

CHEM 1A General Chemistry 5 Units

(See general education pages for the requirement this course meets.)

Prerequisite: High School Chemistry or Chemistry 50 and Mathematics 105 or 114 or equivalent, and satisfactory score on Chemistry Placement Test.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Three hours lecture, six hours laboratory.

An introduction to the structure and reactivity of matter at the molecular level. Application of critical reasoning to modern chemical theory and structured numerical problem solving. Development of molecular structure from rudimentary quantum mechanics, including an introduction to ionic and covalent bonding. Chemical problem solving involving both formula and reaction stoichiometry employing the unit analysis method. Application of Kinetic Molecular Theory to the study of classical gas laws and an introduction to thermochemistry.

(CAN CHEM 1) (CHEM 1A + 1B + 1C = CAN CHEM SEQ A)

CHEM 1B General Chemistry 5 Units

Prerequisite: Chemistry 1A with a grade of C or better.

Three hours lecture, six hours laboratory.

Continuation of an introduction to chemical principles. Investigation of reversible reactions from the standpoints of kinetics, thermodynamics, and equilibrium. Application of equilibrium to the reaction of acids and bases.

(CAN CHEM 3) (CHEM 1A + 1B + 1C = CAN CHEM SEQ A)

CHEM 1C General Chemistry and Qualitative Analysis 5 Units

Prerequisite: Chemistry 1B with a grade of C or better.

Three hours lecture, six hours laboratory.

An introduction to electrochemistry, the chemistry of transition metals, and the chemistry of organic compounds.

(CAN CHEM 5) (CHEM 1A + 1B + 1C = CAN CHEM SEQ A)

CHEM 10 Introductory Chemistry 5 Units

(See general education pages for the requirement this course meets.)

Advisory: Mathematics 101 or 112; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Four hours lecture, three hours laboratory.

An introduction to the discipline of chemistry; 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.

An introduction to the physical properties and chemical behavior of important classes of organic compounds, focusing on hydrocarbons and haloalkanes. Emphasis on retrosynthesis, spectroscopic structure determination, and reaction mechanism. 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.

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 retrosynthesis, spectroscopic structure determination, and reaction mechanism. 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.

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 retrosynthesis, spectroscopic structure determination, and reaction mechanism. Laboratory experiments involving the multi-step synthesis of organic compounds and characterize 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 30A Survey of Chemistry

Prerequisite: Mathematics 101 or 112 or equivalent.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Four hours lecture, three hours laboratory.

An introduction to fundamental topics in general and in organic chemistry as preparation for the biological and health sciences.

(CAN CHEM 6) (CHEM 30A + 30B = CAN CHEM SEQ B)

CHEM 30B Survey of Chemistry 5 Units

Prerequisite: Chemistry 30A.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Four hours lecture, three hours laboratory.

An introduction to fundamental topics in general and in organic chemistry as preparation for the biological and health sciences.

(CAN CHEM 8) (CHEM 30A + 30B = CAN CHEM SEQ B)

CHEM 50 Preparatory Course for General Chemistry 5 Units

(Formerly Chemistry 74T.)

Prerequisite: Mathematics 105 or 114, or high school equivalent.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Four hours lecture, three hours laboratory.

An introduction to core theory and problem-solving techniques of chemistry as preparation for Chemistry 1A. 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

CHEM 77X

CHEM 77Y

(Formerly Chemistry 40, 40X, and 40Y.)

Prerequisite: Consent of instructor and division dean.

Three hours laboratory per week for each unit of credit.

(Any combination of Chemistry 77, 77X, and 77Y may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)

Pass-No Pass (P-NP) course.

Individual special reading, writing, or study projects in Chemistry as determined in consultation with the instructor.

1 Unit

2 Units

3 Units

Child Development

C D 10G Child Development (The Early Years) 4 Units

(Formerly Child Development 62A and 62G.)

(See general education pages for the requirement this course meets.)

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

(Also listed as Psychology 10G. Student may enroll in either department, but not both, for credit.)

Three hours lecture, three hours laboratory, one additional hour to be arranged.

Critical examination of human growth and development from conception to middle childhood with particular attention given to current theoretical and research perspectives within a diverse society. Observational study of children with analysis of factors influencing development including conditions that put children at risk.

C D 10H Child Development (Middle Childhood and Adolescence) 4 Units

(Formerly Child Development 62B and 62H.)

(See general education pages for the requirement this course meets.)

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

(Also listed as Psychology 10H. Student may enroll in either department, but not both, for credit.)

Three hours lecture, three hours laboratory, one additional hour to be arranged.

Critical examination of human growth and development from school age through adolescence with particular attention given to current theoretical and research perspectives within a diverse society.



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**C D 12****Child, Family and Community Interrelationships****4 Units**

(Formerly Child Development 56.)

*(See general education pages for the requirement this course meets.)**Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture, three hours laboratory.*

Introduction to the study of the developing person in a societal context including the interrelationship of family, schools and the community. This course will examine factors which contribute to and shape the growth and socialization of the child into society, including historical and cultural factors. Students will have opportunities to examine their own culture and background and to reflect on themselves as members of society.

C D 50**Introduction to Child Development Programs****3 Units***Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture, one additional hour to be arranged in participation in a community activity.*

Principles and practices of early childhood education. Assessment and evaluation of the field as a career choice. Observation in selected settings.

C D 51**Student Teaching Practicum****5 Units***Prerequisite: Child Development 10G and a minimum of two other curriculum courses in Child Development.**Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Ten hours lecture-laboratory.**(May be taken three times for credit.)*

Supervised laboratory experience with young children ages infant through school age with varying developmental and special needs. Emphasis will be on understanding the development of the child, teaching techniques, planning curriculum, and assessment of teaching effectiveness.

C D 52**Observation of the Young Child****3 Units***Prerequisite: Child Development 50 and 10G.**Three hours lecture.*

Directed observation of young children using a variety of observational methods.

C D 53**Creative Art for the Young Child****3 Units***Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

Overview of creative activities for children from infancy through the school years including the uses of art materials, planning activities and structuring experiences. Emphasis is on developmentally appropriate curriculum that enhances children's imagination, creative thinking, and self-expression.

C D 54**Curriculum for Early Childhood Programs****3 Units***Prerequisite: Child Development 10G or concurrent enrollment.**Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

Curriculum development with emphasis on planning curriculum which is emergent, developmentally and individually appropriate and inclusive.

C D 55**Literacy Development and Activities for the Young Child****3 Units***Advisory: Child Development 10G and/or Child Development 50.**Three hours lecture.*

Theories of language acquisition and the process of language development in monolingual and bilingual children. Introduction to methods and materials that enhance emerging language and literacy for infants through school-age children in a culturally diverse society.

C D 57**Self-Assessment for Teachers of Young Children****3 Units***Prerequisite: Child Development 10G.**Two hours lecture, three hours laboratory.*

Use of self-assessment techniques for individualized teacher preparation with emphasis on understanding the development of the child, teaching and guidance techniques, and assessment of personal effectiveness in the classroom.

C D 58**Infant/Toddler and Development****4 Units**

(Formerly Child Development 58G and 58H.)

*Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Four hours lecture.*

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.

C D 59G**Supervision and Administration of Child Development Programs (Management Systems)****4 Units***Prerequisite: A minimum of 12 units of Child Development coursework, which includes Child Development 10G.**Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture, three hours laboratory.*

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 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture, three hours laboratory.*

A study of the 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 and an awareness of the sociopolitical context of early childhood programs.

C D 60**Exceptional Children****3 Units***Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

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 involvement. Implementation of State and Federal law, as well as the examination of 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 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

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 experience and to who we are as individuals.

C D 63**Math and Science Activities for the Young Child****3 Units***Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.**Three hours lecture.*

Design and assessment of developmentally appropriate activities and environments that foster the intellectual curiosity and problem solving in young children. Theories of cognitive development as a foundation for the planning and implementation of math and science curriculum for all children.

C D 64**Health, Safety and Nutrition for the Young Child****3 Units***Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

Health, safety and nutritional practices needed for the protection and improvement of the health of preschool children. Includes infant and child first-aid and CPR. Meets the health, safety, and nutrition state requirements.

C D 65**Programs for School-Age Child Care****3 Units***Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

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.

C D 66**Montessori Methods and Materials****3 Units***Advisory: Child Development 50; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.**Three hours lecture.*

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	C D 77	Special Projects in Child Development	1/2 Unit
	<i>Prerequisite: A minimum of 12 units of Child Development coursework.</i>		C D 77W		1 Unit
	<i>Advisory: Child Development 10G.</i>		C D 77X		2 Units
	<i>Three hours lecture.</i>		C D 77Y		3 Units
	A study of the methods and principles of supervising student teachers, assistant teachers, parents, and volunteers in early childhood classroom. Emphasis is on the role of teachers supervising other adults while simultaneously addressing the classroom needs of children, parents and the program.			<i>Prerequisite: Approved Special Projects Contract.</i>	
				<i>Advisory: English Writing 1A or English as a Second Language 5.</i>	
				<i>(Child Development 77Y was formerly Child Development 77.)</i>	
				<i>Three hours laboratory for each unit of credit.</i>	
				<i>(Any combination of Child Development 77, 77W, 77X, and 77Y may be repeated up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)</i>	
				Designed for students with a Child Development permit at the Master Teacher level or above. This course will offer students the opportunity to research a topic of interest in the field of Child Development. The course will involve 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.	
C D 68	Design and Development of Anti-Bias Curriculum	3 Units	C D 80	Design, Program Development, and Daily Operation of Family Child Care	3 Units
	<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>	
	<i>Three hours lecture.</i>			<i>Three hours lecture.</i>	
	Principles and methods of anti-bias curriculum are examined to gain an understanding of the development of biased attitudes and behavior in children. Emphasis is on the impact of bias on children's development and the implications for classroom practices. Methodologies for developing skills in acknowledging differences and helping children develop positive attitudes for living in a complex and diverse world.			An overview of family child care both as a business and a program for children. Topics such as startup, health and safety requirements, licensing, and designing indoor/outdoor learning environments, child guidance and accommodations to meet the needs of every child will be presented.	
C D 69	Early Childhood Education Principles and Practices (Cross-Cultural Emphasis)	3 Units	C D 90	Facilitating Inclusion in Early Childhood Programs: Intervention Strategies	3 Units
	<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>	
	<i>(Also listed as Anthropology 69. Student may enroll in either department, but not both, for credit.)</i>			<i>Three hours lecture.</i>	
	<i>Three hours lecture.</i>			Expand 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 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.	
	Underlying principles of early education, infancy through middle childhood. National, state, and local practices will be examined in contrast to options presented through ethnographic data from a selection of diverse cultures.				
C D 70	Seminar in Parenting the Preschool Child	1 Unit	C D 101	Current Issues in Child Development	1/2 Unit
	<i>One hour lecture.</i>		C D 101W		1 Unit
	<i>(May be taken six times for credit.)</i>		C D 101X		2 Units
	<i>Pass-No Pass (P-NP) course.</i>		C D 101Y		3 Units
	A seminar for parents of young children ages two-six years old. Selected topics such as understanding developmental stages, child guidance and discipline, effective parenting skills.		C D 101Z		4 Units
				<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>	
				<i>One hour lecture for each unit of credit.</i>	
				<i>(Any combination of Child Development 101, 101W-Z may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)</i>	
				<i>Pass-No Pass (P-NP) course.</i>	
				In-service workshop for teachers, aides, and parent volunteers to increase awareness of contemporary professional issues in Child Development.	
C D 72	Supervised Classroom Participation for Parent and Child	1 Unit	C D 102	Curriculum for Child Development Personnel	1/2 Unit
	<i>Prerequisite: Negative TB test result.</i>				1 Unit
	<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>		C D 102W		2 Units
	<i>Three hours laboratory.</i>		C D 102X		3 Units
	<i>(May be repeated six times for credit.)</i>		C D 102Y		4 Units
	<i>Pass-No Pass (P-NP) course.</i>		C D 102Z		
	Supervised experience in early education for parents of young children enrolled in the Child Development Center. Opportunities to observe and participate with master teachers in facilitating a developmentally appropriate program for young children.			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>	
				<i>One hour lecture for each unit of credit.</i>	
				<i>(Any combination of Child Development 102, 102W-Z may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)</i>	
				<i>Pass-No Pass (P-NP) course.</i>	
				In-service workshop for teachers, aides, and parent volunteers to improve skills and knowledge in the area curriculum for Child Development personnel.	
C D 73	Violence and its Impact on Children and their Families	3 Units	C D 74	Early Intervention Seminar and Fieldwork	3 Units
	<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>			<i>Prerequisite: Child Development 73 or Education 73.</i>	
	<i>(Also listed as Education 73. Student may enroll in either department, but not both, for credit.)</i>			<i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i>	
	<i>Three hours lecture.</i>			<i>(Also listed as Education 74. Student may enroll in either department, but not both, for credit.)</i>	
	Students will explore violence in America and the impact violence has on the physical and psychological well being of adults and children who experience it in their lives. Students will develop a perspective on violence and its impact and have an opportunity to observe in a school or agency that works with children and families who have experienced violence in their lives.			<i>Two hours lecture, three hours laboratory.</i>	
				Provides an overview of different approaches to early 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.	



C D 103 Topics in Preschool Program Administration

- C D 103W** 1/2 Unit
- C D 103X** 1 Unit
- C D 103Y** 2 Units
- C D 103Z** 3 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

One hour lecture for each unit of credit.

(Any combination of Child Development 103, 103W-Z may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)

Pass-No Pass (P-NP) course.

In-service workshop for program directors, site supervisors, head teachers, or others with administrative or supervisory responsibility to improve skills and knowledge in the area of Child Development program administration.

Computer Applications and Office Systems

CAOS 70A Elementary Keyboarding 3 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Six hours lecture-laboratory.

(May be taken three times for credit.)

Basic keyboarding skills and techniques: introduction to formatting letters, tables, and reports using word processing software.

CAOS 70AA Elementary Keyboarding I 1 1/2 Unit

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Three hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Basic keyboarding skills and techniques.

CAOS 70AB Elementary Keyboarding II 1 1/2 Unit

Prerequisite: Computer Applications and Office Systems 70AA.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Three hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Basic keyboarding skills and techniques: introduction to formatting letters, tables, and reports using word processing software.

CAOS 80A Office Procedures I 1 Unit

Prerequisite: Computer Applications and Office Systems 70A.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Simulated on-the-job training in office communications: interpersonal, mail, telephone, and business travel.

CAOS 80B Office Procedures II 1 Unit

Prerequisite: Computer Applications and Office Systems 80A.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Create and edit various types of documents using the microcomputer.

CAOS 80C Office Procedures III 1 Unit

Prerequisite: Computer Applications and Office Systems 80B.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Create and edit various types of documents using the microcomputer.

CAOS 81H 10-key and Electronic Calculator 1 Unit

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Basic 10-key skills and techniques in the use of the electronic calculator.

CAOS 84A Business English I 2 Units

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 200 or 210.

(Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Four hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Review of English grammar, punctuation, usage, and writing skills and applications of these skills to basic business communication.

CAOS 84B Business English II 1 Unit

Prerequisite: Computer Applications and Office Systems 84A. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Review of advanced business writing skills and application of these skills to basic business communication.

CAOS 90G Computer Literacy (PC) 4 Units

(Computer Applications and Office Systems 90G-V course numbers are place holders for different operating Systems or software updates.) (Students may take either Computer Applications and Office Systems 90G-V or, 90GA and 90GB, but not both, for credit.)

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Eight hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Introduction to a microcomputer - hardware and software. Theory and hands-on activities using word processing, spreadsheet, presentation graphics, database, e-mail, operating systems, and Internet applications.

CAOS 90GA Computer Literacy I (PC) 2 Units

(Computer Applications and Office Systems 90GA-VA course numbers are place holders for different operating Systems or software updates.) (Students may take either Computer Applications and Office Systems 90G-V or, 90GA and 90GB, but not both, for credit.)

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Four hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Introduction to a microcomputer - hardware and software. Theory and interactive learning activities using word processing, spreadsheet, presentation graphics, database, e-mail, operating systems, and Internet applications.

CAOS 90GB Computer Literacy II (PC) 2 Units

(Computer Applications and Office Systems 90GB-VB course numbers are place holders for different operating Systems or software updates.) (Students may take either Computer Applications and Office Systems 90G-V or, 90GA and 90GB, but not both, for credit.)

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Four hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Introduction to a microcomputer - hardware and software. Theory and interactive learning activities using word processing, spreadsheet, presentation graphics, database, e-mail, operating systems, and Internet applications.

CAOS 91AK Word Processing I (Word 2000) 2 Units

Prerequisite: Computer Applications and Office Systems 70AA.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this course as letter-graded must obtain a special course ID number from the CAOS Department in AT 203.)

Four hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Concepts and applications using a word processing computer software program.

- CAOS 91AL Word Processing I (Word XP/2002) 2 Units**
Prerequisite: Computer Applications and Office Systems 70AA.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Concepts and applications using a word processing computer software program.
- CAOS 91BK Word Processing II (Word 2000) 2 Units**
Prerequisite: Computer Applications and Office Systems 91AK.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this course as letter-graded must obtain a special course ID number from the CAOS Department in AT203.)
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced word processing concepts and applications using a computer software program.
- CAOS 91BL Word Processing II (Word XP/2002) 2 Units**
Prerequisite: Computer Applications and Office Systems 91AL.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced word processing concepts and applications using a computer software program.
- CAOS 91CH Word Processing III (Word for Windows IBM) 1 1/2 Units**
Prerequisite: Computer Applications and Office Systems 91B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Three hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced word processing functions with desktop publishing features.
- CAOS 91CK Word Processing III (Word 2000) 1 1/2 Units**
Prerequisite: Computer Applications and Office Systems 91BK.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Three hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced word processing functions with desktop publishing features.
- CAOS 91CL Word Processing III (Word XP/2002) 1 1/2 Units**
Prerequisite: Computer Applications and Office Systems 91BL.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Three hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced word processing functions with desktop publishing features.
- CAOS 93AH Spreadsheet I (Excel IBM) 2 Units**
Prerequisite: Computer Applications and Office Systems 90G or 100G.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 A general introduction to basic data manipulation skills and techniques used with spreadsheets: editing, computation, database management, graphing.
- CAOS 93AK Spreadsheet I (Excel 2000) 2 Units**
Prerequisite: Computer Applications and Office Systems 90G or 100G.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 A general introduction to basic data manipulation skills and techniques used with spreadsheets: editing, computation, database management, graphing.
- CAOS 93AL Spreadsheet I (Excel XP/2002) 2 Units**
Prerequisite: Computer Applications and Office systems 90G or 100G.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 A general introduction to basic data manipulation skills and techniques used with spreadsheets: editing, computation, database management, graphing.
- CAOS 93BH Spreadsheet II (Excel IBM) 2 Units**
Prerequisite: Computer Applications and Office Systems 93AG-AV.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced spreadsheet design using unique spreadsheet features: graphing, information retrieval, table searches, financial business calculations for decision making.
- CAOS 93BK Spreadsheet II (Excel 2000) 2 Units**
Prerequisite: Computer Applications and Office Systems 93AG-AV.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced spreadsheet design using unique spreadsheet features: graphing, information retrieval, table searches, financial business calculations for decision making.
- CAOS 93BL Spreadsheet II (Excel XP/2002) 2 Units**
Prerequisite: Computer Applications and Office Systems 93AG-AV.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Advanced spreadsheet design using unique spreadsheet features: graphing, information retrieval, table searches, financial business calculations for decision making.
- CAOS 94 Introduction to the Internet and World Wide Web 1 Unit**
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 (Also listed as Computer Information Systems 94. Student may enroll in either department, but not both, for credit.)
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Introduction to using the Internet. Topics include an overview of the World Wide Web, e-mail, news groups, bulletin boards, World Wide Web browsers, basic web page elements and exploration of virtual communities.
- CAOS 100G Orientation to the PC (Personal Computer) 1/2 Unit**
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 One hour lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Personal computer hardware and commands needed for applications programs.
- CAOS 102K Microsoft Windows I (Windows 2000) 1 Unit**
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Use of an operating environment which extends the Microsoft Disk Operating System (MS DOS) and the use of the Microsoft Windows Desktop Applications programs.
- CAOS 102L Microsoft Windows I (Windows XP) 1 Unit**
Prerequisite: Computer Applications and Office Systems 90G or 100G.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Use of an operating environment which extends the Microsoft Disk Operating System (MS DOS) and the use of the Microsoft Windows Desktop Applications programs.
- CAOS 102T Microsoft Windows I (Windows NT/95) 1 Unit**
 (Formerly Computer Applications and Office Systems 105A.)
Prerequisite: Computer Applications and Office Systems 90G or 100G.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Use of an operating environment which extends the Microsoft Disk Operating System (MS DOS) and the use of the Microsoft Windows Desktop Applications programs.

CAOS 103K Microsoft Windows II (Windows 2000) 1 Unit

Prerequisite: Computer Applications and Office Systems 102G-V.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Windows accessories and advanced techniques for Window users including customizing the desktop environment; use of non-Windows applications.

CAOS 103L Microsoft Windows II (Windows XP) 1 Unit

Prerequisite: Computer Applications and Office Systems 102G-V.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Windows accessories and advanced techniques for Window users including customizing the desktop environment; use of non-Windows applications.

CAOS 104H Introduction to Word Processing I 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173; and Computer Applications and Office Systems 102T.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Introductory concepts and applications using word processing software. Emphasis on creating new documents; editing, proofreading, and formatting text; opening/saving files; and previewing and printing documents.

CAOS 104I Ten-Key on the Microcomputer 1/2 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 One hour lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Speed and accuracy development in ten-key numeric data entry skills. Emphasis on developing marketable skills.

CAOS 104J Data Entry on the Microcomputer 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Development of ability to enter data accurately and rapidly on the microcomputer. Emphasis on preparing and handling source document and entering data in different formats.

CAOS 104K Introduction to Proofreading Skills 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of proofreading. Emphasis on proofreading short business documents, multi-page reports, tables, graphics, and computer documents.

CAOS 104L Introduction to Spreadsheets 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173, and Computer Applications and Office Systems 102K or 102T.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 200 or 210.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of spreadsheets. Emphasis on entering data, editing techniques, using menus, formatting spreadsheets, opening/saving files, and previewing and printing spreadsheets.

CAOS 104M Introduction to the Office 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173; and Computer Applications and Office Systems 102T and 104H.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 200 or 210.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of the office.

CAOS 104N Introduction to Word Processing II 1 Unit

Prerequisite: Computer Applications and Office Systems 104H.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Intermediate concepts and applications using word processing software. Emphasis on creating tables and charts, advanced formatting and merging documents.

CAOS 104O Introduction to Filing 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173; and Computer Applications and Office Systems 102K or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of filing.

CAOS 104P Introduction to Presentation Graphics 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173; and Computer Applications and Office Systems 102K or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory course.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of presentation graphics.

CAOS 104Q Introduction to Database Management 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA or 173; and Computer Applications and Office Systems 102K and 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Entry-level concepts and terminology of database management. Emphasis on entering, editing, and sorting data; querying the database; and formatting and printing reports.

CAOS 105 Introduction to HTML 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Two hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 An introduction to hypertext markup language (HTML) covering creation of hyperlinks, inserting images, and producing basic tables and forms.

CAOS 107G Business Office Math 2 Units

(Formerly Computer Applications and Office Systems 81G.)
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture-laboratory.
 Pass-No Pass (P-NP) course.
 Review of basic math skills with emphasis on business applications and critical thinking problems. Instruction and application exercises involving math tasks needed for employment.

CAOS 108 End-User Security Basics 4 Units

Advisory: Computer Applications and Office Systems 90G or equivalent; English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 (Also listed as Computer Information Systems 108. Student may enroll in either department, but not both, for credit.)
 Four hours lecture.
 Beginner's computer security course for small office or home users (end-users). Learn to stop hackers, worms, viruses, spyware, web bugs and identity theft. Learn vulnerabilities found in web browsers, email and operating systems. Protect against online purchase dangers, install firewalls, manage cookies, restrict ports, analyze log files, evaluate wireless networks and examine encryption.

CAOS 108K Word Processing Production (MS Word 2000) 1 Unit

(Formerly Computer Applications and Office Systems 92G-V.)
Prerequisite: Computer Applications and Office Systems 91BG-BV. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
 Two hours lecture-laboratory each course.
 Pass-No Pass (P-NP) course.
 Preparation of various business documents using word processing software.

- CAOS 108L Word Processing Production (MS Word XP/2002)** 1 Unit
(Formerly Computer Applications and Office Systems 92G-V.)
Prerequisite: Computer Applications and Office Systems 91BG-BV. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
Two hours lecture-laboratory each course.
Pass-No Pass (P-NP) course.
Preparation of various business documents using word processing software.
- CAOS 109 Filing and Database Management** 2 Units
(Formerly Computer Applications and Office Systems 88.)
Prerequisite: Computer Applications and Office Systems 70AA.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Management of business records and of indexing and filing procedures: theory and practice of alphabetic, numeric, geographic, and subject systems. Manual/computer applications using correct database management procedures.
- CAOS 109A Filing and Database Management I** 1 Unit
(Formerly Computer Applications and Office Systems 88A.)
Prerequisite: Computer Applications and Office Systems 70AA.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Introduction to electronic filing using new ARMA alphabetic indexing rules. Applications using database management manual/computer.
- CAOS 109B Filing and Database Management II** 1 Unit
(Formerly Computer Applications and Office Systems 88B.)
Prerequisite: Computer Applications and Office Systems 70AA.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. (Students wishing to take this as a letter-graded course must obtain a special course ID number from the CAOS Department in AT203.)
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Manual and computer applications using correct database management procedures.
- CAOS 110K Database I (Access 2000)** 2 Units
Prerequisite: Computer Applications and Office Systems 90, or 100G, or 102K, or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Use of database software to create, search, modify and arrange information.
- CAOS 110L Database I (Access XP/2002)** 2 Units
Prerequisite: Computer Applications and Office Systems 90, or 100G, or 102K, or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Use of database software to create, search, modify and arrange information.
- CAOS 111K Database II (Access 2000)** 2 Units
Prerequisite: Computer Applications and Office Systems 110G-V.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory each course.
Pass-No Pass (P-NP) course.
Use database commands to build and modify data files and forms, refine queries, and generate customized reports. Integrate database files with other applications.
- CAOS 111L Database II (Access XP/2002)** 2 Units
Prerequisite: Computer Applications and Office Systems 110G-V.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory each course.
Pass-No Pass (P-NP) course.
Use database commands to build and modify data files and forms, refine queries, and generate customized reports. Integrate database files with other applications.
- CAOS 112A Digital Imaging Software (Photoshop)** 4 Units
(Student may receive credit for either CAD and Digital Imaging/Computer Applications and Office Systems/Arts 112 A-H; or 112 I-P and 112 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 112A and CAD and Digital Imaging 112A. Student may enroll in only one department for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.
- CAOS 112I Digital Imaging Software I (Photoshop)** 2 Units
(Student may receive credit for either CAD and Digital Imaging/Computer Applications and Office Systems/Arts 112 A-H; or 112 I-P and 112 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 112I and CAD and Digital Imaging 112I. Student may enroll in only one department for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic principles of using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.
- CAOS 112Q Digital Imaging Software II (Photoshop)** 2 Units
(Student may receive credit for either CAD and Digital Imaging/Computer Applications and Office Systems/Arts 112 A-H; or 112 I-P and 112 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 112 I-P; or equivalent.
(Also listed as Arts 112Q and CAD and Digital Imaging 112Q. Student may enroll in only one department for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of using digital imaging software to produce graphics for Web sites. Introduction to digital imaging terminology and software. This course is for the content person to produce Web pages using digital images.
- CAOS 113A Web Authoring Software (Dreamweaver)** 4 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113A-H or 113I-P and 113Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 113A. Student may enroll in either department, but not both, for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of building Web pages/sites using Web authoring software. Introduction to Web authoring terminology and software. This course is for the content person to develop and maintain an effective Web site.
- CAOS 113E Web Authoring Software (Frontpage 2000)** 4 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113 A-H; or 113 I-P and 113 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 113E. Student may enroll in either department, but not both, for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
Basic and intermediate principles of building Web pages/sites using Web authoring software. Introduction to Web authoring terminology and software. This course is for the content person to develop and maintain an effective Web site.

CAOS 1131 Web Authoring Software I (Dreamweaver) 2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113 A-H; or 113 I-P and 113 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 113I. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic principles of building Web pages/sites using Web authoring software. Introduction to Web authoring terminology and software. This course is for the content person to develop and maintain an effective Web site.

CAOS 113M Web Authoring Software I (Frontpage 2000) 2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113 A-H; or 113 I-P and 113 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 94 or Computer Information Systems 94; Computer Applications and Office Systems 102T.
(Also listed as Arts 113M. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic principles of building Web pages/sites using Web authoring software. Introduction to Web authoring terminology and software. This course is for the content person to develop and maintain an effective Web site.

CAOS 113Q Web Authoring Software II (Dreamweaver) 2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113 A-H; or 113 I-P and 113 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 113I-P or Arts 113I-P.
(Also listed as Arts 113Q. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Intermediate principles of building Web pages/sites using Web authoring software. Expansion of Web authoring terminology and use of more advanced software features. This course is for the content person to develop and maintain an effective Web site.

CAOS 113U Web Authoring Software II (Frontpage 2000) 2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 113 A-H; or 113 I-P and 113 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 113I-P or Arts 113I-P.
(Also listed as Arts 113U. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Intermediate principles of building Web pages/sites using Web authoring software. Expansion of Web authoring terminology and use of more advanced software features. This course is for the content person to develop and maintain an effective Web site.

CAOS 114A Web Graphics/Animation Software (Flash) 3 Units
(Student may receive credit for either CAD and Digital Imaging/Computer Applications and Office Systems/Arts 114 A-H; or 114 I-P and 114 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 112 A-H or Computer Applications and Office Systems 112 I-P; and 112 Q-Z or equivalent.
(Also listed as Arts 114A and CAD and Digital Imaging 114A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic and intermediate principles of graphics/animation for the Web. Web graphics/animation terminology and software. This course is for the content person to build a Web site.

CAOS 114I Web Graphics/Animation Software I (Flash) 1 1/2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 114 A-H or 114 I-P; and 114 Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Applications and Office Systems 112A-H or Computer Applications and Office Systems 112 I-P; and 112 Q-Z or equivalent.
(Also listed as Arts 114I. Student may enroll in either department, but not both, for credit.)
Three hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic principles of graphics/animation for the Web. Introduction to Web graphics/animation terminology and software. This course is for the content person to build a Web site.

CAOS 114Q Web Graphics/Animation Software II (Flash) 1 1/2 Units
(Student may receive credit for either Computer Applications and Office Systems/Arts 114A-H or 114I-P and 114Q-X.)
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer applications and Office systems 114I-P or Arts 114I-P.
(Also listed as Arts 114Q. Student may enroll in either department, but not both, for credit.)
Three hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Intermediate principles of graphics/animation for the Web. Expansion of Web graphics/animation terminology and software. This course is for the content person to build a Web site.

CAOS 115A E-Commerce Software (Dreamweaver UltraDev) 4 Units
(Student may receive credit for either Computer Applications and Office Systems 115 A-H; or 115 I-P and 115 Q-X.)
Prerequisite: Computer Applications and Office Systems 113 A-H or Computer Applications and Office Systems 113 I-P and 113 Q-Z and Computer Applications and Office Systems 110 G-V and 111 G-V.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic and intermediate principles of using e-commerce software to create effective Web sites. Introduction to e-commerce terminology and software. This course is for the content person to produce effective, database-driven Web sites to start an on-line business.

CAOS 115I E-Commerce Software I (Dreamweaver UltraDev) 2 Units
(Student may receive credit for either Computer Applications and Office Systems 115 A-H; or 115 I-P and 115 Q-X.)
Prerequisite: Computer Applications and Office Systems 113 A-H or Computer Applications and Office Systems 113 I-P and 113 Q-Z; and Computer Applications and Office Systems 110 G-V and 111 G-V.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic principles of using e-commerce software to create effective Web sites. Introduction to e-commerce terminology and software. This course is for the content person to produce effective, database-driven Web sites to start an on-line business.

CAOS 115Q E-Commerce Software II (Dreamweaver UltraDev) 2 Units
(Student may receive credit for either Computer Applications and Office Systems 115 A-H or 115 I-P; and 115 Q-X.)
Prerequisite: Computer Applications and Office Systems 115 I-P.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic and intermediate principles of using e-commerce software to create effective Web sites. Introduction to e-commerce terminology and software. This course is for the content person to produce effective, database-driven Web sites to start an on-line business.

- CAOS 116A Web Development Graphics Software (Illustrator) 4 Units**
(Student may receive credit for either CAD and Digital Imaging/Computer Applications and Office Systems/Arts 116A-H, or 116I-P and 116Q-X.)
Prerequisite: CAD and Digital Imaging/Computer Applications and Office Systems/Arts 112A-H; or CAD and Digital Imaging/Computer Applications and Office Systems/Arts 112I-P and 112Q-X.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
(Also listed as Arts 116A and CAD and Digital Imaging 116A. Student may enroll in only one department for credit.)
Eight hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic and intermediate principles of using vector-based graphics software to produce graphics for Web sites. Introduction to vector-based graphics terminology and software. This course is for the content person to produce vector graphic images.
- CAOS 116I Web Development Graphics Software I (Illustrator) 2 Units**
(Student may receive credit for either Computer Applications and Office Systems/Arts 116A-H, or 116I-P and 116Q-X.)
Prerequisite: Computer Applications and Office Systems/Arts 112A-H, or Computer Applications and Office Systems/Arts 112I-P, and 112Q-X.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
(Also listed as Arts 116I. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic principles of using vector-based graphics software to produce graphics for Web sites. Introduction to vector-based graphics terminology and software. This course is for the content person to produce vector graphic images.
- CAOS 116Q Web Development Graphics Software II 2 Units**
(Student may receive credit for either Computer Applications and Office Systems/Arts 116A-H, or 116I-P, and 116Q-X.)
Prerequisite: Computer Applications and Office Systems/Arts 116I-P.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
(Also listed as Arts 116Q. Student may enroll in either department, but not both, for credit.)
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Basic and intermediate principles of using vector-based graphics software to produce graphics for Web sites. Introduction to vector-based graphics terminology and software. This course is for the content person to produce vector graphic images.
- CAOS 117A Advanced Digital Imaging Software (Photoshop) 3 Units**
Prerequisite: Computer Applications and Office Systems/Arts/CAD and Digital Imaging 112A-H.
Advisory: Computer Applications and Office Systems 90G; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
(Also listed as Arts 117A and CAD and Digital Imaging 117A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Advanced principles and techniques of using digital imaging software to produce graphics for Web sites and printed media. Integration of digital imaging software with Web authoring software. This course is for the content person to produce digital images for Web pages and print media.
- CAOS 118A Advanced Web Graphics/Animation Software (Flash) 3 Units**
Prerequisite: Arts/CAD and Digital Imaging/Computer Applications and Office Systems 114A-H.
Advisory: Computer Applications and Office Systems 90G; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
(Also listed as Arts 118A and CAD and Digital Imaging 118A. Student may enroll in only one department for credit.)
Six hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 An advanced Flash course that is projects and portfolio based and taught from a designer perspective. Students will be taught how to build a portfolio and animated multimedia presentation. Basic programming skills will be taught along with developing interactive web-based multimedia presentations using ActionScripts, sound, and graphics.
- CAOS 120K Integrated Software I (MS Office 2000) 1 Unit**
Prerequisite: Computer Applications and Office Systems 100G.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Introduction to operation of an integrated software program.
- CAOS 120L Integrated Software I (MS Office XP/2002) 1 Unit**
Prerequisite: Computer Applications and Office Systems 100G.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Introduction to operation of an integrated software program.
- CAOS 121K Integrated Software II (MS Office 2000) 1 Unit**
Prerequisite: Computer Applications and Office Systems 120G-V.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Operation of an integrated software program with an emphasis on decision-making applications.
- CAOS 121L Integrated Software II (MS Office XP/2002) 1 Unit**
Prerequisite: Computer Applications and Office Systems 120G-V.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Operation of an integrated software program with an emphasis on decision-making applications.
- CAOS 122K Integrated Software III (MS Office 2000) 1 Unit**
Prerequisite: Computer Applications and Office Systems 121G-V.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Operation of an integrated software program with an emphasis on decision-making applications including graphics.
- CAOS 122L Integrated Software III (MS Office XP/2002) 1 Unit**
Prerequisite: Computer Applications and Office Systems 121G-V.
Two hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Operation of an integrated software program with an emphasis on decision-making applications including graphics.
- CAOS 130K Introduction to Business Graphics (PowerPoint 2000) 2 Units**
Prerequisite: Computer Applications and Office Systems 102K or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Business presentation graphics software.
- CAOS 130L Introduction to Business Graphics (PowerPoint XP/2002) 2 Units**
Prerequisite: Computer Applications and Office Systems 102K or 102T.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Business presentation graphics software.
- CAOS 140K Desktop Publishing Software I (MS Publisher 2000) 2 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second language 24 or 72 .
Four hours lecture-laboratory.
Pass-No Pass (P-NP) course.
 Introduction to desktop publishing using page layout software for business documents.
- CAOS 150A Desktop Hardware (A+ Certification Part I) 3 Units**
Prerequisite: Computer Applications and Office Systems 90G or 100G, or equivalent. (May be taken concurrently.)
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Three hours lecture.
Pass-No Pass (P-NP) course.
 Provides service technicians and network administrators the necessary skills to identify, install, configure, and upgrade desktop computers and peripheral hardware. Course also helps students prepare to pass the compTIA A+ Technician Certification Exams.

CAOS 150B Desktop Hardware (A+ Certification Part II) 3 Units

*Prerequisite: Computer Applications and Office Systems 150A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.*

Three hours lecture.

Pass-No Pass (P-NP) course.

Provides service technicians and network administrators the knowledge and skills to install, configure, upgrade, troubleshoot, and repair Windows desktop computer systems. Course also helps students to pass the compTIA A+ Technician Certification Exams.

CAOS 151A Introduction to Desktop Hardware (Part I) 1 1/2 Units

*Prerequisite: Computer Applications and Office Systems 102K or 102L.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.*

Four and one-half hours laboratory.

Pass-No Pass (P-NP) course.

Provides introductory skills to identify, install, configure, and upgrade desktop computers and peripheral hardware. Course also helps students prepare to pass the compTIA A+ Technician Certification Exams.

CAOS 151B Introduction to Desktop Hardware (Part II) 1 1/2 Units

*Prerequisite: Computer Applications and Office Systems 102K and 102L.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.*

Four and one-half hours laboratory.

Pass-No Pass (P-NP) course.

Provides introductory knowledge and skills to install, configure, upgrade, troubleshoot, and repair Windows desktop computer systems. Course also helps students prepare to pass the compTIA A+ Technician Certification Exams.

CAOS 157 Work Skills (Communication) 2 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Two hours lecture.

Pass-No Pass (P-NP) course.

Basic theory of communication as related to the work place demonstrated with practical, realistic situations in role playing, as well as other identifying and written evaluations.

CAOS 158 Work Skills (Problem Solving and Team Building) 2 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Two hours lecture.

Pass-No Pass (P-NP) course.

Basic theory of problem solving and team building as related to the work place demonstrated with practical, realistic situations in role playing, as well as written evaluations.

CAOS 162 Microcomputer Networks 1 Unit

Prerequisite: Computer Applications and Office Systems 90G or 100G, or equivalent. (May be taken concurrently.)

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

One hour lecture.

Pass-No Pass (P-NP) course.

Hardware, software, and cabling components needed in a standard business-environment network.

CAOS 171G Office Automation I (IBM) 1 Unit

Prerequisite: Computer Applications and Office Systems 102K or 102T.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Office automation software.

CAOS 171O Office Automation I (MS Outlook) 1 Unit

Prerequisite: Computer Applications and Office Systems 102K or 102T.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Two hours lecture-laboratory.

Pass-No Pass (P-NP) course.

Office automation software.

CAOS 173 Keyboarding Skill Development 1 Unit

Prerequisite: Computer Applications and Office Systems 70AA.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Speed and accuracy development in keyboarding skills.

CAOS 174G MOUS Core Certification Skill Development (Word 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Core Certification examination.

CAOS 174H MOUS Core Certification Skill Development (Excel 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Core Certification examination.

CAOS 174I MOUS Core Certification Skill Development (PowerPoint 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Core Certification examination.

CAOS 174J MOUS Core Certification Skill Development (Access 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Core Certification examination.

CAOS 175G MOUS Expert Certification Skill Development (Word 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Expert Certification examination.

CAOS 175H MOUS Expert Certification Skill Development (Excel 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Expert Certification examination.

CAOS 175I MOUS Expert Certification Skill Development (PowerPoint 2000) 1 Unit

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Two hours lecture-laboratory.

(May be taken three times for credit.)

Pass-No Pass (P-NP) course.

Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Expert Certification examination.

CAOS 175J MOUS Expert Certification Skill Development (Access 2000) 1 Unit
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Two hours lecture-laboratory. (May be taken three times for credit.) Pass-No Pass (P-NP) course.
 Development of the necessary skills to pass the Microsoft Office User Specialist (MOUS) Expert Certification examination.

CAOS 176 Telephone Communications 1 Unit
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Two hours lecture-laboratory. Pass-No Pass (P-NP) course.
 Techniques for handling incoming and outgoing phone calls, listening skills, and customer relations as well as introduction to Internet mail.

CAOS 180G Job Finding Techniques 1 Unit
Prerequisite: Computer Applications and Office Systems 70AA. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Two hours lecture-laboratory. Pass-No Pass (P-NP) course.
 Techniques of finding a job.

CAOS 180I Proofreading Skills 1 Unit
Prerequisite: Computer Applications and Office Systems 70AA. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Two hours lecture-laboratory. Pass-No Pass (P-NP) course.
 Techniques of proofreading and editing business communications.

CAOS 180J Spelling Skills 1 Unit
Prerequisite: Computer Applications and Office Systems 70AA. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Two hours lecture-laboratory. Pass-No Pass (P-NP) course.
 Techniques used in spelling.

CAOS 190W Open Computer Applications and Office Systems Laboratory 1/2 Unit
Credit course - Does not apply to De Anza Associate degree. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Corequisite: Computer Applications and Office Systems 190W students must also enroll in an appropriate skill-building course. One and one-half hours laboratory. (May be taken up to six times for credit.) Pass-No Pass (P-NP) course.
 Use of microcomputer laboratory to complete application assignments.

CAOS 195W Individual Microcomputer Projects 1 Unit
CAOS 195Y 2 Units
CAOS 195Z 3 Units
Credit course - Does not apply to De Anza Associate degree. Prerequisite: Computer Applications and Office Systems 90G; or 100G; or 102K; or 102T; and consent of the Computer Applications and Office Systems instructional staff; approved Special Projects contract required. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Three hours laboratory for each unit of credit. (Any combination of Computer Applications and Office Systems 195W, 195Y, and 195Z may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.) Pass-No Pass (P-NP) course.
 Individual projects in Computer Applications and Office Systems under the direction of an instructor.

CAOS 198 Topics in Computer Applications and Office Systems 1/2 Unit
CAOS 198W 1 Unit
CAOS 198X 1 1/2 Units
CAOS 198Y 2 Units
Prerequisite: Computer Applications and Office Systems 90G, or 100G, or 102K, or 102T.

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Two hours lecture-laboratory for each unit of credit. (Any combination of Computer Applications and Office Systems 198, 198W, 198X, and 198Y may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.) Pass-No Pass (P-NP) course.
 Introduction to selected Computer Application and Office Systems programs.

CAOS 199W Topics in Computer Applications and Office Systems 1 Unit
Prerequisite: Computer Applications and Office Systems 90G, or 100G, or 102K, or 102T. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. One hour lecture. (Computer Applications and Office Systems 199W may be taken up to six times as long as the topics/projects are different each time.) Pass-No Pass (P-NP) course.
 Introduction to selected Computer Applications and Office Systems programs.

Computer Information Systems

CIS 2 Computers and Society 4 Units
(See general education pages for the requirement this course meets.) Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Four hours lecture.
 A critical examination of the capabilities and uses of modern computers and how they are changing business, law, politics, and society.

CIS 3 Business Information Systems 5 Units
(Formerly Computer Information Systems 91.) Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Four hours lecture, three hours laboratory.
 Introduction to management information systems, systems design and development, data communications, data management, office automation, computer hardware and software concepts. Use of common software packages for business applications including word processing, spreadsheets, database, and Internet web tools. (CAN BUS 6)

CIS 10 Introduction to Computer Science 4 Units
(Formerly Computer Information Systems 51.) Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Four hours lecture.

Introduction to computer hardware and software, data representation, number representation, computer organization, and computer networks. Introduction to data organization, and data structure and abstract data types. Discussion of file structures and database.

CIS 14A Visual Basic .NET Programming I 5 Units
(Formerly Computer Information Systems 14.) Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Four hours lecture, three hours laboratory.
 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 5 Units
(Formerly Computer Information Systems 58A.) Prerequisite: Computer Information Systems 14A. Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173. Four hours lecture, three hours laboratory.
 Develop professional looking and deployable visual basic applications using advanced controls, graphical controls, user-created classes, the data control object, building help files, and accessing the Windows API functions.

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CIS 14C Visual Basic .NET Programming III 5 Units
 (Formerly Computer Information Systems 58B.)
Prerequisite: Computer Information Systems 14B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Computer Information Systems 89A.
 Four hours lecture, three hours laboratory.
 Develop professional looking and deployable visual basic applications using advanced .NET concepts. Build and access databases using ADO Net Objects. Develop Web Services, forms with an introduction to XML, ASP.NET. Introduce Networking with sockets using VB.NET.

CIS 15AG Introduction to Computer Programming Using C 6 Units
(Students may receive credit for either Computer Information Systems 15AG and 15BG, or Computer Information Systems 26A.)
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Computer Information Systems 50; Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
 Four hours lecture, six hours laboratory.
 Problem solving, algorithms and structured program design. Programming, testing and debugging of well-structured programs in C. Introduction to data types. Expressions, control structures and functions. One-dimensional arrays.

CIS 15BG Intermediate Problem Solving in C 5 Units
(Students may receive credit for either Computer Information Systems 15AG and 15BG, or Computer Information Systems 26A, but not both.) Prerequisite: Computer Information Systems 15AG.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture, three hours laboratory.
 A systematic approach to the design, construction and management of computer programs, emphasizing design, programming style, documentation, testing and debugging techniques. Strings, multi-dimensional arrays and structures. Pointers: their use in arrays, parameters and dynamic allocation. Introduction to linked lists.

CIS 15C Data Structures 5 Units
Prerequisite: Computer Information Systems 15BG or 26A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Four hours lecture, three hours laboratory.
 Stacks, queues, linked lists, trees, 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 Units
 (Formerly Computer Information Systems 82A.)
Prerequisite: Computer Information Systems 50; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours lecture, three hours laboratory.
 Basic features of the UNIX/LINUX operating system including text editing, text file manipulation, electronic mail, Internet utilities, directory structures, input/output handling, and introduction to shells.

CIS 18B Advanced UNIX/LINUX 4 Units
 (Formerly Computer Information Systems 82B.)
Prerequisite: Any introductory programming course and Computer Information Systems 18A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours lecture, three hours laboratory.
 Regular expressions, grep, sed, and awk.

CIS 18C Shell Programming 4 Units
 (Formerly Computer Information Systems 82C.)
Prerequisite: Any introductory programming course and Computer Information Systems 18B.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours lecture, three hours laboratory.
 Programming in Bourne Shell, Korn Shell, and C Shell.

CIS 19A PERL for Beginning Programmers 5 Units
 (Formerly Computer Information Systems 55A.)
(Students may receive credit for either Computer Information Systems 19A and 19B or Computer Information Systems 33A, but not both.)
Prerequisite: Computer Information Systems 18A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
 Four hours lecture, three hours laboratory.
 Problem solving, algorithms and structured program design. Programming, testing, and debugging of PERL programs. Elemental data types and operators, basic loops and control structures, elementary list processing and arrays, basic hashes and hash function, regular expressions and text parsing.

CIS 19B Intermediate PERL Programming 5 Units
 (Formerly Computer Information Systems 55B.)
(Students may receive credit for either Computer Information Systems 19A and 19B, or Computer Information Systems 33A, but not both.)
Prerequisite: Computer Information Systems 19A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 105 or 114; Computer Applications and Office Systems 70AA.
 Four hours lecture, three hours laboratory.
 Intermediate programming and problem solving with PERL. Advanced features of the PERL programming language; design and debug complex PERL scripts. Advanced regular expressions, memory variables in substitution and match expressions, advanced list functions (splice, grep, map, match-global, match-tagged-field), advanced hash uses, complex file and directory manipulation including recursive directory descent subs, reference variables, referenced parameters, data structures, and sorting.

CIS 21JA Introduction to 8086/IA32 Processor Assembly Language 5 Units
Advisory: Computer Information Systems 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 101 or 112.
 Three hours lecture, six hours laboratory.
 Syntax and semantics of 8086 and IA32 assembly language; standard instruction set; selected pseudo and macro instructions; arrays; 8086/286, 386, 486 and Pentium features.

CIS 21JB Advanced Programming: Series 8086 and IA32/Pentium Assembly Language 5 Units
Prerequisite: Computer Information Systems 21JA.
Advisory: Computer Information Systems 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 105 or 114.
 Three hours lecture, six hours laboratory.
 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 Reentrant techniques.

CIS 26A C as a Second Programming Language 5 Units
(Student may receive credit for either Computer Information Systems 15AG and 15BG, or 26A.)
Prerequisite: An introductory programming language course.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Computer Information Systems 50; Mathematics 105 or 114.
 Four hours lecture, three hours laboratory.
 An introduction to the C programming language and its applications. Topics covered include basic input/output, structured program design and implementation, basic control structures and keywords, arrays and pointers, character and string manipulation, arithmetic expressions, and functions and program modularization. (CAN CSCI 16)

CIS 26B Advanced C Programming 5 Units
Prerequisite: Computer Information Systems 15BG or 26A.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 105 or 114.
 Three hours lecture, six hours laboratory.
 Applications of advanced features of C and the C-library functions including: binary and random-access input/output, dynamic data structures, bit manipulation, string parsing and string-to-numeric conversion, event and error processing, function pointers, recursion, and variable-length argument list functions.

CIS 27 Programming in C++ for C Programmers 5 Units
Prerequisite: Computer Information Systems 15BG or 26A.
Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Four hours lecture, three hours laboratory.
 A comprehensive introduction to the C++ programming language and its applications.

<p>CIS 28 Object Oriented Analysis and Design With C++ 5 Units (Formerly Computer Information Systems 79.) <i>Prerequisite: Computer Information Systems 27 or equivalent experience.</i> <i>Four hours lecture, three hours laboratory.</i> Object oriented analysis and design methods using an Object Oriented programming language, with emphasis on practical applications of the basic techniques.</p>	<p>CIS 53 Distributed Processing Using Java 4 Units (Formerly Computer Information Systems 53B.) <i>Prerequisite: Computer Information Systems 35B.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Distributed computing using Java features including: JDBC, Sockets Java Servlets, Java Server Pages, RMI, Enterprise JavaBeans, Java Transaction Services, Introduction to Web Services.</p>
<p>CIS 31 Operating System Concepts 5 Units <i>Advisory: Computer Information Systems 15BG, and Computer Information Systems 21IA or 21JA.</i> <i>Five hours lecture.</i> Concepts and use of operating systems: multiprogramming and multiprocessing systems; mutual exclusion, indefinite delay and deadlock; scheduling considerations and input/output management.</p>	<p>CIS 56G Introduction to the UNIX Operating System 1 Unit <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Two hours lecture-laboratory.</i> <i>Pass-No Pass (P-NP) course.</i> Introduction to UNIX operating system file editing, file and text manipulation commands.</p>
<p>CIS 33A Programming in PERL 5 Units (Formerly Computer Information Systems 33.) <i>(Student may receive credit for either Computer Information Systems 33A or Computer Information Systems 19A and 19B, but not both.)</i> <i>Prerequisite: Computer Information Systems 18C; or Computer Information Systems 18A and either Computer Information Systems 15BG or 26A.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, six hours laboratory.</i> A complete coverage of the core PERL language. Topics covered will include basic loops and control structures, the elemental data types and operators, subroutines and variable scoping, regular expressions and text parsing, manipulation of files and directories, advanced list processing with grep and map, references, built-in functions and core modules, and advanced input/output including random-access files and formatting.</p>	<p>CIS 57 Web Site Administration 4 Units <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Computer Information Systems 66 and 89A.</i> <i>Three hours lecture, three hours laboratory.</i> Introduction to establishing, configuring, managing and controlling access to Internet servers.</p>
<p>CIS 33B Advanced PERL Programming 5 Units (Formerly Computer Information Systems 54.) <i>Prerequisite: Computer Information Systems 15BG; or Computer Information Systems 26A and either Computer Information Systems 33A or 19B.</i> <i>Four hours lecture, three hours laboratory.</i> Exploration of advanced topics from the core PERL distribution and essential non-core modules. Topics include reference-based data structures, object-oriented programming, connecting to SQL-based relational databases, non-relational database and file structures, process creation and management, and TCP/IP Client/Server programming.</p>	<p>CIS 61A Introduction to Computer Programming Using Java 6 Units <i>(Student may receive credit for either Computer Information Systems 61A and Computer Information Systems 61B or Computer Information Systems 35A.)</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173; Mathematics 105 or 114.</i> <i>Four hours lecture, six hours laboratory.</i> Problem solving, algorithms, and program design. Programming, testing and debugging of programs in Java. Introduction to expressions, control structures, methods, classes, strings, and arrays.</p>
<p>CIS 35A Introduction to Java Programming 4 Units (Formerly Computer Information Systems 35.) <i>Prerequisite: Computer Information Systems 15BG or 26A.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100, or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Introduction to Java programming. Computing context, primitive types, flow of control constructs, operators, text I/O, objects and classes, interfaces, packages, GUI, exceptions, and threads.</p>	<p>CIS 61B Intermediate Problem Solving in Java 5 Units <i>(Student may receive credit for either Computer Information Systems 61A and Computer Information Systems 61B or Computer Information Systems 35A.)</i> <i>Prerequisite: Computer Information Systems 61A.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Four hours lecture, three hours laboratory.</i> A systematic approach to the design, construction and management of computer programs, emphasizing design, programming style, documentation, testing and debugging techniques.</p>
<p>CIS 35B Advanced Java Programming 4 Units (Formerly Computer Information Systems 53A.) <i>Prerequisite: Computer Information Systems 35A.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Emphasis on foundation technologies in Java that enable you to write server side programs in Java. Concepts include Inner classes, Collections, Exceptions, File I/O, Reflections, Cloning, Swing, Multithreading and Java Beans.</p>	<p>CIS 63 Systems Design 4 Units <i>Advisory: Computer Information Systems 50; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Current tools of structured systems analysis and design: data flow diagrams, structure charts, HIPO charts, VTOCs, data structure/dictionaries, decision trees and tables, pseudo code.</p>
<p>CIS 50 Introduction to Computers, Data Processing, and Applications 3 Units <i>Advisory: English Writing 100B and Reading 100, (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture.</i> A systematic approach to the design, construction and management of computer programs, emphasizing design, programming style, documentation, testing and debugging techniques. Strings, multi-dimensional arrays and structures. Pointers: their use in arrays, parameters and dynamic allocation. Introduction to linked lists.</p>	<p>CIS 64A Data Base Management Systems 4 Units (Formerly Computer Information Systems 64.) <i>Prerequisite: Computer Information Systems 15C.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Rudiments of data base design, implementation and use. Basic understanding of various data modeling techniques. Overview and comparison of data base management systems. Emphasis on relational data bases; introduction to SQL.</p>
<p>CIS 52G Advanced C++ Programming 4 Units (Formerly Computer Information Systems 52.) <i>Prerequisite: Computer Information Systems 27.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Advanced topics in C++ including: preferred practices and styles, templates, manipulators, exceptions, garbage collection, container design, multiple inheritance, namespaces and analysis of design, and implementation for efficiency and maintainability.</p>	<p>CIS 64B Introduction to SQL 4 Units <i>Prerequisite: Computer Information Systems 64A.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours lecture, three hours laboratory.</i> Introduction to Oracle SQL, DML processing techniques, DDL techniques, selecting and sorting data, Joins, SQL functions, Oracle objects, Oracle data processing concepts to maintain large database systems.</p>
<p>CIS 64C Introduction to PL/SQL 4 Units <i>Prerequisite: Computer Information Systems 64B.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 24 and 72 .</i> <i>Three hours lecture, three hours laboratory.</i> Oracle PL/SQL features cover Data Definition and Data Manipulation using Expressions, Control Structures, and Oracle Objects. Error handling, Pre-defined packages, Triggers, Transactions and advanced PL/SQL features.</p>	

- CIS 64D Database Tuning 3 Units**
Prerequisite: Computer Information Systems 64C.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), English as a Second Language 172 and 173.
Three hours lecture.
 Emphasis on importance of Performance Tuning, techniques for tuning several Oracle components, optimizing database for high volume transactions and Data Warehouses.
- CIS 65A Introduction to C# Programming 4 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Three hours lecture, three hours laboratory.
 Introduction to C# programming, .NET Environment, computing context, primitive types, flow of control constructs, operators, text I/O, objects and classes, interfaces, packages, GUI, exceptions, and threads.
- CIS 65B Advanced C# Programming 4 Units**
Prerequisite: Computer Information Systems 65A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Three hours lecture, three hours laboratory.
 Emphasis on foundation technologies in C# that enable you to write server side programs in C#. Concepts include Inner classes, Collections, Exceptions, File I/O, Reflections, Cloning, and Multithreading.
- CIS 66 Introduction to Data Communication and Networking 5 Units**
Advisory: Computer Information Systems 50 or 91; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Five hours lecture.
 Concepts of communication, data communications and networks. Overview of connectivity options, common protocols, local and wide area networks, and internetworking.
- CIS 67A Local Area Networks 4 Units**
Advisory: Computer Information Systems 66.
Four hours lecture.
 Fundamental concepts of Local Area Network architecture and protocols. Emphasis on basic concepts needed to design, configure, and implement Local Area Networks. Emphasis on the evolution of Traditional Ethernet, Fast Ethernet, Gigabit Ethernet, Ten-Gigabit, Ethernet, ATM, and wireless LANs.
- CIS 67B Introduction to Wide Area Networking 4 Units**
Advisory: Computer Information Systems 67A.
Four hours lecture.
 Fundamental concepts of telephony, telecommunication, and wide area networking. Emphasis on analog and digital transmission techniques. Emphasis on circuit-switching and packet-switching. Exploration of optimization in telecommunication.
- CIS 68A Networking Laboratory (Cisco Routers) 2 Units**
 (Formerly Computer Information Systems 68.)
Prerequisite: Computer Information Systems 66 and 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Language 4.
Four hours lecture-laboratory.
 Experimenting with router configuration and operating system. Configuring TCP/IP protocols on routers. Configuring routers for wide area networks such as X.25, Frame Relay, and PPP.
- CIS 73 UNIX/LINUX Systems Programming 5 Units**
 (Formerly Computer Information Systems 26C.)
Prerequisite: Computer Information Systems 18A and 26B.
Four hours lecture, three hours laboratory.
 Systems programming in the UNIX/LINUX and Posix environments. Emphasis on low-level UNIX/LINUX/Posix system calls from C programs and Shell scripts. Differences in major UNIX/LINUX/Posix environments (SVR4, BSD, standard Posix, Windows NT).
- CIS 74 Computer Software Quality Assurance 4 Units**
Advisory: Computer Information Systems 50.
Four hours lecture.
 Analysis of types of software; software development life cycle; top down design and structures programming; modularization; standards and practices; software configuration management; software testing; documentation; software error types, causes; software quality assurance plans and procedures; software discrepancy reports, analysis; software visibility for managers.
- CIS 75A Internet Concepts and TCP/IP Protocols 5 Units**
Prerequisite: Computer Information Systems 66.
Advisory: Computer Information Systems 67B; Computer Information Systems 26A or 15AG; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Five hours lecture.
 The architecture and underlying protocols of the Internet. The Internet will be examined as a layered product. Layers discussed will include mid-level packet delivery and address computation and high-level client/server applications using the TCP/IP Protocol Suite.
- CIS 75B Internet Programming With TCP/IP 5 Units**
Prerequisite: Computer Information Systems 26B and 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Four hours lecture, three hours laboratory.
 Writing client/server applications using the TCP/IP protocol suite. All server classes, -- "well known," iterative, concurrent, and polling -- will be explored and used. Typical Internet programming problems will be addressed including resource availability, machine addressing, and differences in data representation between communicating computers.
- CIS 75C Enterprise Security Threats Management 4 Units**
Prerequisite: Computer Information Systems 75A or equivalent experience.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Three hours lecture, three hours laboratory.
 Learn how to apply Enterprise Security Concepts to monitor security threats, outages and analyze such results. Learn to predict hacker's mindset and respond to hacker attack. Raise awareness in your workplace about Security policy and procedures. System Administrator's IT Managers Analysts would benefit from this course as well as technologists wanting to broaden their impact.
- CIS 75D Enterprise Security Policy Management 3 Units**
Prerequisite: Computer Information Systems 75A, or equivalent experience.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Two hours lecture, three hours laboratory. (Students will work in groups with Mentor available on-line.)
 Learn how to secure your Enterprise Network by creating a Security Policy and create procedures to maintain Security Policy. Learn to perform risk analysis and assessment on enterprise security. System Administrators, IT Managers Analysts would benefit from this course as well as technologists wanting to broaden their impact.
- CIS 75E Enterprise Emergency Response Planning 2 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
Two hours lecture.
 Learn how to plan for Emergency Response, recover from a disaster and how to mitigate risks. System Administrators, IT Managers Analysts would benefit from this course as well as technologists wanting to broaden their impact.
- CIS 76 Introduction to Network Security 4 Units**
Prerequisite: Computer Information Systems 75A.
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173; Mathematics 101 or 112.
Four hours lecture.
 Network security using the standard protocols and algorithms. All four aspects of security (privacy, integrity, authentication, and nonrepudiation) will be discussed and solutions explained. Security in the Internet and E-commerce is emphasized.
- CIS 79 Managing Technology Projects 5 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
(Also listed as Business 88. Student may enroll in either department, but not both, for credit.)
Four hours lecture, three hours laboratory.
 Introduction to the theory and practice of the design and management of technology projects including planning, performing, and monitoring of projects. Subjects explored are estimating costs and schedules, analyzing client expectations, guiding diverse groups of people toward a common goal, while earning a profit. Use of common software packages for project management.
- CIS 86 Computer Accounting Systems 5 Units**
Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173; Accounting 1A.
(Also listed as Accounting 86. Student may enroll in either department but not both, for credit.)
Four hours lecture, two hours lecture-laboratory.
 Fundamentals of computerized accounting using integrated general ledger software packages and electronic spreadsheet software. Conversion of a manual system to a computer system.

<p>CIS 89A World Wide Web Page Development 3 Units (Formerly Computer Information Systems 89.) <i>Advisory: Computer Information Systems 18A or 56G; English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Two hours lecture, three hours laboratory.</i> Fundamentals of Web page design and creation: designing, encoding and maintaining pages on the World Wide Web using HTML.</p>	<p>CIS 97XJ Topics in Computer Information Systems (Wireless Web Sites) 2 Units <i>Prerequisite: Education or experience in data processing appropriate to the topic.</i> <i>Two hours lecture.</i> Understand the emerging standards on the Wireless Web. Understanding the Wireless Applications Protocol (WAP). Developing the Wireless Web using the Wireless Markup Language (WML). Use of emulators to create content appropriate to the devices. Server-side scripting is presented to show how to make the best use of server resources to deliver powerful content.</p>
<p>CIS 89B Server Programming for the World Wide Web 5 Units <i>Prerequisite: Computer Information Systems 33A and 89A.</i> <i>Four hours lecture, three hours laboratory.</i> Fundamentals of server-side programming via the CGI protocol and the Perl programming language. Students will create Web pages and server-side CGI scripts which interact with them.</p>	<p>CIS 97XK Topics in Computer Information Systems (Introduction to WMLScript) 2 Units <i>Prerequisite: Wireless Web Sites (WAP and WML).</i> <i>Two hours lecture.</i> Fundamentals of WMLScript which is used to specify application content for narrowband devices like cellular phones and pagers. Students will use emulators to create WAP pages that execute on the client device to check emulators to create WAP pages that execute on the client device to check the validity of user input, access to facilities of the device, and generate messages and dialogs locally.</p>
<p>CIS 89C Client-Side Programming with JavaScript 3 Units <i>Prerequisite: Computer Information Systems 89A, and any introductory programming course.</i> <i>Advisory: Computer Information Systems 18A.</i> <i>Two hours lecture, three hours laboratory.</i> Fundamentals of client-side programming for Web pages requiring data collection or other user interaction. Students will create Web pages that execute on the client (personal system) using JavaScript.</p>	<p>CIS 97YM Topics in Computer Information Systems (Exchange Server 5.5 Concepts and Administration) 3 Units <i>Prerequisite: Computer Information Systems 156B.</i> <i>Three hours lecture.</i> The goal of this course is to provide Exchange Server administrators with the skills required to perform day-to-day management of an established Exchange Server organization.</p>
<p>CIS 92A Topics in Computer Information Systems Development (Introduction to XML) 3 Units (Formerly Computer Information Systems 97XM.) <i>Prerequisite: Computer Information Systems 89A.</i> <i>Two hours lecture, three hours laboratory.</i> Fundamental concepts of XML including document and language creation and implementation.</p>	<p>CIS 97YN Topics in Computer Information Systems (Introduction to UNIX Systems Administration) 3 Units <i>Prerequisite: Computer Information Systems 18A.</i> <i>Advisory: Computer Information Systems 18B.</i> <i>Three hours lecture.</i> Introduction to UNIX Systems Administration details and concepts. System startup, shutdown, adding users, managing processes, backups and file system management. A brief introduction to network administration.</p>
<p>CIS 92B Topics in Computer Information Systems Development (Intermediate XML) 3 Units (Formerly Computer Information Systems 97XN.) <i>Prerequisite: Computer Information Systems 92A and Computer Information Systems 15AG or 14A.</i> <i>Two hours lecture, three hours laboratory.</i> Fundamental concepts of XSL and conversion of XML documents into other standardized formats using XSLT and XSLFO.</p>	<p>CIS 97ZI Topics in Computer Information Systems (Microsoft Exchange Server 2000) 4 Units <i>Prerequisite: Education or experience in data processing appropriate to the topic.</i> <i>Four hours lecture.</i> Provides Windows 2000 system administrators the skills and knowledge to design, plan, implement, and support Microsoft Exchange 2000 Server. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.</p>
<p>CIS 92C Topics in Computer Information Systems Development (Advanced World Wide Web Page Development) 3 Units (Formerly Computer Information Systems 97XH.) <i>Prerequisite: Computer Information Systems 89A.</i> <i>Two hours lecture, three hours laboratory.</i> Advanced Web page development. Designing, encoding and maintaining Web documents on the World Wide Web using HTML. The use of Cascading style sheets, JavaScript style sheets and other available tools.</p>	<p>CIS 108 End-User Security Basics 4 Units <i>Advisory: Computer Applications and Office Systems 90G or equivalent; English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.</i> <i>(Also listed as Computer Applications and Office Systems 108. Student may enroll in either department, but not both, for credit.)</i> <i>Four hours lecture.</i> Beginner's computer security course for small office or home users (end-users). Learn to stop hackers, worms, viruses, spyware, web bugs and identity theft. Learn vulnerabilities found in web browsers, email and operating systems. Protect against online purchase dangers, install firewalls, manage cookies, restrict ports, analyze log files, evaluate wireless networks and examine encryption.</p>
<p>CIS 94 Introduction to the Internet and World Wide Web 1 Unit <i>Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.</i> <i>(Also listed as Computer Applications and Office Systems 94. Student may enroll in either department, but not both, for credit.)</i> <i>Two hours lecture-laboratory.</i> <i>Pass-No Pass (P-NP) course.</i> Introduction to using the Internet. Topics include an overview of the World Wide Web, e-mail, news groups, bulletin boards, World Wide Web browsers, basic web page elements and exploration of virtual communities.</p>	<p>CIS 111 Open Computer Information Systems Fortran Laboratory 1 Unit <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173 ; Mathematics 1A.</i> <i>Three hours laboratory.</i> <i>Pass-No Pass (P-NP) course.</i> Use of the computer laboratory facilities in conjunction with Computer Information Systems 11AS.</p>
<p>CIS 96 Special Projects in Computer Information Systems 1 Unit</p> <p>CIS 96X 2 Units</p> <p>CIS 96Y 3 Units <i>Prerequisite: Other De Anza College Computer Information Systems courses in which computer programming is learned and consent of the Computer Information Systems Department. Approved Special Projects contract required.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Three hours laboratory for each unit of credit. Hours to be individually arranged.</i> <i>(Any combination of Computer Information Systems 96, 96X, and 96Y may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)</i> Design, implement, and document a special computer project.</p>	<p>CIS 156A Microsoft Windows NT 4.0 Network Administration 2 Units <i>Prerequisite: Computer Applications and Office Systems 102T.</i> <i>Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.</i> <i>Two hours lecture.</i> Provide critical lecture and demonstration of day-to-day administration of single-user, single-domain, or enterprise networks. Course uses Microsoft official curriculum to help students achieve Microsoft Windows NT certification.</p>

C

CIS 170D Windows 2000/XP Professional 4 Units
(Student may receive credit for either Computer Information System 170D or Computer Information System 171A or Computer Information System 171C, but cannot receive credit for more than one of these courses.)
 Advisory: Computer Applications and Office Systems 102L or Computer Information Systems 156A; English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Four hours lecture.

Course provides knowledge and skills to setup, configure, use, and support Windows 2000 professional software. Covers Windows XP new features including installation, activation, file sharing, remote assistance, Internet connection sharing, multi-user EFS, device driver rollback, and Internet connection firewall. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 171C Windows XP Professional 3 Units
 Prerequisite: Computer Information Systems 171A.
 Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours lecture.

A student proficient in Windows 2000 Professional will acquire the knowledge to aid in passing the Microsoft Windows XP Professional certification exam. Course covers new features of Windows XP operating system. Students must have computer access to e-mail and to the World Wide Web.

CIS 171D Windows 2003 Server 4 Units
 Prerequisite: Computer Information Systems 171A.
 Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Four hours lecture.

This course provides Windows 2003 system administrators the knowledge and skills to setup, manage, and maintain Windows 2003 Server software. Course provides the information necessary to help pass the Microsoft Certification Exam 70-290; Managing and Maintaining a Microsoft Windows Server 2003 Environment.

CIS 172A Implement Windows 2003 Network Infrastructure 4 Units
 Prerequisite: Computer Information Systems 171D.
 Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Four hours lecture.

Provides Windows 2003 system administrators the knowledge to implement, manage, and maintain IP addresses, name resolution, network security measure, routing and remote access, and monitoring and troubleshooting network infrastructure. Course provides the information necessary to help pass the Microsoft Certification Exam 70-291: Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure.

CIS 174 Active Directory Design 3 Units
 Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours lecture.

Design a Directory Services infrastructure including multi-domain logical structure and site topology and Active Directory Replication plan based on the physical structure of the enterprise. Course uses Microsoft official study guide to help students meet the certification requirement to become Microsoft Certified Professionals.

CIS 174A Planning Windows 2003 Active Directory Infrastructure 4 Units
 Prerequisite: Computer Information Systems 171D.
 Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Four hours lecture.

Provides Windows 2003 system administrators the knowledge to plan, implement, maintain, and troubleshoot Active Directory infrastructure; plan user, computer, and group strategies; and plan, implement, and manage Group Policy. Course provides the information necessary to help pass the Microsoft Certification Exam 70-294: Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure.

CIS 175A Design Windows 2003 Network Security 3 Units
 Prerequisite: Computer Information Systems 171D.
 Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
 Three hours lecture.

Provides Windows 2003 system administrators the knowledge to design a secure network infrastructure. Course covers modeling threats, and analyzing security risks in order to meet business requirements for securing computers in a networked environment. Course provides the information necessary to help pass the Microsoft Certification Exam 70-298: Designing Security for a Microsoft Windows Server 2003 Network.

CIS 197 Open Computer Information Systems Topics Laboratory 1 Unit

Corequisite: Computer Information Systems 197 students must also enroll in any Computer Information Systems topics course with a laboratory.
 Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.
 Three hours laboratory.
 (May be taken up to six times as long as the topics/projects are different each time.)

Pass-No Pass (P-NP) course.

Use of the facilities of the computer laboratory in conjunction with a Computer Information Systems topics course. Required of all Computer Information Systems 97, 97X, 97Y, and 97Z students using the De Anza computer laboratory for a Computer Information Systems topics class.

COOP Ed Work Experience

COOP 50 Occupational Work Experience (Parallel) 1 Unit
COOP 50X 2 Units
COOP 50Y 3 Units
COOP 50Z 4 Units

Prerequisite: Must be working in a job related to declared occupational program/educational goal; concurrent enrollment in at least seven units including COOP (Fall, Winter and Spring quarters), or at least one other course during Summer session.

Fifty hours of paid employment per quarter for each unit of credit.

(May be taken until 24 units of COOP have been earned.)

Assess career/life development and work activities by introduction to the concept of career paths within an occupational choice, and awareness of cultural/global diversity and generational differences in the work environment. Consideration will be given to short and long-range work performance objectives between the student and the employer. Students will be encouraged to view their objectives in terms of a planned series of experiences. Participation in COOP will assist the student in planning activities that will facilitate the confirming or denying of current academic or career choice.

COOP 51 Occupational Work Experience (Alternate) 1 Unit
COOP 51W 2 Units
COOP 51X 4 Units
COOP 51Y 6 Units
COOP 51Z 8 Units

Prerequisite: Must be in a job related to declared occupational program/educational goal. Concurrent enrollment limited to one other course.

Fifty hours of paid employment per quarter for each unit of credit.

(May be taken until 24 units of COOP have been earned.)

Assess career/life development and work activities by introduction to the concept of career paths within occupational choices, and awareness of cultural/global diversity and generational differences in the work environment. Learning/performance objectives agreed upon by the student and employer will be identified and carried out. View objectives in terms of a planned series of experiences. Participation in COOP will assist the student in planning activities that will facilitate the confirming or denying of current academic or career choice.

COOP 52 Occupational Volunteer Community Service Learning Internship (Parallel) 1 Unit
COOP 52X 2 Units
COOP 52Y 3 Units
COOP 52Z 4 Units

Prerequisite: Must be volunteering in a service learning internship that is related to declared occupational program/educational goal; college recognized occupational program goal; concurrent enrollment in at least seven units including COOP (Fall, Winter and Spring quarters), or at least one other course during Summer session.

Forty hours of unpaid internship per quarter for each unit of credit in a service learning environment.

(May be taken until 24 units of COOP have been earned.)

Volunteer in an approved community agency with individually planned and supervised learning experiences related to occupational goals and designed to help meet human needs in the community. Desirable work habits, attitudes, skills, knowledge, career awareness and exposure to cultural and generational diversity. Experience in setting and achieving on-the-job learning/performance objectives related to occupational goals and appropriate to the service learning internship. Consultations with individually assigned faculty members.

COOP 53 Occupational Volunteer Community Service Learning Internship (Alternate) 1 Unit
COOP 53W 2 Units
COOP 53X 4 Units
COOP 53Y 6 Units
COOP 53Z 8 Units

Prerequisite: Must be volunteering in a service learning agency related to declared occupational program/educational goal; concurrent enrollment limited to one other course.

Forty hours of unpaid internship per quarter for each unit of credit in a service learning environment.

(May be taken until 24 units of COOP have been earned.)

Volunteer in an approved community agency with individually planned and supervised learning experiences related to occupational goals and designed to help meet human needs in the community. Desirable work habits, attitudes, skills, knowledge, career awareness, and exposure to cultural and generational diversity. Experience setting and achieving on-the-job learning/performance objectives related to occupational goals and appropriate to the service learning internship. Consultations with individually assigned faculty members.

COOP 70 General Work Experience (Parallel) 1 Unit
COOP 70X 2 Units
COOP 70Y 3 Units

Prerequisite: Must be employed; concurrent enrollment in at least seven units including COOP (Fall, Winter, and Spring quarters) or at least one other course during Summer session.

Fifty hours of paid employment per quarter for each unit of credit.

(May be taken until nine units of this course have been earned, within a maximum of 24 total units in all COOP courses.)

Transferable skills gained under actual working conditions. Develop an understanding, appreciation and respect for work, peers, and an awareness of cultural/global diversity and generational differences in the work environment. Through holding a job, fulfilling work-related assignments and participating in on-campus activities, students are assisted in the process of developing a concept of self, understanding roles in the work environment and setting realistic goals. An assigned faculty coordinator helps students focus on job skills for transition into a career.

COOP 71 General Work Experience (Alternate) 1 Unit
COOP 71W 2 Units
COOP 71X 4 Units
COOP 71Y 6 Units
COOP 71Z 8 Units

Prerequisite: Concurrent enrollment limited to one other course.

Fifty hours of paid employment per quarter for each unit of credit.

(May be taken until nine units have been earned in this course within a maximum of 24 units in all COOP courses.)

Transferable skills gained under actual working conditions. Develop an understanding, appreciation and respect for work, peers, and awareness of cultural/global diversity and generational differences in the work environment. Through holding a job, fulfilling work related assignments and participating in on-campus activities, students are assisted in the process of developing a concept of self, understanding roles in the work environment and setting realistic goals. An assigned faculty coordinator helps students focus on the job skills needed for transition into a career.

COOP 72 General Volunteer Service Learning Community Internship (Parallel) 1 Unit
COOP 72X 2 Units
COOP 72Y 3 Units

Prerequisite: Concurrent enrollment in at least seven units including COOP (Fall, Winter, and Spring quarters) or at least one other course during Summer session.

Forty hours of unpaid community internship per quarter for each unit of credit in a service learning environment.

(May be taken until nine units have been earned, within a maximum of 24 units in all COOP courses.)

Volunteer in an approved community agency with individually planned and supervised learning experiences that are designed to help meet human needs in the community. Desirable work habits, attitudes, skills, career awareness, and exposure to cultural and generational diversity. Experience in setting and achieving learning/performance objectives appropriate to the service learning internship. Consultations with individually assigned faculty member.

COOP 73 General Volunteer Service Learning Community Internship (Alternate) 1 Unit
COOP 73W 2 Units
COOP 73X 4 Units
COOP 73Y 6 Units
COOP 73Z 8 Units

Prerequisite: Concurrent enrollment limited to one other course.

Forty hours of unpaid internship per quarter for each unit of credit in a service learning environment.

(May be taken until nine units have been earned in this, within a maximum of 24 units in all COOP courses.)

Volunteer in an approved community agency with individually planned and supervised learning experiences that are designed to help meet human needs in the community. Desirable work habits, attitudes, skills, career awareness, and exposure to cultural and generational diversity. Experience in setting and achieving learning/performance objectives appropriate to the service learning internship. Consultations with individually assigned faculty members.

Counseling

COUN 80W Special Topics in Counseling 1/2 Unit
COUN 80X 1 Unit
COUN 80Y 2 Units
COUN 80Z 3 Units

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

One hour lecture for each unit of credit.

(Any combination of Counseling 80W, X, Y, Z may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)

Selected counseling topics with a focus on academic and personal development.

COUN 100 Orientation to College 1/2 Unit
COUN 100X 1 Unit

Credit course - Does not apply to De Anza Associate degree.

Two hours lecture-laboratory for each unit of credit.

Pass-No Pass (P-NP) course.

An orientation to De Anza College that includes programs, services, policies, degrees, certificates, transfer requirements, and college culture. Focus will be on strategies needed for academic success and the development of a one quarter Educational Plan.

Dance

DANC 22 Body Awareness and Conditioning for Dancers 1 Unit

(See general education pages for the requirement this course meets.)

Advisory: English Writing 100B and Reading 100 (or Language Arts 100), or English as a Second Language 172 and 173.

(Also listed as Physical Education 22. Student may enroll in either department, but not both, for credit.)

Two hours lecture-laboratory.

(Any combination of Dance/Physical Education 22 may be taken up to six times as long as the topics/projects are different each time.)

Principles of dance and practice of body awareness focusing on center, floor and barre work derived from ballet, contemporary dance, and other psycho-physical disciplines. Topics may include, but are not limited to, body alignment and centering, concentration and relaxation, development of the kinesthetic sense, and exploration of the body/mind connection.

DANC 22K Theory and Technique of Ballet I 1 Unit
 (Formerly Dance 22B.)

(See general education pages for the requirement this course meets.)

Advisory: English Writing 200 and Reading 201 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Dance 22 or Physical Education 22.

(Also listed as Physical Education 22K. Student may enroll in either department, but not both, for credit.)

Two hours lecture-laboratory.

(Any combination of Dance/Physical Education 22K, 22L, and 22M may be taken up to six times for the family of courses.)

Introduction to the discipline and creative art of classical ballet, including the development of elementary movement techniques, a working ballet vocabulary, exposure to great works and artists from a global perspective, theory and practice of barre and center floor exercises.