, or equivalent.
This course is the second semester of a one-year sequence in Organic Chemistry Laboratory and is designed to illustrate the principles presented in Chemistry 233. It is intended for students pursuing a baccalaureate degree in the chemical sciences or in majors such as premedical, predental or pharmacy; and for students training for careers in some chemical technology fields. The emphasis is on synthesis, purification and/or characterization of selected classes of organic compounds, including but not limited to aromatics, alcohols, aldehydes and ketones, carboxylic acids, amines, and simple examples of bio-organic molecules. Additional emphasis is placed on multi-step synthetic pathways and product identification using selected methods of qualitative organic analysis such as wet chemical and advanced spectroscopic techniques. Variation of scale from micro- to macro-quantities, and more advanced separation and analytical techniques, distinguish the level of this course from Organic Chemistry I Laboratory. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

251 Analytical Chemistry
3 hours lecture, 6 hours lab, 5 units
Letter Grade or Pass/No Pass Option
Prerequisite: Chemistry 201 and Chemistry 201L and Mathematics 150, each with a grade of "C" or better, or equivalent.
Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent.
This is a course in quantitative analysis. Major topics include theory and practice of gravimetric and volumetric methods of chemical analysis and introduction to instrumental methods of analysis with a focus on precision and accuracy of experimental data. The target audience for Chemistry 251 is students majoring in chemistry or biochemistry and others who need the course for career advancement. It is recommended that students who plan to enroll in this course do so the semester following completion.
of Chemistry 201. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

### Geography (GEOG)

#### 101 Physical Geography

<table>
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<th>3 hours lecture, 3 units</th>
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<td>Letter Grade or Pass/No Pass Option</td>
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Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.

This course examines the major world patterns of the physical environment. The course covers the fundamental information and processes dealing with the earth’s landforms, atmosphere, natural vegetation, water, and soils, along with the appropriate use of maps and charts. This course is of interest to anyone seeking an understanding of the earth’s physical processes and mechanisms. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

#### 101L Physical Geography Laboratory

<table>
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<th>3 hours lab, 1 unit</th>
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<td>Grade Only</td>
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Corequisite: Completion of or concurrent enrollment in Geography 101 with a grade of "C" or better, or equivalent.

Advisory: English 48 and English 49 and Mathematics 34A, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5, W5 and M20.

This course requires practical observations and applications of the geographic grid, atlases and topographic maps, weather and climate, natural vegetation and soils, and landforms. Exercises are designed to supplement Physical Geography 101. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

#### 102 Cultural Geography

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<th>3 hours lecture, 3 units</th>
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<td>Letter Grade or Pass/No Pass Option</td>
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Advisory: English 101 with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6; or English 105 with a grade of "C" or better, or equivalent.

This course is an introduction to thematic cultural geography. The elements covered include population, race, language, religion, settlement patterns, political organization, economic activities, industry, and the regional distribution of these elements. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

#### 104 World Regional Geography

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<th>3 hours lecture, 3 units</th>
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Advisory: English 101 or English 105, with a grade of "C" or better, or equivalent, or Assessment Skill Levels W6 and R6.

This course provides students with a survey of the physical, cultural, political, and economic characteristics of the world’s major geographical regions. These regions include Europe, North America, Latin America, Africa, Australia, Oceania, and South, East, and Southeast Asia. The course focuses on historical, environmental, cultural, economic, and technological factors that impact the world’s main geographical areas. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

### Geology (GEOL)

#### 100 General Geology

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<th>3 hours lecture, 3 units</th>
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<td>Letter Grade or Pass/No Pass Option</td>
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Advisory: English 48 with a grade of "C" or better, or equivalent.

This course investigates the physical characteristics of the earth as a whole, and the past, present, and future evolutionary processes affecting it. Primary topics include earth materials, geologic time,
uniformitarianism, the fossil record, and plate tectonics. The course is designed for those students with a general interest in geology or earth science. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

101 General Geology Laboratory
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Completion of or concurrent enrollment in Geology 100 with a grade of "C" or better, or equivalent.
Advisory: English 48 with a grade of "C" or better, or equivalent, or Assessment Skill Level R5.
This laboratory course covers mineral and rock identification, landforms, topographic/geologic map interpretation, and geologic structures. The course is designed to supplement Geology 100 with laboratory experience. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

104 Earth Science
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course investigates Earth's major physical systems, including the lithosphere, hydrosphere, and atmosphere, as well as Earth's place in the solar system. As such, this course provides a brief synthesis of pertinent topics in geology, physical geography, oceanography, meteorology, and astronomy. It is intended for those with a general interest in the Earth sciences and those wishing to satisfy requirements for a California Multiple Subject Teaching Credential. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

290 Independent Study
Hours by Arrangement, 1-3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 with a grade of "C" or better, or equivalent, or Assessment Skill Level R5. Geology 100 and 101, each with a grade of "C" or better, or equivalent.
Limitation on Enrollment: Must obtain an Add Code from instructor for registration.
For students who wish to study special problems. This course may be taken four times with different content for a maximum of six units. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Geographic Information Systems (GISG)

104 Geographic Information Science and Spatial Reasoning
2.5 hours lecture, 1.5 hours lab, 3 units
Grade Only
Prerequisite: Mathematics 96 with a grade of "C" or better, or equivalent, or Assessment Skill Level M50.
This is a survey course designed to provide an introductory overview of geographic information systems (GIS), cartography, remote sensing, spatial analysis, and global positioning systems (GPS). Students will learn how these critical technologies are used in addressing human and environmental problems. The lectures and lab exercises will provide an introductory knowledge of GIS including map interpretation, georeferencing, and spatial data management. Topics will include how to use spatial data to visualize information and identify spatial patterns. Topics include basic GIS concepts such as query and map overlay. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

110 Introduction to Mapping and Geographic Information Systems
2.5 hours lecture, 1.5 hours lab, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 101 or English 105, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R6 and W6. Computer Business Technology 101, 114 and 161, each with a grade of "C" or better, or equivalent;
This course covers the origins and fundamentals of Geographic Information Systems (GIS), an essential tool in government and business. GIS uses spatial information and software to map, analyze, and model real world problems, in many fields such as forestry, homeland security, economics, cartography, city
planning, and health. Labs include hands-on experience with ArcGIS software. Subjects are map making, GIS data creation and management, and map projections and coordinate systems. GIS mapping is a skill needed by many who work in both the public and private sector. This course will provide the skills and knowledge to create basic spatial data and GIS maps. It also lays the foundation for students who want to be employed as a GIS Technician or who want to pursue a degree or certificate and it prepares students for entry-level careers. This course is required for the GIS certificate and the AS degree. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

**Physical Science (PHYN)**

100 Survey of Physical Science  
3 hours lecture, 3 units  
Letter Grade or Pass/No Pass Option  
Advisory: English 42 and Mathematics 34A, each with a grade of “C” or better, or equivalent, or Assessment Skill Level R4 and M20; and concurrent enrollment in Physical Science 101 with a grade of “C” or better, or equivalent. 
This course is an introductory survey of the fundamental concepts of astronomy, geology, chemistry and physics and the interrelationships among these disciplines. Emphasis is placed on the ways in which the physical sciences affect life on the planet and the role the discipline plays in addressing issues and problems related to energy, ecology and environmental sustainability. This course is recommended for students planning to major in geography and/or planning to transfer to a four-year institution. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: No credit if taken after a college level course in Chemistry or Physics. 

101 Survey of Physical Science Laboratory  
3 hours lab, 1 unit  
Letter Grade or Pass/No Pass Option  
Corequisite: Completion of or concurrent enrollment in Physical Science 100 with a grade of “C” or better, or equivalent. 
Advisory: Completion of or concurrent enrollment in English 48 and Mathematics 46, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels R5 and M40. 
This course introduces students to the science laboratory and is designed to demonstrate the fundamental concepts of astronomy, geology, chemistry and/or physics as presented in Physical Science 100. Emphasis is placed on the application of the scientific method and collaborative learning. This course is recommended for students planning to major in geography and/or planning to transfer to a four-year institution. (FT) Associate Degree Credit and transfer to CSU and/or private colleges and universities. UC Transfer Limitation: No credit if taken after a college level course in Chemistry or Physics. 

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

**Physics (PHYS)**

100 Introductory Physics  
3 hours lecture, 3 hours lab, 4 units  
Letter Grade or Pass/No Pass Option  
Advisory: Mathematics 46 with a grade of “C” or better, or equivalent, or Assessment Skill Level M40. 
This course is designed for transfer-level students or for those wanting to acquire basic knowledge in physics with a minimum preparation in mathematics. A comprehensive coverage of subject matter in physics is presented, including mechanics, wave motions, thermodynamics, optics, electromagnetism, atomic and nuclear physics. Emphasis is on the conceptual aspects, including explanation of natural phenomena. The learning of concepts is reinforced through laboratory work. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: No credit for Physics (PHYS) 100 if taken after a college level course in Physics. Engineering Technology (ENGN) 110, Chemistry (CHEM) 100, and Physics (PHYS) 100 combined: maximum credit, one course.

125 General Physics  
4 hours lecture, 3 hours lab, 5 units  
Letter Grade or Pass/No Pass Option  
Prerequisite: Mathematics 104 or Mathematics 116, with a grade of “C” or better, or equivalent. 
Limitation on Enrollment: This course is not open to students with previous credit for Physics 120A, 181A, 124A, 125A, or 195. 
This course is an introductory survey of the concepts and principles of physics. Emphasis is placed on
developing an understanding of the properties of matter, mechanics, heat and sound. This course is intended for students taking liberal arts and/or pre-professional courses that do not require physics with calculus. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Physics (PHYS) 120A-120B, 121A-121B, 124A-124B, 125-126, 180A-180B, 181A-181B, 195A-195B-195C and 195-196-197 combined: maximum credit, one series.

126 General Physics II
4 hours lecture, 3 hours lab, 5 units
Letter Grade or Pass/No Pass Option
Prerequisite: Physics 125 with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Physics 120B, 181B, 124B, 125B, 195B or 196.
This second course in a two-part introductory survey explores the concepts and principles of physics. Topics include electricity, magnetism, light, and modern physics. This course is intended for students taking liberal arts and/or pre-professional courses that do not require physics with calculus. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations: Physics (PHYS) 120A-120B, 121A-121B, 124A-124B, 125-126, 180A-180B, 181A-181B, 195A-195B-195C and 195-196-197 combined: maximum credit, one series.

180A General Physics I
4 hours lecture, 4 units
Letter Grade or Pass/No Pass Option
Prerequisite: Mathematics 116 with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in Mathematics 121 with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Physics 120A and Physics 125A, or credit or concurrent enrollment in Physics 124A.
This course is an introductory survey of the concepts and principles of physics. Emphasis is placed on developing an understanding of the properties of matter, mechanics, heat and sound in order to make calculations and solve fundamental physics problems. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Physics (PHYS) 120A-120B, 121A-121B, 124A-124B, 125-126, 180A-180B, 181A-181B, 195A-195B-195C and 195-196-197 combined: maximum credit, one series.

180B General Physics II
4 hours lecture, 4 units
Letter Grade or Pass/No Pass Option
Prerequisite: Physics 180A with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Physics 120B and Physics 125B, or credit or concurrent enrollment in Physics 124B.
This course is an introductory survey of the concepts and principles of physics. Emphasis is placed on developing an understanding of the properties of electricity, magnetism, light and modern physics in order to make calculations and solve fundamental physics problems. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations: Physics (PHYS) 120A-120B, 121A-121B, 124A-124B, 125-126, 180A-180B, 181A-181B, 195A, 195B, 195C and 195-196-197 combined: maximum credit, one series.

181A General Physics Laboratory I
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Corequisite: Completion of or concurrent enrollment in: Physics 180A with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Physics 121A.
This laboratory course is a hands-on study of the properties of matter, mechanics, heat and sound through laboratory experiments. This course is designed for students interested in the physical sciences. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitation: Physics (PHYS) 120A-120B, 121A-121B, 124A-124B, 125-126, 180A-180B, 181A-181B, 195A-195B-195C and 195-196-197 combined: maximum credit, one series.

181B General Physics Laboratory II
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Prerequisite: Physics 180A with a grade of "C" or better, or equivalent.
Corequisite: Completion of or concurrent enrollment in: Physics 180B with a grade of "C" or better, or equivalent.
Limitation on Enrollment: This course is not open to students with previous credit for Physics 121B.
This laboratory course is a hands-on study of the principles of electricity, magnetism, light and modern physics through laboratory experiments. This course is designed for students interested in the physical
Physical and Earth Sciences

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science. (FT) Associate Degree Credit & transfer to
CSU and/or private colleges and universities.

UC Transfer Limitation: Physics (PHYS) 120A-120B,
121A-121B, 124A-124B, 125-126, 180A-180B, 181A-
181B, 195A-195B-195C and 195-196-197 combined:
maximum credit, one series.

195 Mechanics

4 hours lecture, 3 hours lab, 5 units
Letter Grade or Pass/No Pass Option

Prerequisite: Mathematics 150 with a grade of "C" or
better, or equivalent.

Corequisite: Mathematics 151

Advisory: English 48 and English 49, each with a grade
of "C" or better, or equivalent, or Assessment Skill
Levels R5 and W5.

Limitation on Enrollment: This course is not open to
students with previous credit for Physics 195A and
Physics 196A.

The Physics 195, 196, 197 sequence is designed to give
a foundation in calculus-based physics for engineering
and science majors. Physics 195 deals primarily with
the description of motion, Newton's Laws, energy,
momentum, rotation, gravity, oscillatory motion, and
thermodynamics. (FT) Associate Degree Credit &
transfer to CSU and/or private colleges and
universities. UC Transfer Limitations: Physics (PHYS)
120A-120B, 121A-121B, 124A-124B, 125-126, 180A-
combined: maximum credit, one series.

196 Electricity and Magnetism

4 hours lecture, 3 hours lab, 5 units
Grade Only

Prerequisite: Physics 195 with a grade of "C" or better,
or equivalent.

Limitation on Enrollment: This course is not open to
students with previous credit for Physics 195B and
196B.

This is the second of a three-semester calculus-based
general physics sequence, intended to satisfy the
transfer requirements of students planning to major in
the physical sciences and in engineering. The topics of
study include the basic principles and applications of
electrostatics, magnetostatics, time-varying electric
and magnetic phenomena, direct and alternating
current circuits, elementary electronics and
electromagnetic waves. Emphasis is placed on the
mathematical analysis of physical problems.
Laboratory work on various aspects of electric and
magnetic phenomena emphasizing direct current and
alternating current circuits is included. (FT) Associate
Degree Credit & transfer to CSU and/or private
colleges and universities. UC Transfer Limitations:
Physics (PHYS) 120A-120B, 121A-121B, 124A-124B,
195-196-197 combined: maximum credit, one series.

197 Waves, Optics and Modern Physics

4 hours lecture, 3 hours lab, 5 units
Letter Grade or Pass/No Pass Option

Prerequisite: Physics 195 with a grade of "C" or better,
or equivalent.

Advisory: Completion of or concurrent enrollment in
Physics 196 with a grade of "C" or better, or equivalent.

Limitation on Enrollment: This course is not open to
students with previous credit for Physics 195C and
Physics 196C.

Physics 197 is the third semester of a three-semester
calculus-based course designed for prospective
scientists and engineers. Topics include the
fundamental principles of physics of waves, the
behavior of light, and an introduction to relativity,
quantum physics and the atomic and nuclear
properties of matter. PHYS 196 and 197 may be taken
currently only if PHYS 195 was completed with a
grade of "B" or better or with approval of the
department. (FT) Associate Degree Credit & transfer to
CSU and/or private colleges and universities. UC
Transfer Limitations: Physics (PHYS) 120A-120B, 121A-
195A-195B-195C and 195-196-197 combined: maximum
credit, one series.

This discipline may offer specialized instruction in
one or more of the following areas: Supervised
Tutoring (044), Experimental Topics (265),
Independent Study (290), Individualized Instruction
(296), Service Learning (277), or Work Experience
(270). Detailed course descriptions are listed on
page page 120. Please refer to the class schedule
and/or see the dean or department chair for
availability.
Physical Education
Health Education, Exercise Science, Fitness Specialist and Athletics

Description
Physical Education/Exercise Science is a discipline which focuses on the process through which individuals develop optimal physical, mental and social skills through regular physical activity. Exposure to varieties of movement experiences nurtures the development of active lifestyles necessary to achieve wellness objectives which improve the quality of life.

Program Emphasis
The Health & Exercise Science department offers a diverse curriculum which includes lower division theory courses designed for those who want to complete their Associate in Arts degree in the discipline and transfer to an institution of higher learning. An additional component includes a basic instruction program which provides students a wide variety of movement experiences for the development of physical activity skills and knowledge necessary for lifetime wellness. A third program focuses on a Certificate program for fitness specialist. Finally, an intercollegiate program, offers performance-oriented students opportunities for competition.

Faculty
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<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Telephone</th>
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<tbody>
<tr>
<td>Jennifer Aase</td>
<td>P3-106</td>
<td>619-388-3703</td>
</tr>
<tr>
<td>Dede Bodnar</td>
<td>P3-203</td>
<td>619-388-3706</td>
</tr>
<tr>
<td>Christopher Brown</td>
<td>PM-13</td>
<td>619-388-3704</td>
</tr>
</tbody>
</table>

Career Options
Career options in physical education include: athletic administrator; athletic trainer; coach; health/sport club manager; health and safety director; personal trainer, public, private or nonprofit organization recreation director; resort activities director; sports journalist and teacher. Students earning the Associate in Arts degree in Physical Education may find employment at assistant level positions in the K-12 school system, the fitness industry or recreational settings.

Student Learning Outcomes
ATHLETICS
Upon successful completion the student/athlete will be able to:

• Create an Educational Plan with the Athletic Counselor
• Develop a greater skill level in their sport
• Exhibit the qualities of teamwork as it relates to their sport
• Develop a player profile to be used as a recruiting tool for four year institutions
• Increase their levels of physical fitness

HEALTH
Upon successful completion the student will be able to:

• Learn that life is a balancing act and identify how the following components of wellness will aid in successfully navigating one’s life.
  • Physical
  • Spiritual
  • Emotional
  • Cognitive
  • Social
  • Environmental

Certificate of Achievement:
Fitness Specialist 18

Associate in Arts Degree:
Transfer Option 18*

*and courses to meet graduation requirements, general education and electives as needed to meet minimum of 60 units required for the degree.

Units

Certificate of Achievement:
Fitness Specialist 18

Associate in Arts Degree:
Transfer Option 18*

*and courses to meet graduation requirements, general education and electives as needed to meet minimum of 60 units required for the degree.
EXERCISE SCIENCE
Upon successful completion the student will improve in one or more of the following fitness components:
• Cardio-respiratory endurance
• Muscular endurance
• Muscular strength
• Flexibility
• Body composition

FITNESS SPECIALIST
Upon successful completion the student will be able to:
• Demonstrate the ability to prescribe safe and effective exercise
• Develop and implement group and individual exercise programs
• Possess an applied understanding of human anatomy, physiology and nutrition as it applies to physical fitness
• Develop specialized fitness programs to meet the needs of the targeted individual.

Academic Program
Associate in Arts Degree: Physical Education
Transfer Option
Courses Required for the Major: Units
PHYE 166, Weight Training...................................................1
PHYE 241, Introduction to Exercise Science/Physical Education.........................................................2
Select four units from:
Physical Education 103-167 (See catalog for course titles and descriptions) .................................................4
BIOL 107, General Biology, Lecture & Lab..................................4
BIOL 230, Human Anatomy ..................................................4
SOCO 101, Principles of Sociology ........................................3

Total Units = 18

Recommended electives: Physical Education 240, 243 or any activity course; Psychology 101, 258.

Transfer Information
Common university majors related to the field of Physical Education include:
Athletic Administration, Athletic Training, Exercise Science, Health Administration, Health Education, Health Sciences, Kinesiology, Physical Education, Pre-Physical Therapy, Recreation, Sports Management.

Course Requirements for Transfer Students
Students who plan to transfer to a four year college or university and earn a bachelor's degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student’s specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

Fitness Specialist
Certificate Program Description
Students in this program will be trained to be group exercise leaders and personal trainers. Students will learn the principles of exercise and physical conditioning, techniques of leading individual and group exercise classes, appropriate methods to establishing healthy behavior and the designing of personalized exercise prescriptions. They will be able to develop safe, effective exercise plans for a variety of clients.

Program Emphasis
The Fitness Specialist certificate program trains students for positions, entry-level or higher, in the growing fitness industry.

Career Options
Graduates will be qualified to be exercise testing technicians, fitness instructors, strength training instructors, aerobic instructors, and personal fitness trainers.

The fitness industry continued to experience growth and has an ongoing need for trained instructors and trainers in health clubs, fitness centers, and sports medicine clinics.

Please note that students enrolled in an occupational program must earn a grade of “C” or better in courses required for the major.
Certificate of Achievement: 
Physical Education

Fitness Specialist

Courses Required for the Major: Units
PHYE 242, Care and Prevention of Injuries ..................2
PHYE 280, Applied Exercise Physiology ......................2
PHYE 281, Applied Kinesiology .................................2
PHYE 282, Techniques of Weight Training ....................2
PHYE 283, Exercise and Fitness Assessment ..................2
PHYE 284, Fitness and Sports Nutrition .......................2
PHYE 285, Exercise for Special Populations ..................2
PHYE 286, Techniques of Exercise Leadership ................2
PHYE 287, Fitness Specialist Internship .......................2

Total Units = 18

This program prepares candidates for American College of Sports Medicine (ACSM) or American Council of Exercise (ACE) certification exams.

Physical Education Classes/Intercollegiate Sports Disclaimer
Participation in all sports and physical education activities involves certain inherent risks. Risks may include, but are not limited to, neck and spinal injuries that may result in paralysis or brain injury, injury to bones, joints, ligaments, muscles, tendons and other aspects of the muscular skeleton system, and serious injury, or impairment, to other aspects of the body and general health, including death. The San Diego Community College District, its officers, agents and employees are not responsible for the inherent risks associated with participation in physical education classes/intercollegiate sports.

Students are strongly advised to consult a physician prior to participating in any physical education activity.

Courses

Health Education (HEAL)

101 Health and Life-Style
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.

This course studies aspects of mental, emotional, and physical health. Emphasis is placed on knowledge for development of attitude, understanding, and practice of a preventive life style for healthy living and optimal wellness. Specific instructional areas include chronic diseases, physical activity, nutrition, weight management, birth control methods, human sexuality, alcohol, tobacco, and illicit chemical use, stress, and factors that contribute to wellness and longevity. Experience in personal health assessment and the changing of health behaviors is stressed. Satisfies State of California Health Education requirement for teaching credential. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

190 Health Education For Teachers
1 hour lecture, 1 unit
Grade Only
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.

This course overviews health-related issues and problems in the kindergarten through 12th grade. Topic areas include behavior modification, stress symptoms and management, physical activity, nutrition, cardiovascular disease, pregnancy and sexually transmitted diseases, illicit substance abuse, alcohol and nicotine use and misuse, violence and gang issues, school and home safety issues. This course satisfies the State of California Health Education requirement for the K-12 Teaching Credential. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Physical Education (PHYE)

Physical Education classes are offered at the beginning, intermediate and advanced levels.

Aquatic Activities

A program which offers the student a choice from a variety of courses. Instruction and conditioning in all aspects of aquatics to provide a carry-over value for leisure life.
155 Swimming
2-3 hours lab, .5 - 1 unit
This course emphasizes instruction and practice in the fundamental to advanced swimming strokes including water safety skills. Stroke analysis, conditioning and endurance are stressed in the progression of classes. Beginning and intermediate levels are available. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

156 Water Exercise
2-3 hours lab, .5 - 1 unit
Instruction in the development of the fundamental elements of fitness through the application of water resistance and buoyancy. Progressive instruction includes the development of increasingly more strenuous exercises for cardiorespiratory fitness, muscular strength, endurance and flexibility. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

181A Adapted Swimming
2-3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
Limitation on Enrollment: A physician’s medical release form is required. This course is not open to students with credit for Physical Education 181, 181C, or 181D. This course is designed for students with disabilities to learn how to swim through modified swimming strokes based on their abilities. Emphasis is placed on practice in the fundamental swimming strokes, including water safety skills. Stroke analysis, conditioning and endurance is stressed in the progression of the class. This course meets the SDCCD graduation requirements. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

Individual Activities
A basic program which offers the student a choice of vigorous, competitive activity in individual sports and activities designed to provide carry-over value for leisure life. Instruction is in fundamental skills knowledge of rules and strategy, with emphasis on physical fitness.

47 Physical Activities for Youth
3 hours lab, 1 unit
Pass/No Pass Only
This course is the physical activity component for youth participating in the National Youth Sports Program. Students are introduced to a variety of physical activities, which provide the student with skills necessary to practice an active lifestyle. This course offers opportunities to engage in physical activities for health benefits, to study simple physical skill mechanics for efficiency of movement, to learn about the rules and regulations of physical activities for safety and participation strategies, and to recognize the health implications of an active lifestyle. Credit does not apply to the associate degree.

104 Step Aerobics
3 hours lab, 1 unit
Letter Grade or Pass/No Pass Option
Step Aerobics is a rigorous exercise course designed to increase both the fitness levels of participating students and their understanding of what constitutes a safe and effective exercise program. Instruction includes a balanced exercise program of step aerobics, toning, stretching, and relaxation along with discussion of related health topics. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

Dance
Dance courses may be used to fulfill the Physical Education graduation requirement. See page 75 in the Academic Requirements section of this catalog.

103 Aerobic Dance
2-3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
Aerobic Dance is a rigorous exercise course designed to increase both the fitness level of participating students and their understanding of what constitutes a safe and effective exercise program. Instruction includes a balanced exercise program of aerobics, toning, stretching, and relaxation along with discussion of related health topics. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.
skill attainment with each repetition. When this course is offered for three hours per week, the additional time is utilized for stroke development drills and application of strategies in playing situations. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

115 Bowling
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course is designed to develop skills necessary to improve student performance of the fundamentals of the stance, point of origin, approach, back swing, release and follow through, rules, scoring and etiquette in the game of bowling. Progressive instruction emphasizes individual skill development, spot bowling and participation in a league bowling situation. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

123 Fitness Activities
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course includes instruction in the skills necessary to improve aerobic fitness and cardiovascular health. Through fitness topics covered, students will develop an individual fitness program. Aerobic exercise focuses primarily jogging, progressing to running for the development of comprehensive fitness. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

126 Golf
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course provides golf instruction and practice in the fundamentals of grip, stance, alignment, backswing, and downswing. Topics also include stretching and principles of warm-up, golf club selection and use, player guidelines, scoring, game etiquette, and safety procedures. The course emphasizes the "one basic golf swing" theory and includes extensive practice and play at local courses. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

132 Individual Conditioning
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course provides individually programmed instruction in the fundamental skills and techniques of weight training and aerobic activity. The positive impact of physical education on health and wellness is explored and emphasized. Through progressive inquiry and practice, students demonstrate more advanced levels of weight training and comprehensive aerobic development. This course is of particular interest to students wishing to enter the fields of sports medicine and athletics, as well as to students seeking to improve overall fitness. Students must demonstrate increased proficiency and skill attainment with each repetition. This course may be taken four times for credit. When this course is offered for three hours per week, the additional time is utilized for the practice of weight training skills. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.

133 Cardio Kickboxing
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course is an introduction to cardiorespiratory fitness combined with basic kickboxing techniques, practices and principles. Instruction includes upper body punching functions, kick techniques and combination series of both upper body and lower body kickboxing routines. The benefits of kickboxing include increased strength, flexibility, and balance as well as stress reduction. The class will have a pre-designed format along with choreographed music. Cardio Kickboxing is a unique form of non-contact cardiovascular exercise. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List. See a Counselor.

142 Racquetball
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
Instruction and practice in the fundamental skills of grip, strokes, footwork, court coverage and rules of play. Singles and doubles strategy, offensive and defensive positioning and tournament play will be progressively incorporated at the intermediate and advanced levels. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer limitations. See a Counselor.
150 Lifelong Fitness Behaviors
1 hour lecture, 1 unit
Grade Only
This is a lecture course designed for students with limited knowledge or experience with physical fitness. Weekly lecture sessions will address the relationship between exercise and wellness. Lecture topics will include the value of exercise, health related physical fitness, nutrition, weight control, stress management, behavior modification, and hypokinetic disease prevention. Students will learn how to self-manage fitness behavior modifications. This class must be taken concurrently with Physical Education 153. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

153 Lifelong Fitness Lab
2 - 3 hours lab, .5 - 1 unit
Pass/No Pass Only
This course is designed to provide students with the knowledge and practice to develop the attitudes and habits required for attaining and maintaining appropriate, individual physical fitness levels. Emphasis is placed on developing and maintaining cardiovascular efficiency as well as muscular strength, endurance and flexibility through circuit and/or strength training. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

157 Fitness Applications
2 - 3 hours lab, .5 - 1 unit
Pass/No Pass Only
Advisory: Completion of or concurrent enrollment in Physical Education 153 with a grade of "C" or better, or equivalent.
This course is designed to provide students with the opportunity to increase their fitness levels by use of a longer and more demanding aerobic circuit. Each student is assessed in the areas of cardiovascular efficiency, flexibility, muscular endurance and body composition. An individualized fitness program is prescribed utilizing goals established jointly by the student and instructor. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

159 Tennis
2 - 3 hours lab, .5 - 1 unit
Grade Only
This course provides instruction and on-court experience in the skills, strategies, rules and behaviors necessary to play tennis at the beginning, intermediate or advanced recreational level and is intended for novices and students currently playing at any of these levels. This course may be taken four times for credit. Students must demonstrate increased proficiency and skill attainment with each repetition. When this course is offered for three hours per week, the additional time is utilized for stroke development drills and application of strategies in playing situations. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

166 Weight Training
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course is an introduction to progressive resistance training. It is designed for the student interested in developing strength, muscle endurance, and muscle tone. Instruction includes learning proper methods of weight training, various types of weight training programs, and safety factors. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

168 Yoga
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course is an introduction to basic yoga practices and principles. Instruction includes yoga postures, guided relaxations, and breathing practices. The benefits of yoga include increased flexibility, strength, balance, and body awareness as well as stress reduction. This course is designed for students interested in health and longevity. This course may be taken four times for credit. Students must demonstrate increased proficiency and skill attainment with each repetition. When this course is offered for three hours per week, the additional time is utilized for the practice of postures. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

182 Adapted Weight Training
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
Limitation on Enrollment: A physician’s medical release form is required.
This course is designed for students with disabilities as an introduction to progressive resistance training. Emphasis is placed on developing cardiorespiratory
and muscle endurance, muscle strength and flexibility and a healthy body composition through individualized safe and beneficial exercise programming. The course includes exercises that focus on relaxation, joint mobility, body maintenance, and activities for daily living. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

184 Adapted Physical Fitness
2-3 hours lab, .5 -1 unit
Letter Grade or Pass/No Pass Option
Limitation on Enrollment: A physician's medical release form is required.
This course is designed for students with disabilities to provide opportunities for exercise and activities to improve cardiorespiratory endurance, flexibility, muscular endurance, strength, stress management and coordination. Activities can include walking, dance, rhythm activities, wheelchair pushing, jogging, relaxation training and exercises for joint mobility. This course may be repeated three times. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

232 Martial Arts
3 hours lab, 1 unit
Grade Only
This course is designed for students with an interest in martial arts. It is geared toward the International Okanawan Goju-Ryu Karate-Do Federation (IOGKF) and the Tae Kwon Do Federation, with phrases and terms from other styles for general informational usage. Emphasis is placed on the fundamentals of martial arts including martial arts safety skills and etiquette, punches, blocks, strikes, kicks, stances, vital points, tournament terminology, numbers and Kata and Forms. Kick/strike analysis, flexibility, conditioning and endurance are stressed in the progression of the class. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC transfer limitations. See a Counselor.

233 Kickboxing
2-3 hours lab, .5 - 1 unit
Grade Only
This course is designed for students to learn kickboxing. This course includes solo training, partner training, equipment training, and controlled sparring as practiced by the Kali/Jeet Kune Do family, including JKD kickboxing, the arts of Muay Thai training, Savate, and Panantukan styles of kickboxing. Emphasis is placed on practice in the fundamentals of kickboxing, including kickboxing safety skills and etiquette. Kick/strike analysis, balance, flexibility, conditioning, muscular strengths and endurance are stressed in the progression of the class. This course meets the SDCCD graduation requirements. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

### Intercollegiate Athletics

200 Intercollegiate Badminton I
10 hours lab, 2 units
Grade Only
Advisory: Physical Education 108 with a grade of "C" or better, or equivalent, or previous competitive badminton experience.
This is a course for students competing in their first intercollegiate badminton season. The course is offered in the spring semester and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

201 Intercollegiate Badminton II
10 hours lab, 2 units
Grade Only
Advisory: Physical Education 200 with a grade of "C" or better, or equivalent.
This is a course for students competing in their second intercollegiate badminton season. The course is offered in the spring semester and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

202 Intercollegiate Baseball I
Spring, 10 hours, 2 units
Letter Grade or Pass/No Pass Option
Intercollegiate varsity baseball competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

203 Intercollegiate Baseball II
Spring, 10 hours, 2 units
Letter Grade or Pass/No Pass Option
Intercollegiate varsity baseball. Second season of competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.
204 Intercollegiate Basketball I
Spring/Fall
5 - 7.5 hours lab, 1 - 1.5 units
10 hours, 2 units
Letter Grade or Pass/No Pass Option
This course is intended for the first season of intercollegiate competition. Basketball skills and game strategies are at a more advanced level of participation than those of the Basketball 112 class. This course may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

205 Intercollegiate Basketball II
5-10 hours lab, 1-2 units
Letter Grade or Pass/No Pass Option
This course is intended for the second season of intercollegiate competition. Basketball skills and game strategies are at the advanced levels of participation. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

206 Intercollegiate Cross-Country I
Fall, 10 hours, 2 units
Letter Grade or Pass/No Pass Option
Intercollegiate varsity cross-country competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

207 Intercollegiate Cross-Country II
10 hours, 2 units
Letter Grade or Pass/No Pass Option
Intercollegiate varsity cross-country competition. Second season of competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

214 Intercollegiate Soccer I
10 hours, 2 units
Letter Grade or Pass/No Pass Option
Advisory: Physical Education 149 with a grade of "C" or better, or equivalent, or previous competitive soccer experience.
This is the first course of intercollegiate soccer competition. This course is offered separately for men and women. This course may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

215 Intercollegiate Soccer II
Fall, 10 hours, 2 units
Letter Grade or Pass/No Pass Option
Advisory: Physical Education 149 with a grade of "C" or better, or equivalent, or previous competitive soccer experience.
Advisory: Concurrent Enrollment in: Physical Education 257B
This is the second course of intercollegiate soccer competition. This course is offered separately for men and women in the fall semester. This course may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

216 Intercollegiate Softball I
Spring 10 hours, 2 units
Letter Grade or Pass/No Pass Option
Advisory: Concurrent Enrollment in: Physical Education 257B
This is a course in which students competing in their first intercollegiate softball season learn and practice the techniques and strategies necessary for successful participation. Those topics covered are fundamental through advanced softball skills and offensive and defensive strategies. This course is offered in the spring semester and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

217 Intercollegiate Softball II
Spring, 10 hours, 2 units
Letter Grade or Pass/No Pass Option
This is a course in which students competing in their second intercollegiate softball competition learn and practice the techniques and strategies necessary for successful participation. Those topics covered are fundamental through advanced softball skills and offensive and defensive strategies. This course is offered in the spring semester and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

220 Intercollegiate Tennis I
Spring, 10 hours lab, 2 units
Letter Grade or Pass/No Pass Option
This is a course for students competing in their first intercollegiate tennis season. This course is offered in the spring semester for men and women and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.
221 Intercollegiate Tennis II
   Spring, 10 hours lab, 2 units
   Letter Grade or Pass/No Pass Option
This is a course for students competing in their second semester of intercollegiate tennis season. This course is offered in the spring semester for men and women and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

222 Intercollegiate Track and Field I
   Spring, 10 hours, 2 units
   Letter Grade or Pass/No Pass Option
Intercollegiate varsity track and field competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

223 Intercollegiate Track and Field II
   Spring, 10 hours, 2 units
   Letter Grade or Pass/No Pass Option
Intercollegiate varsity track and field competition. Second season of competition. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

224 Intercollegiate Volleyball I
   Fall, Spring, 10 hours lab, 2 units
   Letter Grade or Pass/No Pass Option
Advisory: Physical Education 161 with a grade of "C" or better, or equivalent, or previous competitive volleyball experience.
This is the first course in intercollegiate volleyball competition. This course is offered in the fall semester for women and the spring semester for men and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

225 Intercollegiate Volleyball II
   Fall, Spring, 10 hours lab, 2 units
   Letter Grade or Pass/No Pass Option
Advisory: Physical Education 224 with a grade of "C" or better, or equivalent.
This is the second course in intercollegiate volleyball competition. This course is offered in the fall semester for women and the spring semester for men and may be taken two times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

Team Sports

111 Baseball
   2 - 3 hours lab, .5 unit - 1 unit
   Letter Grade or Pass/No Pass Option
Instruction to develop the fundamental skills of throwing, catching, running, hitting, rules of play and strategy. Intermediate and advanced levels emphasize both individual and team skill development and strategies involved in competitive game situations. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

112 Basketball
   2 - 3 hours lab, .5 unit - 1 unit
   Letter Grade or Pass/No Pass Option
This course offers basic instruction in the fundamental skills of basketball and team offense and defense. Instruction includes terminology, rules and strategy of the game. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

149 Soccer
   2 - 3 hours lab, .5 - 1 unit
   Letter Grade or Pass/No Pass Option
This course emphasizes progressive instruction and practice of basic fundamentals through advanced soccer skills. The topics covered include soccer techniques and skills, offensive and defensive strategies, rules, and officiating. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

151 Softball
   2 - 3 hours lab, .5 - 1 unit
   Letter Grade or Pass/No Pass Option
This course provides instruction in the fundamental skills of throwing, catching, running, hitting, and rules of play of softball as well as individual and team skill development and strategies involved in competitive game situations. This course may be taken four times for credit. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.
161 Volleyball
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course provides instruction and on-court experience in the skills, strategies, rules and behaviors necessary to play volleyball at the recreation level. This course may be taken four times for credit. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

165 Pre-season Volleyball Conditioning for Elite Athletic Performance
2 - 3 hours lab, .5 - 1 unit
Letter Grade or Pass/No Pass Option
This course provides individually programmed coaching in the fundamental skills of volleyball specific training and aerobic conditioning. Through progressive inquiry and practice, students demonstrate more advanced levels of athletic performance. This course is of particular interest to students who want to improve their athletic performance through comprehensive sport specific strength and conditioning. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

Physical Education Theory Classes

240 Physical Education in the Elementary Schools
3 hours lecture, 1 hour lab, 3 units
Letter Grade or Pass/No Pass Option
Advisory: Completion of or concurrent enrollment in English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels RS and W5.
This course includes a brief study of the growth, development and characteristics of the elementary school child. The elements of written lesson plans, units, evaluations and various forms of testing are covered. The teaching of fundamental skills, rhythms, dance and games based on sound physiological principles for this age group is emphasized. The positive impact of physical education on health and wellness in addition to academic achievement is explored. Actual teaching situations are experienced in the lab sessions. This course is designed to fulfill lower division preparation for the major for students interested in elementary education. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

241 Introduction to Exercise Science/Physical Education
2 hours lecture, 2 units
Grade Only
Advisory: English 48 and English 49, each with grades of "C" or better, or equivalent, or Assessment Skill Levels RS and W5.
This course is the introductory course for students majoring in Physical Education and is required for the Associate in Arts degree in Physical Education. It provides the student an opportunity to study the history, basic philosophy, basic principles, and professional career options of exercise science. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

242 Care and Prevention of Injuries
Fall, Spring, 2 hours lecture, 1 hour lab, 2 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels RS and W5.
Prevention and care of common athletic injuries is discussed. This course covers the theory and practice of emergency field care and basic athletic first aid. Bandaging and/or taping techniques are included. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

243 Fitness for Life Concepts
2 hours lecture, 2 hours lab, 3 units
Grade Only
This course will provide students with the necessary knowledge to make educated decisions about lifetime fitness and wellness activities. Students will learn concepts in cardiovascular fitness, strength training, flexibility, weight control and dietary habits. Through lecture/laboratory presentations, and Health Services directed sessions, students will apply learned concepts to the design of individualized fitness and nutritional programs. For optimal benefits, it is recommended that students register concurrently with a physical education activity class to implement their personal fitness plan. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

248A Professional Activities/ Tennis
1 hour lecture, 3 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Corequisite: Physical Education 220.
This course covers the theoretical concepts necessary for students to compete successfully in their first intercollegiate tennis season. Topics covered include mechanical analysis of fundamental through advanced tennis skills, offensive and defensive strategies, statistics, and rules. This course is offered separately for men and women who are interested in competing at the intercollegiate level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

**248B Professional Activities / Tennis II**

1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option

*Advisory: Physical Education 248A with a grade of "C" or better, or equivalent.*

This course further develops the theoretical and practical skills necessary for students to compete successfully in their second intercollegiate tennis season. Emphasis is placed on advanced offensive and defensive tennis skills and strategies. This course is offered separately for men and women who are interested in competing at the intercollegiate level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

**249A Professional Activities/Badminton**

1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option

*Corequisite: Physical Education 200.*

This is a course in which students competing in their first intercollegiate badminton season learn the theoretical concepts necessary for successful participation. Topics covered include mechanical analysis of fundamentals through advanced badminton skills, offensive/defensive strategies, statistics, rules and officiating. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

**249B Professional Activities / Badminton II**

1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only

*Prerequisite: Physical Education 201 with a grade of "C" or better, or equivalent.*

This is a course in which students competing in their second intercollegiate badminton season learn advanced theoretical concepts for successful participation. Topics covered include mechanical analysis of fundamentals through advanced badminton skills, offensive/defensive strategies, statistics, rules and officiating. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

**251A Professional Activities/Basketball I**

1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option

*Fall, This lecture/lab course includes discussion of rules, game strategies, history, and game preparation. The physiological requirements for the intercollegiate athlete and importance of nutritional components for optimal performance are emphasized. This course benefits students who are enrolled in PHYE 204, Intercollegiate Basketball I. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.*

**251B Professional Activities/Basketball II**

1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option

*Sophomore athletic eligibility status required. A continuation of Physical Education 252A with emphasis on advanced skills, strategy, tactics, rules officiating, and organizational procedures as it relates to school or college baseball. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.*
253A Professional Activities/Softball I
1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Corequisite: Physical Education 216.
This is a course which explores a variety of softball strategies and tactics focusing on the development of offensive and defensive strategies, rules, officiating, video review, and mechanical analysis of fundamentals through intermediate softball skills. The course is open to those interested in participating in the sport of softball at an intermediate level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

253B Professional Activities/Softball II
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only
Corequisite: Physical Education 217.
This course develops both mental and physical competency with emphasis on advanced skill, tactics, rules, both offensive and defensive strategies, officiating, facilities, video review, organizational procedures and physiological aspects of the game as they relate to college softball. The course is open to students interested in the sport of softball at the advanced level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

255A Professional Activities/Volleyball I
1.5 hours lecture, 1.5 hours lab, 2 units
Letter Grade or Pass/No Pass Option
Advisory: Concurrent enrollment in Physical Education 224 or Physical Education 225.
Fall, Spring, This is a course in which students competing in their first intercollegiate volleyball season learn the theoretical concepts necessary for successful participation. Topics covered include officiating, statistics, concepts for team building, goals for game preparation, leadership and social skills for success at the intercollegiate level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

255B Professional Activities/Volleyball II
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only
Fall, Spring, This is a course on which students competing in their second intercollegiate volleyball season learn the theoretical concepts necessary for successful participation. Topics covered include officiating, statistics, concepts for team building, goals for game preparation, leadership and social skills for success at the intercollegiate level. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

257A Professional Activities/Soccer I
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only
Fall, This course covers the theoretical concepts necessary for students to compete successfully in their first intercollegiate soccer season. Topics covered include mechanical analysis of fundamental through advanced soccer skills, offensive and defensive strategies, statistics, rules, and officiating. This course is offered separately for men and women. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

257B Professional Activities/Soccer II
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only
Fall, This is a lecture/lab course including activities and discussion of advanced team strategies, efficient conditioning techniques, goals for game preparation, and leadership qualities. Concepts for team building and social skills necessary for success at the intercollegiate level are emphasized. This course is offered separately for men and women in the fall semester. This course benefits students who are enrolled in PHYE 215, Intercollegiate Soccer II. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

258A Professional Activities/Cross Country I
1.5 hours lecture, 1.5 hours lab, 2 units
Grade Only
This course introduces students to the development of skills for cross country running as well as biomechanics, exercise physiology, workout design, scouting, and procedures for administrating a college cross country meet. The course is designed for students who are participating in this sport and for those who may be interested in coaching cross country teams. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a counselor.
258B Professional Activities/Cross Country II  
1.5 hours lecture, 1.5 hours lab, 2 units  
Grade Only

**Prerequisite:** Physical Education 258A with a grade of "C" or better, or equivalent.

This course covers the development of advanced skills in cross country running, including techniques of biomechanics, exercise physiology, workout design, and scouting. The course also focuses on procedures for administering college cross country meets and coaching techniques. The course is designed for second-year students who are participating in this sport and for those who are interested in coaching cross-country teams. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Limitations. See a Counselor.

296 Individual Instruction in Physical Education  
1.5 - 6 hours lab, .5 - 2 units  
Pass/No Pass Only

**Limitation on Enrollment:** Concurrent enrollment in an approved course of the same discipline is required. The instructor of the related course will supply Add Code to the student, which permits registration in the course.

This course provides supplemental instruction to reinforce achievement of the learning objectives of a course in the same discipline under the supervision of the instructor of the designated course. Learning activities may employ a variety of self-paced multimedia learning systems, language labs, print and electronic resources, laboratory, or field research arrangements, to assist student in reaching specific learning objectives. This open entry/open exit course is offered concurrently with designated courses. Associate Degree Credit & transfer to CSU and/or private colleges and universities.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

### Fitness Specialist Courses

**280 Applied Exercise Physiology**  
2 hours lecture, 2 units  
Grade Only

**Advisory:** Mathematics 46 with a grade of "C" or better, or equivalent, or Assessment Skill Level M40.

This course is part of the Fitness Specialist Certification Program. This course is designed for the student in the Fitness Specialist Certificate Program to study how the body functions under conditions of exercise stress and how fitness behaviors affect health and wellness. Emphasis is placed on muscular, cardiorespiratory, and other physiological processes that occur as a result of exercise conditioning, and the effect of disease. (FT) Associate Degree Credit only and not Transferable.

**281 Applied Kinesiology**  
2 hours lecture, 2 units  
Grade only

This course is designed for the student in the Fitness Specialist Certificate Program to study movement as it relates to exercise under both normal and injury conditions. Students learn the practical implications of bones, joints, nerves, and muscle actions. Emphasis is placed on applying body alignment, range of motion, stabilization, and acceleration principles to the development of exercise programs. (FT) Associate Degree Credit only and not Transferable.

**282 Techniques of Weight Training**  
2 hours lecture, 2 units  
Grade Only

This course, part of the Fitness Specialist Certification Program, is designed to provide a thorough review for those intending to teach weight training. The course studies anatomy and physiology, training sequences, available equipment, and safety factors, including contraindications. Associate Degree Credit only and not Transferable.

**283 Exercise and Fitness Assessment**  
1.75 hour lecture, .75 hour lab, 2 units  
Grade Only

This course is designed for the student in the Fitness Specialist Certificate Program to learn how to assess cardiorespiratory endurance, muscular strength and endurance, flexibility, body fat, pulmonary function, and blood pressure and evaluate the results. Emphasis is placed on determining the appropriate test, conducting the test, evaluating the results, and creating an exercise program. (FT) Associate Degree Credit only and not Transferable.
284 Fitness and Sports Nutrition
2 hours lecture, 2 units
Grade Only
Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels RS and W5.
This course is part of the Fitness Specialist Certification Program. Students will study the basic principles of nutrition and the ramifications of nutrition on sports activities. Associate Degree Credit only and not Transferable.

285 Exercise for Special Populations
2 hours lecture, 2 units
Grade Only
This course is designed for the student in the Fitness Specialist Certificate to study the exercise implications for special populations related to age, medical condition and level of fitness. Emphasis is placed on cardiac conditions, diabetes, physical disabilities, HIV and AIDS, asthma, sensory impairments, seniors, children, athletes, mentally impaired and pregnant and post partum women and the issues and barriers to exercise. (FT) Associate Degree Credit only and not Transferable.

286 Techniques of Exercise Leadership
1.75 hours lecture, .75 hour lab, 2 units
Grade Only
This course is designed for the student in the Fitness Specialist Certificate Program to study the principles and techniques involved in teaching group exercise and developing a personal trainer/client relationship. Emphasis is placed on client assessment, communication skills, program design, exercise adherence, teaching strategies, and professional responsibility and liability. (FT) Associate Degree Credit only and not Transferable.

287 Fitness Specialist Internship
1 hour lecture, 6 hours lab, 2 units
Grade Only
Prerequisite: Physical Education 280, 281, and 283, each with a grade of “C” or better, or equivalent.
This course is designed to provide students in the Fitness Specialist Certificate Program with practical experience in the field of exercise and fitness. Emphasis is placed on participant screening, evaluation, and exercise program design, self marketing, fitness specialist/client relationships and professional responsibility in a fitness setting. (FT) Associate Degree Credit only and not Transferable.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Physics
See “Physical and Earth Sciences” on page 377.

Physical Science
See “Physical and Earth Sciences” on page 377.

### Political Science

**Units**

<table>
<thead>
<tr>
<th>Associate in Arts Degree:</th>
<th>Political Science</th>
<th>18*</th>
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<tbody>
<tr>
<td>*and courses to meet graduation requirements, general education and electives as needed to meet minimum of 60 units required for the degree.</td>
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**Description**
The primary objectives of the Political Science program are to meet general education requirements for American Institutions and Social Sciences for the associate degree and to complete general education requirements for baccalaureate degrees. Political science is the study of human behavior as it relates to political situations. It involves the examination of institutions, processes, people, ideas and policies. The study of political science develops cultural literacy, critical thinking and other useful skills.

**Program Emphasis**
San Diego City College offers four courses in Political Science: Political Science 101, 102, 103 and 140. Completion of Political Science 101, 102 and 103 provides the student with lower division preparation for a baccalaureate degree in Political Science at San Diego State University.
Career Options
Most careers in political science require education beyond the associate degree and some require a graduate degree. This is not a comprehensive list but some of the most common career options with political science preparation include: public administrator, budget analyst, city planner, diplomatic corps member, elected official, legislative aide, journalist, lawyer, lobbyist, political scientist, public opinion surveyor, teacher and writer.

Student Learning Outcomes
Upon successful completion the student will be able to:

• Critically analyze the study of human behavior as it relates to political situations in college-level essays, written assignments, and research papers.
• Identify and describe main concepts in the study of political science including, but not limited to, political power, sovereignty, nation-state; legitimacy; authority, political culture, political socialization, political ideology; social contract; separation of powers; federalism; unitary system; rule of law and globalization.

Academic Programs
The associate degree in Political Science requires completion of courses listed below. Additional general education and graduation requirements for the associate degree are listed in the catalog. The associate degree requires a minimum of 60 units.

Associate in Arts Degree: Political Science

Courses Required for the Major: Units
HIST 100 & 101, World History, I & II or HIST 105, 106, Introduction to Western Civilization, I & II .......................................................... 3,3
POLI 101, Introduction to Political Science .............................................. 3
POLI 102, The American Political System .............................................. 3
POLI 103, Comparative Politics ............................................................ 3
MATH 119, Elementary Statistics or PSYC 258, Behavioral Science Statistics .......................................................... 3
Total Units = 18

Recommended electives: Political Science 140, 290, 296.

Transfer Information
Common university majors related to the field of Political Science include:
Developmental Studies, International Relations, Law, Peace and Conflict Studies, Policy Analysis, Political Science, Public Administration.

Course Requirements for Transfer Students
Students who plan to transfer to a four year college or university and earn a bachelor’s degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student’s specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

Courses

Political Science (POLI)

101 Introduction to Political Science
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course is an introductory study of the fundamental concepts and methods of Political Science. Emphasis is placed on historical and contemporary political theories, ideologies and cultures as well as on political institutions, parties and interest groups and the international political system. This course may be required for students planning to major in Political Science and is highly recommended for students transferring to four-year institutions. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

102 The American Political System
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of “C” or better, or equivalent, or Assessment Skill Levels R5 and W5.
This comprehensive survey course, designed for students intending to transfer to a four-year college or university, provides an in depth study of the American political system. Both national and California experiences are studied from the perspective of constitutional frameworks, institutions, issues, and policies. Political Science 102 is required for completion of the major in political science. Political Science 102 may be offered in a self-paced format. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

103 Comparative Politics

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
Limitation on Enrollment: This course is not open to students with credit for Political Science 130.
A general study of selected governments, their development, organization, administration, and politics. Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

140 Contemporary International Politics

3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course is a study of world politics including the various approaches to international relations and international political economy. Emphasis is placed on the roles of nationalism, nation-states, transnationalism and international organizations in the making of contemporary world politics as well as on issues of national security, power and diplomacy, economic competition, international law and the environment. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List.

This discipline may offer specialized instruction in one or more of the following areas: Supervised Tutoring (044), Experimental Topics (265), Independent Study (290), Individualized Instruction (296), Service Learning (277), or Work Experience (270). Detailed course descriptions are listed on page 120. Please refer to the class schedule and/or see the dean or department chair for availability.

Psychology
See “Behavioral Sciences” on page 124.

Radio and Television
See “Communications” on page 192.

Real Estate
See “Business Studies” on page 152.

Russian
See “Languages” on page 326.

Selected Studies

Designed for students who are interested in a program of studies that will allow them to attain educational or career goals that are not satisfied by associate degrees offered in Programs of Instructions listed in this catalog.

Associate in Arts Degree: Selected Studies

Courses Required for the Major:
The student must earn a minimum of 18 required semester units in a single discipline or related disciplines. The approved course of study represents a cohesive and rigorous program of instruction related to a specific goal not met by other Programs of Instruction as found in this catalog. The student and a counselor will develop a Selected Studies program to be submitted to an academic standards committee for review and approval. The student is encouraged to meet with the counselor early in his or her educational career to review the student’s statement of justification for the Associate in Arts Degree: Selected Studies and to develop an education plan.

Only one course from the approved pattern for the Selected Studies major may be used to satisfy SDCCD general education requirements. Students must fulfill additional requirements for the Associate Degree as listed in this catalog.
Electives as needed to meet minimum of 60 units required for the degree:

Recommended Electives: Electives are particularly important in this program. They may be used by the student to strengthen the major, explore new fields of interest, and satisfy graduation requirements at a four-year institute. The student who plans carefully may fulfill the requirements for the A.A. Degree and also complete most lower division requirements at the four-year institution of his/her choice in the major area and in general education. See generalized guide for transfer student located in this catalog.

Statement of Goals:
The primary goals of the program are: 1. Occupational: To prepare students for the changing technology associated with shipbuilding by giving them a fundamental understanding of the trade, skill and management technologies and how they apply to a globally competitive industry. To help students enhance skills so they can advance as technologists and managers of technologists in the shipbuilding industry. 2. Transfer: To enable students to transfer to a four-year baccalaureate degree program in industrial technology. The objectives of the program are: 1. To provide students with a strong foundation in the practical and academic skills necessary for success in upper division study at a four-year college. 2. To give students a strong foundation in the skills necessary for success in current job positions or for promotional opportunities in the shipbuilding industry. 3. To develop students’ productivity, efficiency and creativity in the field of shipbuilding technology. 4. To provide students with the knowledge and ability to apply problem solving skills to real shipbuilding issues. 5. To offer students and local employers a complete certification program that can be used as a criterion in hiring processes. 6. To offer local shipbuilding employers and students a sequence of courses leading to a certificate that will improve the skill and abilities of their employees.

Program Emphasis
The program offers instruction in the specific trades, tools, techniques and processes involved in shipbuilding. Teamwork is emphasized, reflecting the interdisciplinary work environment emerging in the shipbuilding industry. The curriculum is project based and emphasizes the integration of technical knowledge with leadership skills to help shipyards achieve desired goals associated with global competition. An associate in science degree will be awarded upon completion of the common core courses and the San Diego City College graduation and general education requirements. In addition, a certificate of achievement may be awarded upon the completion of the courses required for the major.

Faculty Office Telephone
Fred Julian A-107D 619-388-3720

Career Options
Sheetmetal mechanic, Welder, Electrician, Machinist, Pipefitter, Multi-skilled technician/mechanic, Manufacturing Engineer, Quality Systems Engineer, Supervisor, Shipyard Administrator, CAD/CAM Operator, Vocational Trainer.
Student Learning Outcomes
Through a process of engagement with organizational management and technical shipbuilding curriculum, the student will be equipped to:

- Explain all facets of shipbuilding technology from supply chain management through final testing the delivery of a completed ship.
- Read, comprehend and apply best practices in trade design and incorporation of manufacturing techniques to meet specialty requirements in shipbuilding.
- Identify, explain and utilize methods and best trade practices to maximize safety in shipbuilding technologist worksites and effective management and implementation of trade safety processes.
- Apply and incorporate principles of effective organizational leadership, including management techniques to supervise technologists in milestone program staging to support standardized and timely manufacturing outcomes.

Academic Programs
The associate degree in Shipbuilding Technology requires completion of courses listed below. Additional general education and graduation requirements for the associate degree are listed in the catalog. The associate degree requires a minimum of 60 units.

Certificate of Achievement: Shipbuilding Technology
The Certificate of Achievement in Shipbuilding Technology prepares for entry-level employment as a shipyard multi-trade technician. Additionally, it is designed to give technical, trade-specific knowledge to those working in other jobs in a shipyard, such as finance or supervision. The sequence of courses provides the basis for skills necessary to manage technicians in a globally competitive arena.

Courses Required for the Major:
SHIP 101, Introduction to Shipbuilding Technology I ................................................. 3
SHIP 103, Introduction to Shipbuilding Technology II ................................................. 3
SHIP 110, Shipyard Safety and Safety Management ..................................................... 3
SHIP 115, Shipbuilding Processes ............................................................................. 3
SHIP 115L, Shipbuilding Processes Lab ................................................................. 1
SHIP 201, Technological Issues: Organization and Effective Leadership in Shipbuilding ................................................. 3
SHIP 205, Culminating Project ............................................................................. 3
ELCT 111, Electrical Theory I ............................................................................. 3
ELCT 111L, Electrical Laboratory I ........................................................................ 2
Total Units = 24

Associate in Science Degree: Shipbuilding Technology
The Associate in Science Degree in Shipbuilding Technology requires completion of courses listed below (24 units total). Additional general education and graduation requirements for the associate degree are listed in the Academic Requirement section of the catalog. The associate degree requires a minimum of 60 units.

Courses Required for the Major:
SHIP 101, Introduction to Shipbuilding Technology I ................................................. 3
SHIP 103, Introduction to Shipbuilding Technology II ................................................. 3
SHIP 110, Shipyard Safety and Safety Management ..................................................... 3
SHIP 115, Shipbuilding Processes ............................................................................. 3
SHIP 115L, Shipbuilding Processes Lab ................................................................. 1
SHIP 201, Technological Issues: Organization and Effective Leadership in Shipbuilding ................................................. 3
SHIP 205, Culminating Project ............................................................................. 3
ELCT 111, Electrical Theory I ............................................................................. 3
ELCT 111L, Electrical Laboratory I ........................................................................ 2
Total Units = 24

Recommended electives: Electricity 121, 121L; Electronic Systems 124, 124L; Mathematics 46, 096, 118, 119; Speech Communications 103. Additional recommended electives -- Chemistry and Physics courses. Shipbuilding Technology recommended electives include major preparation transfer units for the Fresno State Industrial Technology Bachelor of Science Degree as well as lower division transfer preparation for San Diego State and other colleges and universities. See TRANSFER INFORMATION for more information.

Transfer Information
Common university majors related to the field of Shipbuilding include: Industrial Engineering, Industrial Technology.

Course Requirements for Transfer Students
Students who plan to transfer to a four year college or university and earn a bachelor's degree in this discipline should consult with a counselor or visit the Transfer/Career Center to determine the appropriate
major preparation courses for their specific transfer institution and major. Transfer students may also earn an Associate of Arts degree in Liberal Arts and Sciences with an emphasis. This degree may be individually tailored to each student's specific transfer requirements in order to provide the most efficient path to transfer. More information on transfer programs and procedures is available in the Transfer Programs section of the catalog.

Courses

Shipbuilding Technology (SHIP)

50 Orientation to the Maritime Professions
3 hours lecture, 3 units
Letter Grade or Pass/No Pass Option
This survey course provides students with an overview of the maritime industry. It provides a broad understanding of the waterfront community, its functions, terminology, and occupational choices in the various fields in maritime as well as the place of the industry in the American economy as a whole. (FT) Associate Degree Credit only and not Transferable.

101 Introduction to Shipbuilding Technology I
3 hours lecture, 3 units
Grade Only
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This is a survey course that covers the history, standard business models, and current concepts, theories and methods related to manufacturing in the shipbuilding industry. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

103 Introduction to Shipbuilding Technology II
3 hours lecture, 3 units
Grade Only
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This is a survey course designed to acquaint the student with the shipbuilding industry. The course will focus on essential products and processes required in strategic departments and organizations throughout the shipyard. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

110 Shipyard Safety and Safety Management
3 hours lecture, 3 units
Grade Only
Advisory: Completion of or concurrent enrollment in English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course focuses on the principles of behavior-based safety as it relates to: safety legislations and organizations, management and employee responsibilities and attitudes, management systems, philosophy and issues, and the physical hazards associated with the shipyard environment. (FT) Associate Degree Credit and transfer to CSU and/or private colleges and universities.

115 Shipbuilding Processes
3 hours lecture, 3 units
Grade Only
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course will investigate how ships are built; focusing on how raw materials (primarily steel) are changed into a finished product. The course provides an overview of the theory behind the manufacturing and construction processes required in shipbuilding including forming (heating, cutting, bending), separating (burning, cutting, drilling), assembling (mechanical, welding) and corrosion control. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

115L Shipbuilding Processes Lab
3 hours lab, 1 unit
Grade Only
Corequisite: Completion of or concurrent enrollment in Shipbuilding Technology 115 with a grade of "C" or better, or equivalent.
Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.
This course involves laboratory practice in basic metal processes. Emphasis is placed on safety, measurements, common formulas, machine, tool and equipment applications, and project work. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.
201 Technological Issues: Organization and Effective Leadership in Shipbuilding
3 hours lecture, 3 units
Grade Only

Advisory: English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.

This course introduces shipbuilding technology students to the unique issues, problems and challenges encountered in a rapidly changing manufacturing environment. The course will analyze internal and external factors such as environment, size, technology, politics, strategy, human resources, job design and organization culture as they relate to the technologist or manager of technology. The course focuses on the basic tools and techniques for the planning and scheduling of projects, as well as the techniques for effective communication. The course will also address leadership theories, including building and motivating effective teams and the application of those theories to the shipyard environment. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

205 Culminating Project
3 hours lecture, 3 units
Grade Only

Advisory: Completion of or concurrent enrollment in English 48 and English 49, each with a grade of "C" or better, or equivalent, or Assessment Skill Levels R5 and W5.

The Shipbuilding Technology final project is intended to be the culminating scholastic effort or capstone experience providing the student with the opportunity to use knowledge and skills acquired in previous courses in problem solving, research, teamwork, and communication in a shipbuilding environment. The student, with the approval of the assigned faculty advisor, selects a topic, develops a problem statement and outlines the approach. Then the student - by investigating and recommending a solution to a topic typical of problems graduates must solve in their field of employment - completes the project under the guidance of the faculty advisor. Project results are presented in a formal report in both written and oral format. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

Social Work
See “Behavioral Sciences” on page 124.

Sociology
See “Behavioral Sciences” on page 124.

Spanish
See “Languages” on page 326.

Speech
See “Communications” on page 192.

Theater
See “Visual and Performing Arts” on page 409.

Courses

Technical Writing (TEHW)

101 Introduction to Technical Writing
3 hours lecture, 3 units
Grade Only

Advisory: English 101 with a grade of “C” or better, or equivalent, or Assessment Skill Levels W6 and R6.

This course will cover how to evaluate and organize technical information, develop ideas, and establish good working relationships with technical experts. The course provides practice in technical writing formats and techniques, and offers an overview of career opportunities. (FT) Associate Degree Credit & transfer to CSU and/or private colleges and universities.

Two- and Three-Dimensional Art
See “Visual and Performing Arts” on page 409.