AUTO 99C  Introduction to Engine Performance  6 1/4 Units
Prerequisite: Automotive Technology 99A.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory (150 hours total per quarter).
Electronically controlled automotive systems. Fundamentals of automotive
microprocessors and automotive onboard computers. Testing techniques for
system input and output devices. Diagnosis, troubleshooting, and repairing the
automotive fuel supply system including carburetion and feedback carburetion.
Diagnosis, troubleshooting, and repair techniques for no-start conditions. Procedure
development for analyzing and repairing common problems of fuel, ignition,
electrical and basic engine mechanical systems which affect engine performance
of the automobile.

AUTO 99D  Intermediate Engine Performance  6 1/4 Units
Prerequisite: Automotive Technology 99A.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory (150 hours total per quarter).
Electronically controlled engine performance systems. Diagnosing, troubleshooting
and repairing the automotive fuel-injection systems of domestic automobiles.
Testing techniques for system input and output devices using automotive scanners
and oscilloscopes.

AUTO 99E  Basic Engine Performance Diagnostic  6 1/4 Units
Prerequisite: Automotive Technology 99C.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory (150 hours total per quarter).
Automotive technician training program to include each system which aids in
increasing fuel economy and in the reduction of emissions and pollutants from the
automobile. Diagnosing and troubleshooting the systems controlling automotive
performance and driveability.

AUTO 99F  Intermediate Engine Performance Diagnostic Procedures  6 1/4 Units
Prerequisite: Automotive Technology 99C.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Twelve and one-half hours lecture-laboratory (150 hours total per quarter).
Performance tuning of automotive gasoline engines. Emphasis on reference
material dealing with repair procedures, specifications, and efficient tune-up
procedures. Intermediate level for usage of computer scanners and oscilloscopes.
Diagnosing, troubleshooting and repairing the systems designed for the control
of engine temperature.

Biology

BIOL 5  Biology of Birds  5 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory (84 hours total per quarter).
A general introduction to the biology of birds and the relationships between birds
and people around the world. Examines general avian anatomy and physiology
with emphasis on diversity and bird identification and the ecology, behavior
and conservation of selected bird species.

BIOL 6A  Form and Function in the Biological World  6 Units
(See general education pages for the requirement this course meets.)
Prerequisite: A satisfactory score on the Chemistry Placement Exam or a grade
of C or better in either Chemistry 1A or 50.
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, six hours laboratory (120 hours total per quarter).
Introduction to biology and scientific methods for students beginning the biology
major sequence. Study of structure and physiological processes of living organisms,
with an emphasis on plants and animals.

BIOL 6B  Cell and Molecular Biology  6 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Biology 6A.
Advisory: English Writing 1A or English as a Second Language 5; Mathematics
114 or equivalent.
Four hours lecture, six hours laboratory (120 hours total per quarter).
Introduction to cellular structure and function, biological molecules, bioenergetics,
protein synthesis, and cell proliferation. The laboratory includes extensive hands-
on experimentation in molecular biology.

BIOL 6C  Ecology and Evolution  6 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Biology 6A and 6B, with a grade of C or better.
Advisory: English Writing 1A or English as a Second Language 5; Mathematics
114 or equivalent.
Four hours lecture, six hours laboratory (120 hours total per quarter).
Principles of ecology and evolution. Includes ecology of populations, communities,
ecosystems and biomes as well as evolution of populations, and the origin of
species and higher taxa. The laboratory portion of the course includes a research
project designed, researched and presented by students.

BIOL 8  Biology of Women  4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture (48 hours total per quarter).
Designed for non-science majors to explore women's anatomical and physiological
characteristics and their management for good health. The emphasis is on the
biological processes and principles organizing a "typical" female life progression,
with a secondary focus on the structural and functional dimorphism of human
body systems. It also aims at recognizing components of the scientific process
distorted in the historical view of women and the impact that societal and cultural
biases have on behavior and on female health issues.

BIOL 10  Introductory Biology  5 Units
(Not open to students who have completed Biology 6A, 6B, 6C or equivalent.)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory (84 hours total per quarter).
An introduction to biology as a branch of the biological sciences and to its basic
unifying principles, with selected application to the scientific method, evolutionary
concepts, genetic modification, biotechnology, ecology, ecological crises and
human impacts.

BIOL 11  Human Biology  5 Units
(Not open to students who have completed Biology 6A, 6B, 6C or equivalent.)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory (84 hours total per quarter).
An introduction to biology as a branch of the biological sciences and to its basic
unifying principles, with selected application to the scientific method, evolutionary
concepts, genetic modification, biotechnology, ecology, ecological crises and
human impacts.

BIOL 13  Marine Biology  5 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture, three hours laboratory (84 hours total per quarter).
Introduction to physical and chemical oceanography, marine animals, marine
plants, and marine ecology with major emphasis on natural history of marine life.
Bays, estuaries and open oceans are described as habitats. Marine biology as a branch
of the biological sciences, employs the scientific method.

BIOL 15  California Ecology  5 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture, three hours laboratory (84 hours total per quarter).
An introduction to ecology and field biology as a branch of the biological sciences
and its relationship to the scientific method. A review of plant and animal adaptations
to the natural environments and the impact of pollution, degradation of habitat,
and human population on life.

BIOL 26  Introductory Microbiology  6 Units
Prerequisite: (Biology 40A, 40B and 40C) or (Biology 6A, 6B and 6C), or
equivalent, all with a grade of C or better.
Four hours lecture, six hours laboratory (120 hours total per quarter).
Introduction to the sciences and the scientific method as exemplified by the study
of microbiology. Morphology, metabolism, growth and genetics of bacteria and
other microorganisms; chemical and physical methods of control; the disease process
and immunity. The importance of microorganisms to humankind; techniques
and methods of microbiology.

BIOL 40A  Human Anatomy and Physiology  5 Units
Prerequisite: Satisfactory score on the Biology 40A Placement Test or Chemistry
1A or Chemistry 30A with a grade of C or better.
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory (64 hours total per quarter).
An introduction to the discipline of anatomy and physiology. Basic principles of
human anatomy and physiology as exemplified in the study of cell chemistry,
cell biology, histology and the integumentary, skeletal and muscular systems with
emphasis on homeostatic mechanisms.
All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
BUS 56  Human Relations in the Workplace  5 Units  
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Five hours lecture (60 hours total per quarter).
Human relations behavior in organizations emphasizing personal and interpersonal relationships, examination of motivation, communication skills, leadership skills, emotional and physical wellness, diversity, and ethical behavior for promoting effectiveness on the job.

BUS 57  Human Resource Management  4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Business 10 or 56.
Four hours lecture (48 hours total per quarter).
Introduction to course designed to teach fundamental components of the Human Resource function. Focus on understanding and applying various roles of Human Resources (recruitment, legal issues, selection, assessment and development, compensation, benefits) provides to employees and the organization to meet individual, organizational diversity and societal objectives.

BUS 58  The Business Plan  4 Units
Advisory: Business 55.
Four hours lecture (48 hours total per quarter).
Effectively organize the resources required to establish a new business and obtain financing by writing an analysis of the prospective business enterprise.

BUS 59  Promoting Your Small Business  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Affordable methods of promotion for small businesses. Emphasis on Internet marketing, public relations, relationship marketing, database marketing, and guerrilla marketing tactics. A promotion plan for the students’ (existing or planned) businesses will be developed.

BUS 60  International Business Management  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Five hours lecture (60 hours total per quarter).
International Business and its functions in a diverse global economy. Understanding cross-border trade and investment; distance, time zone and language issues; national differences in government regulation, culture and business systems.

BUS 64  Technical Writing Seminar  5 Units  
Prerequisite: Business 62 or 63; or English Writing 62 or 63; or Technical Writing 62 or 63.
(Also listed as English Writing 64 and Technical Writing 64. Students may enroll in only one department for credit.)
Five hours lecture (60 hours total per quarter).
Technical communication and editing skills applied through the preparation and presentation of a complete document according to the standards of the student’s chosen technical field.

BUS 65  Leadership  5 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Develop effectiveness in leadership situations and understand the complex challenges of leadership. Adapt leadership techniques to build successful relationships in a culturally diverse world.

BUS 67A  Federal Income Tax  4 Units
(Formerly Business 67.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent; Accounting 1A (may be taken concurrently).
(Also listed as Accounting 67A. Students may enroll in either department, but not both, for credit.)
Four hours lecture (48 hours total per quarter).
A study of current federal income tax law and the procedures for preparing an individual’s tax return.

BUS 67B  Advanced Tax Accounting I  4 Units
(Formerly Business 68A.)
Advisory: Accounting 67A or Business 67A.
(Also listed as Accounting 67B. Students may enroll in either department, but not both, for credit.)
Four hours lecture (48 hours total per quarter).
A study of current federal income tax law and California income tax law as it relates to individuals and sole proprietorship taxes.

BUS 69  Investment Fundamentals  4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture (48 hours total per quarter).
Introduction to securities investment: securities characteristics and rights; selection and purchase of stock; analysis of financial statements; investment methods; technical market and stock analysis; impact on financial planning.

BUS 70  Principles of E-Business  5 Units  
Requisite/Advisory: None.
Five hours lecture (60 hours total per quarter).
Theory and practice of effectively conducting and managing business over the Internet. Insights into e-business models, strategy, technology, auctions, and marketing. Students are expected to complete computer assignments.

BUS 85  Business Communication  3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture (36 hours total per quarter).
Application of writing skills to business communications; public relations functions of business correspondence.

BUS 86  Introduction to Selling  4 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture (48 hours total per quarter).
Application of business and behavioral sciences in a selling environment. Building successful relationships in a culturally diverse world.

BUS 89  Advertising  5 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Advertising as human communication; historic, economic, and social aspects of advertising; why organizations use advertising; role of advertising agency; creative strategy (developing messages through art and copy) and media strategy (deciding where and when to place the messages); development of advertising budgets; analysis and creation of successful advertising campaigns.

BUS 90  Principles of Marketing  5 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Fundamentals of marketing; product planning and development; pricing strategies; and marketing channels.

BUS 91  Introduction to Personal Finance  3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture (36 hours total per quarter).
Introduction to a range of personal financial planning fundamentals including spending habits, taxes, saving, investing, and insurance. Planning for major life events such as paying for college, buying a home, and retiring comfortably.

BUS 95  Principles of Management  5 Units  
(Formerly Business 95.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Roles, functions, and responsibilities of management; the external environments and their impact on management.

CAD and Digital Imaging

CDI 51  Geometric Dimensioning and Tolerancing  2 Units
(Formerly CAD and Digital Imaging 51C.)
Prerequisite/Advisory: None.
Four hours lecture-laboratory (48 hours total per quarter).
Geometric dimensioning and tolerancing, utilizing ANSI Y14.5M standards as they apply to engineering and manufacturing drawings and machining.

CDI 56  Special Projects in CAD  1 Unit
2 Units
3 Units
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
Projects advancing student’s knowledge and experience in a selected area of CAD. Students will complete project objectives/requirements as determined in 3, 4, and 5 of the Special Projects Contract.

CDI 60  SolidWorks (Beginning)  4 Units
(Formerly CAD and Digital Imaging 60.)
Prerequisite/Advisory: None.
Two hours lecture, six hours laboratory (86 hours total per quarter).
Fundamentals of computer-aided design and drafting using SolidWorks software. Application of SolidWorks in creating manufacturing models.

CDI 61  SolidWorks (Intermediate)  4 Units
(Formerly CAD and Digital Imaging 61G.)
Prerequisite: CAD and Digital Imaging 60 or consent of instructor.
Two hours lecture, six hours laboratory (96 hours total per quarter).
Intermediate-level application of SolidWorks in creating solid models and drawings. Introduction to surface features and basic surfacing techniques.
CDI 105Z  2 Units
(Creom Parametric (Intermediate)
(Formerly CAD and Digital Imaging 71F)
Prerequisite: CAD and Digital Imaging 70 or consent of instructor.
Two hours lecture, six hours laboratory (96 hours total per quarter).
Fundamentals of part design, using Creom Parametric. Application of operating
system, software, hardware, and peripherals in creating 3D manufacturing models
with Creom Parametric.

CDI 105Y  1 1/2 Units
CDI 104Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on Creom software. Instruction is
in the use of CAD technology using projects from other Creom courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in Creom software.

CDI 104X  1 Unit
SolidWorks (Intermediate)
CDI 104Y  1 1/2 Units
CDI 104Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on SolidWorks software. Instruction is
in the use of CAD technology using projects from other SolidWorks courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in SolidWorks software.

CDI 103X  1 Unit
CDI 103Y  1 1/2 Units
CDI 103Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on Creom software. Instruction is
in the use of CAD technology using projects from other Creom courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in Creom software.

CDI 102X  1 Unit
CDI 102Y  1 1/2 Units
CDI 102Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on Creom software. Instruction is
in the use of CAD technology using projects from other Creom courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in Creom software.

CDI 101X  1 Unit
CDI 101Y  1 1/2 Units
CDI 101Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on Creom software. Instruction is
in the use of CAD technology using projects from other Creom courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in Creom software.

CDI 108X  1 Unit
CDI 108Y  1 1/2 Units
CDI 108Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on SolidWorks software. Instruction is
in the use of CAD technology using projects from other SolidWorks courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in SolidWorks software.

CDI 107X  1 Unit
CDI 107Y  1 1/2 Units
CDI 107Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on SolidWorks software. Instruction is
in the use of CAD technology using projects from other SolidWorks courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in SolidWorks software.

CDI 106X  1 Unit
CDI 106Y  1 1/2 Units
CDI 106Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on SolidWorks software. Instruction is
in the use of CAD technology using projects from other SolidWorks courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in SolidWorks software.

CDI 109X  1 Unit
CDI 109Y  1 1/2 Units
CDI 109Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on SolidWorks software. Instruction is
in the use of CAD technology using projects from other SolidWorks courses. Learning
assistance is provided in a designated De Anza center by an approved De Anza
instructor who is trained in SolidWorks software.

CDI 110X  1 Unit
CDI 110Y  1 1/2 Units
CDI 110Z  2 Units
Requisite/Advisory: None.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
Pass-No Pass (P-NP) course.
Self-paced projects and computer based training on CAD software. Instruction is
in the use of CAD technology to create models and drawings complying with
ANSI Y14.5. Geometric Dimensioning and Tolerancing. Learning assistance is
provided in a designated De Anza center by an approved De Anza instructor who
is trained in CAD software.

Cantonese

CANT 1  Elementary Cantonese (First Quarter)  5 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Cantonese language and culture of Southeast China in the region of Guangdong
Province is presented and studied. Basic speaking, listening, reading and writing
of Cantonese will be introduced within a cultural context. Emphasis will be on
language as an expression of culture.
CHEM 1A General Chemistry 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Chemistry 50 or Chemistry 30A or satisfactory score on Chemistry Placement Test; Mathematics 114 or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture, six hours laboratory (108 hours total per quarter).
An introduction to the principles of chemistry. Investigation of reversible reactions from the standpoint of kinetics, thermodynamics, and equilibrium. Application of equilibrium to the reactions of acids and bases.

CHEM 1B General Chemistry 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Chemistry 1A with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture, six hours laboratory (108 hours total per quarter).
Continuation of an introduction to the principles of chemistry. Investigation of reversible reactions from the standpoint of kinetics, thermodynamics, and equilibrium. Application of equilibrium to the reactions of acids and bases.

CHEM 1C General Chemistry and Qualitative Analysis 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Chemistry 1B with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture, six hours laboratory (108 hours total per quarter).
Introduction to electrochemistry, the chemistry of transition metals, and the chemistry of organic compounds. Identification of ions using qualitative analysis methods.

CHEM 10 Introductory Chemistry 5 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Mathematics 210 or equivalent.
Four hours lecture, three hours laboratory (84 hours total per quarter).
An introduction to the discipline of chemistry, including chemical laboratory techniques and methods and a survey of important chemical principles. The course emphasizes chemistry as a subject of scientific inquiry and is designed to give the student a general appreciation for chemistry as a science.

CHEM 12A Organic Chemistry 5 Units
Prerequisite: Chemistry 1C with a grade of C or better.
Advisory: English Writing 1A or English as a Second Language 5.
Three hours lecture, six hours laboratory (108 hours total per quarter).
An introduction to the physical properties and chemical behavior of important classes of organic compounds, focusing on hydrocarbons and haloalkanes. Emphasis on retrosynthetic analysis, spectroscopic structure determination, and reaction mechanisms. Laboratory experiments involving the synthesis of simple compounds and the characterization of those compounds using gas chromatography (GC), and infrared (IR) and nuclear magnetic resonance (NMR) spectroscopy. For chemistry majors or those in closely allied fields such as biochemistry and chemical engineering.

CHEM 12B Organic Chemistry 5 Units
Prerequisite: Chemistry 12A with a grade of C or better.
Advisory: English Writing 1A or English as a Second Language 5.
Three hours lecture, six hours laboratory (108 hours total per quarter).
An exploration of the physical properties and chemical behavior of important classes of organic compounds, focusing on: polyenes; aromatic compounds; alcohols, thiols, and ethers; and aldehydes and ketones and their derivatives. Emphasis on retrosynthetic analysis, spectroscopic structure determination, and reaction mechanisms. Laboratory experiments involving the synthesis of simple compounds and the characterization of those compounds using chromatography and infrared (IR), ultraviolet-visible (UV-Vis), and nuclear magnetic resonance (NMR) spectroscopy. For chemistry majors or those in closely allied fields such as biochemistry and chemical engineering.

CHEM 12C Organic Chemistry 5 Units
Prerequisite: Chemistry 12B with a grade of C or better.
Advisory: English Writing 1A or English as a Second Language 5.
Three hours lecture, six hours laboratory (108 hours total per quarter).
An exploration of the physical properties and chemical behavior of important classes of organic compounds, focusing on: amines, carboxylic acids, and carboxylic acid derivatives, with an introduction to the chemistry of terpenes, lipids, carbohydrates, and proteins. Emphasis on retrosynthetic analysis, spectroscopic structure determination, and reaction mechanisms. Laboratory experiments involving the multi-step synthesis of organic compounds and the characterization of those compounds using chromatography and infrared (IR) and nuclear magnetic resonance (NMR) spectroscopy. For chemistry majors or those in closely allied fields such as biochemistry and chemical engineering.

CHEM 30A Introduction to General, Organic, and Biochemistry I 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 114 or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture, three hours laboratory (84 hours total per quarter).
This course concludes with a discussion of acid–base chemistry and nuclear chemistry.

CHEM 30B Introduction to General, Organic, and Biochemistry II 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Chemistry 30A or Chemistry 50 or Chemistry 1A.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture, three hours laboratory (84 hours total per quarter).
This class is for students entering the allied health fields. The focus of the second part of Introduction to General, Organic, and Biochemistry is organic and biochemistry.
The topics included in organic chemistry are: hydrocarbons, alcohols, thiols, ethers, carboxylic acids, esters, amines, and amides. Various physical and chemical properties of these organic substances will be studied along with nomenclature and structural features. The topics included in biochemistry are: carbohydrates, fatty acids and lipids, amino acids and proteins, DNA, various physicochemical properties of these biological molecules will be studied. A brief introduction to metabolism will also be discussed.

CHEM 50 Preparation Course for General Chemistry 5 Units
Prerequisite: Mathematics 114 or equivalent.
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture, three hours laboratory (84 hours total per quarter).
An introduction to the core theory and problem-solving techniques of chemistry as preparation for Chemistry 1A and other science related fields. An introduction to gravimetric and volumetric analysis, rudimentary laboratory equipment and operations, and the preparation and maintenance of a laboratory notebook.

CHEM 77 Special Projects in Chemistry 1 Unit
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
Pass-No Pass (P-NP) course.

CHEM 77X 2 Units
(CHEM 77Y 3 Units
Prerequisite: Consent of instructor and division dean.
Four hours lecture (48 hours total per quarter).
An introductory course that examines the major physical, psychosocial and cognitive/language developmental milestones for children, both typical and atypical, from conception through middle childhood. There will be an emphasis on interactions between maturation, social, cognitive, and physical processes and environmental factors. While studying developmental theory and investigative research methodologies, students will observe children, evaluate individual differences and analyze characteristics of development at various stages.

This course meets NAECY Standards 1 and 3; NBPTS Standards 1 and 4; and CEC Standards 1, 2, and 3.

C D 10G Child Development (The Early Years) 4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Also listed as Psychology 10G. Students may enroll in either department, but not both, for credit.)
Four hours lecture (48 hours total per quarter).
An introductory course that examines the major physical, psychosocial and cognitive/language developmental milestones for children, both typical and atypical, from school age through adolescence. There will be an emphasis on interactions between maturation processes and environmental factors. While studying developmental theory and investigative research methodologies, students will observe children, evaluate individual differences and analyze characteristics of development at various stages.

This course meets NAECY Standards 1 and 3; NBPTS Standards 1 and 4; and CEC Standards 1, 2, and 3.

C D 10H Child Development (Middle Childhood and Adolescence) 4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
(Also listed as Psychology 10H. Students may enroll in either department, but not both, for credit.)
Four hours lecture (48 hours total per quarter).
An introductory course that examines the major physical, psychosocial and cognitive/language developmental milestones for children, both typical and atypical, from school age through adolescence. There will be an emphasis on interactions between maturation processes and environmental factors. While studying developmental theory and investigative research methodologies, students will observe children, evaluate individual differences and analyze characteristics of development at various stages.

This course meets NAECY Standards 1 and 3; NBPTS Standards 1 and 4; and CEC Standards 1, 2, and 3.

C D 12 Child, Family and Community Interrelationships 4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
An introduction to the study of the developing person in a societal context including the interrelationship of family, schools and community. Emphasis on historical and socio-cultural factors. The processes of socialization and identity development will be highlighted, showing the importance of respectful, reciprocal relationships that support and empower families.

This course meets NAECY Standards; Standard 2 Building Family and Community Relationships and Standard 5: Becoming a Professional; NBPTS Early Childhood Generalist Standard 2 Equity, Fairness and Diversity, Standard 7 Family, Community Partnerships and Standard 9 Reflective Practice; CEC/DEC Standard 9 Professional and Ethical Practice and Standard 10 Collaboration.)

C D 50 Principles and Practices of Teaching Young Children 4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
The underlying theoretical principles of developmentally appropriate practices applied to programs, environments, and teaching strategies, emphasizing the key role of relationships, constructive adult-child interactions, and teaching strategies in supporting physical, social, creative and intellectual development for all young children. Includes a review of the historical roots of early childhood programs and the evolution of the professional practices promoting advocacy, ethics, and professional identity.

(This course meets NAECY Standard 4 Teaching and Learning; 4a Connecting with children and families; 4b Using developmentally effective approaches; Standard 5 Becoming a Professional 5a–5e NBPTS Standard IV promoting Child Development and Learning; Standard IX Reflective Practice; CEC/DEC Standard 3 Individual learning differences; Standard 5 Learning environments and social interactions; Standard 9 Professional and ethical practice.)

C D 51A Basic Student Teaching Practicum 5 Units
(Formerly Child Development 40G, 12, 50 and 54.
Ten hours lecture-laboratory (120 hours total per quarter).
A demonstration of developmentally appropriate early childhood teaching competencies under guided supervision. Students will utilize practical classroom experiences to make connections between theory and practice, develop professional behaviors, and build a comprehensive understanding of children and families. Child centered, play-oriented approaches to teaching, learning, and assessment; and knowledge of curriculum content areas will be emphasized as student teachers design, implement and evaluate experiences that promote positive development and learning for all young children.

(This course meets NAECY Standards 1, 2, 3, 4, and 5; and NBPTS Standards 1 through 9.)

C D 51B Advanced Student Teaching Practicum 5 Units
Prerequisite: Child Development 51A.
Ten hours lecture-laboratory (120 hours total per quarter).
A demonstration of advanced developmentally appropriate early childhood teaching competencies under guided supervision. Students will build on the basic teaching skills in a classroom experience to make more advanced connections between theory and practice, develop professional behaviors, and build a more comprehensive understanding of children and families. Advanced competency will include completing a child assessment.

(This course meets NAECY Standards 1, 2, 3, 4, and 5; and NBPTS Standards 1 through 9.)

C D 52 Observation and Assessment of Children 4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
The appropriate use of assessment and observational strategies to understand and document development and behavior. Recording strategies, rating systems, portfolios, and multiple assessment tools are explored.

(This course meets NAECY Standards 3a-3d; NBPTS Standards 3 and 4; DEC Standard 8 Assessment; CA Early Childhood Educator: Focus 1: Observation, Screening, Assessment and Documentation; CA ECE/Infant Family Early Childhood Mental Health Competencies Areas B and E.)

C D 53 Creative Art for the Young Child 3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Three hours lecture (36 hours total per quarter).
Overview of creative activities for children from infancy through the school years. Emphasis is on design, presentation and assessment of developmentally appropriate activities that use sensory, child centered materials to enhance imagination, creative thinking, problem solving, divergent thinking and self-expression in young children. Special attention is given to creating a climate that supports creative exploration and the role of the teacher in promoting growth and development of creativity in each child.

(This course meets NAECY Standards 1a, 1b, 1c; 4a, 4b, 4d; NBPTS Standards I, II, IV; and CDE/DEC Standards CC1- K10, CC4-S2; EC4-S1; CC7, S10, S11; SC7-E2).

C D 54 Curriculum for Early Childhood Programs 4 Units
Prerequisite: Child Development 10G (may be taken concurrently).
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
Curriculum development with emphasis on planning curriculum that is emergent, developmentally and individually appropriate and inclusive for all young children through age 6. Students will examine the teacher's role in supporting development by using observation and assessment strategies and emphasizing the essential role of play. Curricular areas included to be explored are: language and literacy, social and emotional learning, sensory learning, art and creativity, and math and science.

(This course meets NAECY Standards 1 and 4; and NBPTS Standards 4, 5 and 6.)

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted. 135
C D 55  
**Literacy Development and Activities**  
3 Units  
For the Young Child  
Advisory: Child Development 10G and/or Child Development 50.  
Three hours lecture (36 hours total per quarter).  
Theories of language acquisition and the process of language development in young children. Introduction to methods and materials that enhance emerging language and literacy for infants through school-age children in a culturally diverse society. (This course meets NAEYC Standards: 1a, 1b, 1c; 3a, 3b, 3c; 4b, 4c, 4d; NBPTS Standards 1-10 for ECE-Middle Years; DEC/CEC standards 1-8; and CA ECE Standards 1, 2, 5 and 8.)

C D 56  
**Understanding and Working with English Language Learners**  
3 Units  
Advisory: Completion of Child Development 10G or Psychology 10G and 55; English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
(Also listed as Education 56. Students may enroll in either department, but not both, for credit.)  
Three hours lecture (36 hours total per quarter).  
Developmental and cultural examination of the dual language learner in early childhood programs. Theories and developmental sequence of bilingual language acquisition. Role of teacher and methods for supporting the dual language child. (This course meets NAEYC Standard 4b: Teaching and learning: Using developmentally effective approaches; NBPTS Early childhood/Generalist Standard II: Equity, Fairness and Diversity; CEC Special Education Content Standards, Standard 2: Development & Characteristics of Learners; Standard 6: Language.)

C D 57  
**Self-Assessment for Teachers of Young Children: Field Experience**  
3 Units  
Prerequisite: Child Development 10G or Psychology 10G.  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Two hours lecture, three hours laboratory (60 hours total per quarter).  
Use of self-assessment techniques for individualized teacher preparation with emphasis on understanding the development of the child, teaching, guidance techniques, and assessment of personal effectiveness in the classroom. Students will use field placement to practice and develop skills.

C D 58  
**Infant/Toddler Development**  
4 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture (48 hours total per quarter).  
Development of physical, cognitive, social and emotional development from infancy to age three with emphasis on cultural diversity and family partnerships. Program planning based on observation of individual infants and communication with parents. Evaluation of assessment tools and methods for infants and toddlers, including administration, and interpretation. Development of needs and service plans for individual infants. (This course meets NAEYC Standards 1-5, NBPTS Standards 4 and 5; and DEC Standard 5 Family Based Practices.)

C D 59G  
**Supervision and Administration of Child Development Programs (Management Systems)**  
4 Units  
Prerequisite: A minimum of 12 units of Child Development course work, which includes Child Development 10G.  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture (48 hours total per quarter).  
A study of the development of management systems for the supervision and administration of various kinds of early childhood programs in the context of a diverse society. Emphasis is on program planning, organizational structure, program operation, program evaluation, budgeting, and personnel management.

C D 59H  
**Supervision and Administration of Child Development Programs (Leadership Skills)**  
4 Units  
Prerequisite: A minimum of 12 units of Child Development course work, which includes Child Development 10G.  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture (48 hours total per quarter).  
A study of methods and principles of leadership as they apply to administration of programs in early childhood settings. Emphasis is on personnel management, leadership styles and skills, interpersonal communication, ethical and professional standards and an awareness of the sociopolitical context of early childhood programs.

C D 60  
**Exceptional Children**  
3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Three hours lecture (36 hours total per quarter).  
Characteristics and causes of exceptionality and the inclusion of children with disabilities in childhood settings (infant - adolescence). Includes discussion of developmental disabilities, family and community resources, assessment and screening, working with diverse families, and knowing how to work with interdisciplinary teams to promote the development of children with special needs. Discusses implementation of state and federal laws (IDEA and ADA), as well as examination and reflection on attitudes and feelings about exceptionality.

C D 61  
**Music and Movement (Developmental Foundations)**  
3 Units  
(See general education pages for the requirement this course meets.)  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Three hours lecture (36 hours total per quarter).  
A developmental introduction to music and movement experiences. Students will have opportunities to engage in and to reflect on how music and movement fosters healthy development in children and adults. Students will also have opportunities to see how music and movement defines and is linked to cultural expression and to who we are as individuals.

C D 63  
**Math and Science Activities for the Young Child**  
3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Three hours lecture (36 hours total per quarter).  
Design and assess developmentally appropriate activities and environments that foster curiosity and problem solving in young children. Emphasis on constructivist theories of cognitive development as a foundation for planning and implementing math and science curriculum for each child. (This course meets NAEYC Standards 1a, 1b, 1c, 4b, 4c, 5a, 5b, 5c; NBPTS Standards I-VI; CED/DEC Standards CC4-S2, EC4-S1, CC7-K1, CC7-S1, CC7-S10, CC7-S11, CC7-S13, EC7-S4.)

C D 64  
**Health, Safety, and Nutrition for the Young Child**  
4 Units  
(See general education pages for the requirement this course meets.)  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture (48 hours total per quarter).  
Introduction to the laws, regulations, standards, policies and procedures and early childhood curriculum related to child health safety and nutrition. The key components that ensure physical health, mental health and safety for both children and staff will be identified along with the importance of collaboration with families and health professionals. Focus is put on integrating the concepts into everyday planning and program development for all children. (This course meets the California State requirements for health, safety and nutrition, NAEYC Standard 5; 5a, 5b and 5c; Standard 9; 9a, 9b, 9c and 9d, NBPTS Standards 1, 3 and 4 and CEC Standards 1, 2 and 3.)

C D 65  
**Programs for School-Age Child Care**  
3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Three hours lecture (36 hours total per quarter).  
Before and after school programs for children in kindergarten through sixth grade with emphasis on developmental characteristics, program philosophy, licensing requirements, program content, and criteria for evaluation. (This course meets NAEYC Standards 1 and 4 and NBPTS 4, 5 and 6 standards.)

C D 66  
**Montessori Methods and Materials**  
3 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Child Development 10G.  
Three hours lecture (36 hours total per quarter).  
Philosophical foundations and the environmental components of the Montessori Method in early childhood education.

C D 67  
**Supervision and Administration of Child Development Programs (Adult Supervision)**  
3 Units  
Prerequisite: Child Development 10G, 12 and 54.  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Three hours lecture (36 hours total per quarter).  
A study of the methods and principles of supervising student teachers, assistant teachers, parents and volunteers in early childhood classrooms. Emphasis is on the role of teachers supervising other adults while simultaneously addressing the classroom needs of children, parents and the program.

C D 68  
**Teaching in a Diverse Society**  
4 Units  
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.  
Four hours lecture (48 hours total per quarter).  
Examination of the development of social identities in diverse societies including theoretical and practical implications of oppression and privilege as they apply to young children, families, programs, classrooms and teaching. Various classroom strategies will be explored emphasizing culturally and linguistically appropriate anti-bias approaches supporting all children in becoming competent members of a diverse society. Course includes self-examination and reflection on issues related to social identity, stereotypes and bias, social and educational access, media and schooling.
(This course meets NAEYC Standards 1a, 1b, 1c, 2a, 2b, 2c, 4a, 4b, 5b, 5c; NBPTS Standards II, VII; CEC/DEC Standards CC2-K3, CC2-K4, EC2-K4, CC3-K3, CC3-K4, CC5-K9, CC5-K10, CC6-K1, CC6-K2, CC6-K3, CC9-K1, CC9-S6, CC10-S3.)

C D 69  Early Childhood Education Principles and Practices (Cross-Cultural Emphasis)  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. (Also listed as Anthropology 69. Students may enroll in either department, but not both, for credit.)
Three hours lecture (36 hours total per quarter).
The underlying principles of early education, in which national, state, and local practices will be examined in contrast to options presented through ethnographic data of diverse cultures.

C D 70  Seminar in Parenting the Preschool Child  1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. One hour lecture (12 hours total per quarter).
Pass-No Pass (P-NP) course.
A seminar for parents, teachers and other adults interested in the parenting of children, primarily (but not exclusively) to two or five year olds. Students will explore and examine the ways to strengthen families. Students will also learn about optimal environments to support the healthy growth and development of children and parents. (This course meets NAEYC Standard 2; NBPTS Standard 7; and DEC/CEC Standard 3.)

C D 71  Constructive Guidance and Positive Discipline in Early Childhood  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Three hours lecture (36 hours total per quarter).
Explores the principals and techniques that promote high self-esteem and positive behaviors in young children. (This course meets NAEYC Standards 1a, 1c, 2b, 4a, 4b; DEC/CEC Standards CC3-K3, EC3-S1, CC6-K3; NBPTS Standard 2; and EIA Reflective Practice 2, 3, 8, 9.)

C D 72  Partnerships with Families in Early Childhood Education  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Three hours lecture (36 hours total per quarter).
An examination of the key principles and effective approaches in family support practice; strategies to communicate and involve families in early childhood education. (This course meets NAEYC Standard 2, Building Families and Community Relationships; NBPTS Generalist Standard VII, Family and Community Partnerships; and CEC/DEC Standard 10, Collaboration.)

C D 73  Early Childhood Mental Health  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. (Also listed as Education 73. Students may enroll in either department, but not both, for credit.)
Three hours lecture (36 hours total per quarter).

C D 74  Early Childhood Mental Health Seminar and Fieldwork  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. (Also listed as Education 74. Students may enroll in either department, but not both, for credit.)
Two hours lecture, three hours laboratory (60 hours total per quarter).
Provides an overview of different approaches to early identification and intervention with children and their families and will help students develop basic support skills for use in dealing with high-risk families, including those with exceptional emotional, social, or physical needs. (This course meets NAEYC Standard 3, Standard 4b; NBPTS Early Childhood/Generalist Standard I, III, VI, IX; and CEC Special Education Content Standards, Standards 4, 5 and 8.)

C D 75  Social Emotional Development in Early Childhood  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Three hours lecture (36 hours total per quarter).
Social emotional development and how peer, family, gender, teachers and society influence this development. The impact of variations in development on learning and life outcomes. (This course meets NAEYC Standards 1b, 1c, 2b, 4a; CEC/DEC Standards CC2-K1; NBPTS Standards 1 and 4; the California Early Start Early Intervention Assistant competencies, and the California Personnel Competencies in Infant-Family and Early Childhood Mental Health.)

C D 77W  Special Projects in Child Development  1/2 Unit
Advisory: English Writing 211 or English as a Second Language 5. Three hours laboratory for each unit of credit (96 hours total for each unit of credit per quarter).
Designed for students with a Child Development Permit at the Master Teacher level or above. Offers students the opportunity to research a topic of interest in the field of Child Development. Involved research of a topic of interest to the student. Research may include a review of the literature, interviews and other fieldwork such as exploring community resources or investigating a common teaching practice for effectiveness. (This course meets NAEYC Standard 4c, Understanding Content Knowledge in ECC and Standard 5, Becoming a Professional; NBPTS Standards IX, Reflective Practice; and DEC–CEC Standard 9 Professional & Ethical Practice.)

C D 77Y  Special Projects in Child Development  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Three hours lecture (36 hours total per quarter).
An overview of family childcare as a business and as a program for children. Starting your own childcare business, budget and contracts, licensing and safety requirements will be addressed. Relevant program issues such as designing indoor/outdoor environments, daily schedule, curriculum, child guidance, accommodations for all children and parent partnerships will be presented.

C D 80  Design, Program Development, and Daily Operation of Family Child Care  3 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Three hours lecture (36 hours total per quarter).
Expands upon a student’s ability to work effectively with all children in early childhood programs and more specifically with infants, toddlers and preschoolers with disabilities and other special needs in inclusive environments. Focus will include theories, research, and practical applications of best practices from both the fields of Early Childhood Education and Early Intervention/Early Childhood Special Education. Students will learn to design practical and effective intervention strategies for individual children with special needs within the context of natural environments and will learn to work in collaboration with IFSP/IEP teams. (This course meets NAEYC Standards 1a, 1c, 2b, 3a, 3b, 4b; DEC/CEC Standards CC2-K1, CC2-K3, CC2-S1-4; EC2-K3, EC2-S1-5; CC6-K3, CC6-K4; and NBPTS Standards 2 and 4; California Early Childhood Educator Competencies: Competency Area 7: Performance Areas: 1-4; California Interagency Coordination Council in Early Intervention, Early Intervention Assistant level competencies.)

C D 101W  Current Issues in Child Development  1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. One hour lecture for each unit of credit (12 hours total for each unit of credit per quarter).
In-service workshop for teachers, aides, and parent volunteers to increase awareness of contemporary professional issues in Child Development.

C D 102W  Curriculum for Child Development Personnel  1 Unit
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. One hour lecture for each unit of credit (12 hours total for each unit of credit per quarter).
In-service workshop for teachers, aides, and parent volunteers to improve skills and knowledge in the area of curriculum for Child Development personnel.

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CIS 2  Computers and the Internet in Society  4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
A critical examination of the capabilities and uses of the Internet, computers and
cellular communications, and how they are changing business, law, politics, health,
education, entertainment, and society.

CIS 3  Business Information Systems  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Introduction to management information systems, design and development,
data communications, data management, office automation, computer hardware
and software. Use of common software packages for business applications,
including word processing, spreadsheets, database, and Internet web tools.

CIS 14A Visual Basic.NET Programming I  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Programming in Visual Basic. Emphasis on Windows programming using the Visual
Basic environment. The development of well-structured VB projects using forms,
buttons, labels, picture boxes, and text boxes.

CIS 14B Visual Basic.NET Programming II  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Computer Information Systems
14A or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Develop professional looking and deployable Visual Basic applications using
advanced controls, user-created classes, incorporating databases with ADO.NET
3.5, calling APIs, and creating Web applications.

CIS 15AG Introduction to Computer Programming Using C  4 1/2 Units
(Students may receive credit for either Computer Information Systems (15AG
and 15BG) or 26A, but not both.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 114 or equivalent;
Computer Information Systems 50.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Problem solving, algorithms and structured program design. Programming, testing
and debugging of well-structured programs in C. Introduction to data types,
expressions, control structures, functions, sequential files, and one-dimensional
arrays.

CIS 15BG Intermediate Problem Solving in C  4 1/2 Units
(Students may receive credit for either Computer Information Systems (15AG
and 15BG) or 26A, but not both.)
Prerequisite: Computer Information Systems 15AG.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
A systematic approach to the design, construction and management of computer
programs, emphasizing design, programming style, documentation, testing and
debugging techniques. Strings, multidimensional arrays and structures. Pointers:
their use in arrays, parameters and dynamic allocation. Introduction to linked lists.

CIS 15C Data Structures  4 1/2 Units
Prerequisite: Computer Information Systems 15BG or 26A.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 212 or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Stacks, queues, linked lists, trees, heaps, and graphs; internal and external
sorting; use of recursion; hashing; structured programming; and abstract data
type concepts; team project.

CIS 18A Introduction to UNIX/LINUX  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Computer Information Systems
10.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Introduction to the features of the UNIX/LINUX operating system including text
editing, text file manipulation, electronic mail, Internet utilities, directory structures,
input/output handling, and shell features.

CIS 18B Advanced UNIX/LINUX  4 1/2 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211) or
English as a Second Language 272 and 273; Computer Information Systems
14A or 15AG or 22A and Computer Information Systems 18A.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Expanded coverage of regular expressions and grep. Advanced topics in Unix/Linux
including sed, awk, file compression and conversion, make, basic shell scripts
and installation of a Linux distribution.

CIS 18C Shell Programming  4 1/2 Units
Prerequisite: Computer Information Systems 18B.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Programming in bash shell, Korn shell, Bourne shell, tc shell and C shell.

CIS 21JA Introduction to 8086/IA 32  4 1/2 Units
Processor Assembly Language
Prerequisite: Computer Information Systems 10.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Introduction to the syntax and semantics of 8086 and IA32 assembly language,
standard instruction set, selected pseudo and macro instructions, arrays,
8086/286/386/486/Pentium features.

CIS 21JB Advanced Programming: Series 86 and IA32/Pentium Assembly Language
Prerequisite: Computer Information Systems 21JA.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 210 or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
Coverage of theory and application of advanced programming techniques, with
emphasis on combining multiple modules in a single program, inter-program
connection, interrupt level programming and macro writing, recursive and re-
entrant techniques.

CIS 22A Beginning Programming Methodologies in C++  4 1/2 Units
(Formerly Computer Information Systems 71A.)
(Students may receive credit for either Computer Information Systems (22A and
22B) or 27, but not both.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273; Mathematics 114 or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
An introduction to computer programming. Its primary objective is to teach problem
solving using the C++ programming language. Emphasis will be placed on structured
procedural programming with an introduction to object-oriented programming.
Designed primarily for computer science and related transfer majors.

CIS 22B Intermediate Programming Methodologies in C++  4 1/2 Units
(Formerly Computer Information Systems 71B.)
(Students may receive credit for either Computer Information Systems (22A and
22B) or 27, but not both.)
Prerequisite: Computer Information Systems 22A.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).
A systematic approach to the design, construction and management of computer
programs, emphasizing design, programming style, documentation, testing and
debugging techniques. Strings, multidimensional arrays, structures, and classes.
Pointers: their use in arrays, parameters and dynamic allocation. Introduction to
linked lists.

CIS 22C Data Abstraction and Structures  4 1/2 Units
(Formerly Computer Information Systems 71C.)
Prerequisite: Computer Information Systems 22B or equivalent.
Four hours lecture, one and one-half hours laboratory (66 hours total per
quarter).