Three hours lecture (36 hours total per quarter). Required training for De Anza writing tutors. Introduction to the theory and practice of tutoring writing, including strategies and approaches to help students from diverse linguistic backgrounds at various stages of the writing process. Students read about, observe, discuss, write about and practice the craft of tutoring writing. After an initial orientation, students in the class begin tutoring, and reflect on their tutoring experiences as part of the class.

LRNA 98 Introduction to Tutor Training for Individual General Subject Tutors 2 Units
Prerequisite: Must be selected to work as a De Anza tutor. Two hours lecture (24 hours total per quarter). Pass-No Pass (P-NP) course. Required of all De Anza individual general subject tutors during their first quarter of tutoring. Strategies and communication skills to help peer tutors conduct productive, effective, and fun tutoring sessions. Experience reflecting on instructional and learning theory and practicing theory-based tutoring techniques. Strategies for working with students from diverse backgrounds and with various learning styles. Self-reflection and peer feedback on actual tutoring sessions.

LRNA 200 Supervised Tutoring 0 Units
Non-credit course - Does not apply to De Anza Associate degree. Prerequisite: Student must be referred by counselor or instructor on the basis of an identified learning need. (No limit on repeatability for 0 unit courses.) Optional learning assistance to strengthen students’ study and learning skills for the the appropriate basic skills courses. Learning assistance is provided in a designated De Anza center by trained and approved De Anza tutors.

LRNA 201 Supervised Tutoring in Language Arts 0 Units
Non-credit course - Does not apply to De Anza Associate degree. Prerequisite: Student must be referred by counselor or instructor on the basis of an identified learning need. Two to 50 hours lecture-laboratory per quarter. (No limit on repeatability for 0 unit courses.) Optional learning assistance to strengthen students’ learning skills and reinforce mastery of concepts in the appropriate basic skills parent courses in Language Arts. Learning assistance is provided in a designated De Anza center by approved tutors who are trained in tutoring for specific content areas.

LRNA 202 Supervised Tutoring in Math 0 Units
Non-credit course - Does not apply to De Anza Associate degree. Prerequisite: Student must be referred by counselor or instructor on the basis of an identified learning need. Two to 50 hours lecture-laboratory per quarter. (No limit on repeatability for 0 unit courses.) Optional learning assistance to strengthen students’ learning skills and reinforce mastery of concepts taught in the appropriate parent course or courses in basic skills math. Learning assistance is provided in a designated De Anza center by approved De Anza tutors who are trained in tutoring for specific content areas.

Learning Center

LCEN 50 Introduction to Online Research 1 Unit
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Two hours lecture-laboratory (24 hours total per quarter). Introduces skills needed to locate, evaluate, and cite information found on the Internet and in subscription databases. Prepares students to do the basic research necessary to effectively complete written and oral assignments.

LCEN 51 Business Resources on the World Wide Web 1 Unit
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Two hours lecture-laboratory (24 hours total per quarter). Locate, examine, and evaluate business-related sites available on the World Wide Web.

LCEN 53 Advanced Internet Search Techniques 1 Unit
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Two hours lecture-laboratory (24 hours total per quarter). Provides Internet users with tools and information to effectively search and evaluate Internet websites. Also introduces the concept of the “hidden web” -- information that is not indexed by search engines such as Google and Yahoo.

LCEN 55 Emerging Internet Technologies – A Crash Course 1 Unit
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Two hours lecture-laboratory (24 hours total per quarter). Introduces students to emerging Internet technologies and links these ongoing transitions to information research. Currently referred to as “Web 2.0”, today’s Internet includes photography and image postings, blogs, wikis, and RSS feeds. Skills for locating and using these new applications will be studied.

LING 1 Introduction to Linguistics 4 Units
(See general education pages for the requirement this course meets.) Advisory: English Writing 1A or English as a Second Language 5. (Also listed as English Literature 25. Students may enroll in either department, but not both, for credit.) Four hours lecture (48 hours total per quarter). Introduction to the nature of language. Origin and development of spoken and written languages, how people learn languages, and how languages change, with emphasis on the history of English. Basics of linguistic description including systems of phonetics and phonology, semantics, morphology and syntax. Study of general linguistic principles as they apply across languages.

MAND 1 Elementary Mandarin (First Quarter) 5 Units
(See general education pages for the requirement this course meets.) Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Five hours lecture (60 hours total per quarter). Introduction to the language and cultures of Mandarin-speaking countries and communities. Basic speaking, listening, reading, and writing of Mandarin will be introduced and practiced within a cultural framework. Mandarin will be the primary language of instruction. Emphasis will be on language as an expression of culture and a medium of communication.

MAND 2 Elementary Mandarin (Second Quarter) 5 Units
(See general education pages for the requirement this course meets.) Prerequisite: Mandarin 1 (equivalent to one year of high school Mandarin) or equivalent. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Five hours lecture (60 hours total per quarter). Further development of material presented in Mandarin 1. Continuation of introduction to the language and cultures of Mandarin-speaking countries and communities. Speaking, listening, reading, and writing of Mandarin will be continued and practiced within a cultural framework. Mandarin will be the primary language of instruction. Emphasis will be on language as an expression of culture and a medium of communication.

MAND 3 Elementary Mandarin (Third Quarter) 5 Units
(See general education pages for the requirement this course meets.) Prerequisite: Mandarin 2 (equivalent to two years of high school Mandarin) or equivalent. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Five hours lecture (60 hours total per quarter). Further development of material presented in Mandarin 1 and 2. Completion of introduction to the language and cultures of Mandarin-speaking countries and communities. Basic speaking, listening, reading, and writing of Mandarin will be further introduced and practiced within a cultural framework. Mandarin will be the primary language of instruction. Emphasis will be on language as an expression of culture and a medium of communication.

MAND 4 Intermediate Mandarin (First Quarter) 5 Units
(See general education pages for the requirement this course meets.) Prerequisite: Mandarin 3 (equivalent to three years of high school Mandarin) or equivalent. Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273. Five hours lecture (60 hours total per quarter). Read and discuss texts dealing with geography, history, social and cultural practices of the Chinese-speaking world. Review the linguistic functions and grammatical structures of first-year Chinese. Speaking, listening, reading, and writing of the first-quarter low intermediate level of Mandarin will be introduced and practiced within a cultural framework.
MAND 5 Intermediate Mandarin (Second Quarter) 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mandarin 4 (equivalent to four years of high school Mandarin) or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Continuation of Mandarin 4. Read and discuss texts dealing with geography, history, literature, social, and cultural practices of the Chinese-speaking world. Review the linguistic functions and grammatical structures of intermediary Chinese. Speaking, listening, reading, and writing of second-quarter intermediate level of Mandarin will be introduced and practiced within a cultural framework.

MAND 6 Intermediate Mandarin (Third Quarter) 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mandarin 5 or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Continuation of Mandarin 5. Read, discuss and analyze texts dealing with arts, geography, history, literature, social and cultural practices of the Chinese-speaking world. Review the linguistic functions and grammatical structures of intermediary Chinese. Speaking, listening, reading, and writing of third-quarter high intermediate level of Mandarin will be introduced and practiced within a cultural framework.

MAND 60A Mandarin - Introductory Conversation 3 Units
(First Quarter)
(Formerly Mandarin 90A.)
Requisite/Advisory: None.
Three hours lecture (36 hours total per quarter).
Introduction to the language and cultures of Mandarin-speaking countries and communities. Spoken Chinese will be introduced with focus on pronunciation and vocabulary, in connection with elements of Chinese culture necessary to understand the language. Intensive drills in the patterns and idioms of daily speech will be supported by sufficient grammar to give flexibility in the spoken language.

MAND 60B Mandarin - Introductory Conversation 3 Units
(Second Quarter)
(Formerly Mandarin 90B.)
Prerequisite: Mandarin 60A.
Three hours lecture (36 hours total per quarter).
The next course in the introductory conversation Mandarin course sequence, following Mandarin 60A. Continues the introduction to the language and cultures of Mandarin-speaking countries and communities. The vocabulary and grammatical structures mastered in Mandarin 60A will be consolidated and further developed, in conjunction with elements of Chinese culture. The course emphasizes practical communication for everyday use and business, particularly conversational fluency.

MAND 60C Mandarin - Introductory Conversation 3 Units
(Third Quarter)
(Formerly Mandarin 90C.)
Prerequisite: Mandarin 60B.
Three hours lecture (36 hours total per quarter).
The next course in the introductory conversation Mandarin course sequence, following Mandarin 60B. Continues the introduction to the language and cultures of Mandarin-speaking countries and communities. The vocabulary and grammatical structures mastered in Mandarin 60B will be consolidated and further developed, in conjunction with elements of Chinese culture. The course emphasizes practical communication for everyday use and business, particularly conversational fluency.

MAND 61A Mandarin - Intermediate Conversation 3 Units
(First Quarter)
(Formerly Mandarin 50A.)
Prerequisite: Mandarin 60C or equivalent.
Three hours lecture (36 hours total per quarter).
The first course in the intermediate conversation Mandarin course sequence, following Mandarin 60C. Continues the introduction to the language and cultures of Mandarin-speaking countries and communities. The vocabulary and grammatical structures mastered in Mandarin 60C will be consolidated and further developed, in conjunction with elements of Chinese culture. Elements of Chinese for business are further introduced. Mandarin 61A is focused on speaking and comprehension proficiency near native speaker level.

MAND 61B Mandarin - Intermediate Conversation 3 Units
(Second Quarter)
(Formerly Mandarin 50B.)
Prerequisite: Mandarin 61A or equivalent.
Three hours lecture (36 hours total per quarter).
The next course in the intermediate conversation Mandarin course sequence, following Mandarin 61A. Continues the introduction to the language and cultures of Mandarin-speaking countries and communities. The vocabulary and grammatical structures mastered in Mandarin 61A will be consolidated and further developed, in conjunction with elements of Chinese culture. Elements of Chinese for business are further introduced including a meeting conversation. Mandarin 61B is focused on speaking and comprehension proficiency near native speaker level.

MAND 61C Mandarin - Intermediate Conversation 3 Units
(Third Quarter)
(Formerly Mandarin 50C.)
Prerequisite: Mandarin 61B or equivalent.
Three hours lecture (36 hours total per quarter).
The advanced level of conversation, following Mandarin 61B. Continues the introduction to the language and cultures of Mandarin-speaking countries and communities. The vocabulary and grammatical structures mastered in Mandarin 61B will be consolidated and further developed, in conjunction with elements of Chinese culture. Elements of Chinese for business are further introduced including make business presentations, conducting simple business negotiations, and travel Chinese. Mandarin 61C is focused on speaking and comprehension proficiency at native speaker level.

Manufacturing and CNC Technologies

MCNC 56 Special Projects in Manufacturing and CNC 1 Unit
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent.
Four hours lecture-laboratory. (36 hours total per quarter).
The application of word processing and spreadsheet programs, such as Word and Excel, to communicate technical information in various fields of technology including manufacturing, product design, and similar disciplines.

MCNC 56X Special Projects in Manufacturing and CNC 2 Units
Advisory: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Manufacturing and CNC 56X, 56Y and 56Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.)
Projects advancing student's knowledge and experience in a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor.

MCNC 56Y Special Projects in Manufacturing and CNC 3 Units
(Formerly Manufacturing and Design Technology 62A.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
The application of fundamental mathematics to various fields of technology including machining, automotive, sheet metal, and similar disciplines. Review and development of arithmetic skills, introduction of basic algebraic concepts and metric conversion. The use of a scientific calculator in problem solving will be emphasized.

MCNC 61A Survey of Writing and Data Communications 2 Units
(Formerly Manufacturing and Design Technology 62A.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
The application of fundamental mathematics to various fields of technology including machining, automotive, sheet metal, and similar disciplines. Review and development of arithmetic skills, introduction of basic algebraic concepts and metric conversion.

MCNC 62A Technical Calculations 2 Units
(Formerly Manufacturing and Design Technology 62A.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
The application of fundamental mathematics to various fields of technology including machining, automotive, sheet metal, and similar disciplines. Review and development of arithmetic skills, introduction of basic algebraic concepts and metric conversion.

MCNC 64 Manufacturing Materials and Processes 4 Units
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273; Mathematics 212 or equivalent; or Manufacturing and CNC 62A.
Two hours lecture, four hours lecture-laboratory (72 hours total per quarter).
Applied materials and process analysis. Materials and process selection techniques. The role of metals, polymers, ceramics and composites in the casting, molding, forging, forming, machining, joining, heat and surface treatment processes.

MCNC 71 Introduction to Machining and CNC 4 1/2 Units
(Formerly Manufacturing and Design Technology 72.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent.
Nine hours lecture-laboratory (108 hours total per quarter).

MCNC 72 Applied Geometric Inspection Dimensioning and Tolerancing (ANSI Y14.5m): Coordinate Measuring Machines (CMM) 3 Units
(Formerly Manufacturing and Design Technology 72.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent; experience in blueprint reading.
Six hours lecture-laboratory (72 hours total per quarter).
Interpretation of specifications and inspection procedures related to current ASME
Numerical Control Programming

Y14.5 Geometric Dimensioning and Tolerancing (GD&T) standards. Applications and capabilities of precision measuring tools, including the computer-aided Coordinate Measuring Machine (CMM), used in manufacturing environments to inspect discrete complex parts. Machine and inspected part set-up for measuring form, orientation, and position call outs.

MCNC 74A Survey of Computer Drawings 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
Principles and applications of computer drawings using industry standard software. Emphasis is on 3-D and articulated drawings.

MCNC 74B Survey of Computer Aided Design 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent.
Four hours lecture-laboratory (48 hours total per quarter).
Principles and applications of computer aided design (CAD) using industry standard software. Emphasis is on 2-D drawings.

MCNC 74C Introduction to 3D Computer Aided Design 2 Units
Prerequisite: Manufacturing and CNC 74B.
Four hours lecture-laboratory (48 hours total per quarter).
Principles and applications of computer aided design (CAD) using industry standard software. Emphasis on three-dimensional architectural drawings.

MCNC 75A Introduction to Computer-Aided Numerical Control (CNC) Programming and Operation; Mills 4 1/2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent; Manufacturing and CNC 71 or experience in machining processes.
Nine hours lecture-laboratory (108 hours total per quarter).
Introduction to mill tool path programming using G & M code format. CNC systems and components including machine controller functions and operations. Program entry, editing, and back plotting. Calculation for mill cutter compensation. Precision inspection techniques. Basic mill setups, including cutting tool selection, and work holding.

MCNC 75B Computer-Aided Numerical Control (CNC) Programming and Operation; Lathes, Advanced Mills 4 1/2 Units
Prerequisite: Manufacturing and CNC 75A with a grade of C or better, or equivalent.
Nine hours lecture-laboratory (108 hours total per quarter).
Introduction to lathe tool path programming using word address format, including coordinate system, cutter compensation and canned cycles. Advanced mill programming; sub programs, work coordinate system and use of macros. Program entry, editing, and back plotting. Machine controller functions and operations. Single point threading and Unified thread form classes and measurement. Cutting tool insert selection.

MCNC 75C CNC Lathes and Horizontal Machining Centers; Programming and Operation, 4th Rotary Axis, Fixture Design 4 1/2 Units
Prerequisite: Manufacturing and CNC 75B with a grade of C or better.
Nine hours lecture-laboratory (108 hours total per quarter).
CNC lathe tool path programming using G and M code format, including tool orientation and compensation and canned cycles. Programming for CNC horizontal machining centers and 4th axis rotary tables. Horizontal machining center and lathe controller functions, setup and operations. Fixture design for mills and lathes; base plate layout, supporting, locating, and clamping practices.

MCNC 76A CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an A through E designation.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent; basic understanding of mill and lathe operations.
Nine hours lecture-laboratory (108 hours total per quarter).
Introduction to Mastercam three axis mill programming. Create part geometry, define tools and tool paths, using post-processors to produce word-address format programs.

MCNC 76B CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an A through E designation.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent; basic understanding of mill and lathe operations.
Nine hours lecture-laboratory (108 hours total per quarter).
Introduction to Mastercam three axis mill programming. Create part geometry, define tools and tool paths, using post-processors to produce word-address format programs.

MCNC 76C CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an A through E designation.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent; basic understanding of mill and lathe operations.
Nine hours lecture-laboratory (108 hours total per quarter).
Introduction to Mastercam three axis mill programming. Create part geometry, define tools and tool paths, using post-processors to produce word-address format programs.

MCNC 76F CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an F through K designation.
Prerequisite: Manufacturing and CNC 76A.
Nine hours lecture-laboratory (108 hours total per quarter).
Programming procedures using wireframe, splines, and surface modeling. Rough, finish, and high speed machining. Editing, post-processing, verifying programs.

MCNC 76G CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an F through K designation.
Prerequisite: Manufacturing and CNC 76B.
Nine hours lecture-laboratory (108 hours total per quarter).
Programming procedures using wireframe, splines, and surface modeling. Rough, finish, and high speed machining. Editing, post-processing, verifying programs.

MCNC 76H CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an L through Q designation.
Prerequisite: Manufacturing and CNC 76C.
Nine hours lecture-laboratory (108 hours total per quarter).
Programming procedures using wireframe, splines, and surface modeling. Rough, finish, and high speed machining. Editing, post-processing, verifying programs.

MCNC 76L CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an L through Q designation.
Prerequisite: Manufacturing and CNC 76B.
Nine hours lecture-laboratory (108 hours total per quarter).
Advanced Mastercam; complex surfacing for milling machines and contouring surfaces for lathes. Tooling, workflow and programming for horizontal machining centers.

MCNC 76M CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Students may receive credit for only one Manufacturing and CNC 76 course with an L through Q designation.
Prerequisite: Manufacturing and CNC 76C.
Nine hours lecture-laboratory (108 hours total per quarter).
Advanced Mastercam; complex surfacing for milling machines and contouring surfaces for lathes. Tooling, workflow and programming for horizontal machining centers.
MCNC 77  Machining Practices Using Conventional Machine Tools, Tool Design, Abrasive Machining  4 1/2 Units

Prerequisite: Manufacturing and CNC 71 with a grade of C or better or equivalent.
Nine hours lecture-laboratory (108 hours total per quarter).
Advanced machining practices using conventional machine tools. Introduction to fixture design including location and clamping methods and computation of fits and allowances. Abrasive machining.

MCNC 200 Manufacturing and CNC Technology Laboratory  1/2 Unit

MCNC 200X  1 Unit

MCNC 200Y  1 1/2 Units

MCNC 200Z  2 Units

Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 200, 200X, 200Y and 200Z students must also enroll in any Manufacturing and CNC Technology course.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Manufacturing and CNC 200, 200X, 200Y and 200Z 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.
Use of Manufacturing and CNC Technology labs for additional/advanced projects in MCNC. Projects will vary each quarter based on the students other MCNC classes and the direction of the instructor.

Mathematics

MATH 1A Calculus  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 49B or 43 (with a grade of C or better), or appropriate score on Calculus Placement Test within the past calendar year.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Fundamentals of differential calculus.

MATH 1B Calculus  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1A and either Mathematics 49B or 43 (with a grade of C or better); or appropriate score on Calculus Placement Test within the past calendar year.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Fundamentals of integral calculus.

MATH 1C Calculus  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1B (with a grade of C or better) or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Infinite series, lines and surfaces in three dimensions, vectors in two and three dimensions, parametric equations of curves. Derivatives and integrals of vector functions.

MATH 1D Calculus  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1C (with a grade of C or better) or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Partial derivatives, multiple integrals, vector calculus.

MATH 2A Differential Equations  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1D with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Ordinary differential equations and selected applications.

MATH 2B Linear Algebra  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1D with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Linear algebra and selected topics of mathematical analysis.

MATH 10 Elementary Statistics and Probability  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 114 or equivalent with a grade of C or better; or a qualifying score on the Intermediate Algebra Placement Test within the last calendar year.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Introduction to data analysis making use of graphical and numerical techniques to study patterns and departures from patterns. The study students randomness with an emphasis on understanding variation, collects information in the face of uncertainty, checks distributional assumptions, tests hypotheses, uses probability as a tool for anticipating what the distribution of data may look like under a set of assumptions, and uses appropriate statistical models to draw conclusions from data. Introduces the student to applications in engineering, business, economics, medicine, education, the sciences, and those pertaining to issues of contemporary interest. The use of technology (computers or graphing calculators) will be required in certain applications. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced.

MATH 11 Finite Mathematics  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Qualifying score on the Math Placement Test within the past calendar year; or Mathematics 114 or equivalent with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Application of linear algebra, matrices, linear programming, mathematics of finance and probability to real-life problems. Emphasis on the understanding of the modeling process, and how mathematics is used in real-world applications.

MATH 12 Introductory Calculus for Business and Social Science  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 11 or 41.
Five hours lecture (60 hours total per quarter).
Introduction to limits, differentiation, and integration of single variable functions. Differentiation of multivariate functions. Applications in business, economics, and social science.

MATH 22 Discrete Mathematics  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 49B or 43 with a grade of C or better, or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Elements of discrete mathematics with applications to computer science. Topics include methods of proof, mathematical induction, logic, sets, relations, graphs, combinatorics, and Boolean algebra.

MATH 23 Engineering Statistics  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 1C with a grade of C or better.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Engineering statistics provides a comprehensive introduction to probabilistic and statistical modeling for students in engineering, economics, finance and related disciplines in the mathematical sciences. The course exposes students to a variety of applications requiring decision making in the face of uncertainty. Topics covered include the collection and analysis of information, making use of graphical and numerical techniques, discrete, continuous, cumulative, and joint probability distribution functions and use of statistical inference, experimental design, and equation fitting, when appropriate. Many of the applications require the use of technology (computers and graphic calculators). Computer simulations are used to illustrate difficult topics and provide visualization of advanced theoretical results (e.g. the Central Limit Theorem).

MATH 41 Precalculus I: Theory of Functions  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 114 or equivalent (with a grade of C or better); or appropriate score on Calculus Placement Test within the past calendar year.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Introduction to data analysis making use of graphical and numerical techniques to study patterns and departures from patterns. The study students randomness with an emphasis on understanding variation, collects information in the face of uncertainty, checks distributional assumptions, tests hypotheses, uses probability as a tool for anticipating what the distribution of data may look like under a set of assumptions, and uses appropriate statistical models to draw conclusions from data. Introduces the student to applications in engineering, business, economics, medicine, education, the sciences, and those pertaining to issues of contemporary interest. The use of technology (computers or graphing calculators) will be required in certain applications. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced.
MATH 212 College Math Preparation Level 2:  5 Units

Prerequisite: Mathematics 114 with a grade of C or better, or a qualifying score on the Math Placement Test within last calendar year; or Mathematics 210 with a grade of C or better, or equivalent.

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Five hours lecture (60 hours total per quarter).

Five hours lecture (60 hours total per quarter).

Conic sections, parametric equations, systems of equations and inequalities, vectors, lines and planes, sequences and series, polar coordinates, mathematical induction, and the binomial theorem.

MATH 44 Introduction to Contemporary Mathematics  5 Units

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

MATH 46 Mathematics for Elementary Education  5 Units

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

MATH 77 Special Projects in Mathematics  1 Unit

MATH 77X  2 Units

MATH 77Y  3 Units

Prerequisite: Consent of instructor and division dean.

Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).

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

Pass-No Pass (P-NP) course.

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

MATH 104 Applied Algebra Plus  7 Units

(Students may receive credit for either Mathematics 104 or 212, but not both.)

Prerequisite: Qualifying score on the Math Placement Test within the last calendar year; or Mathematics 210 or equivalent.

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Seven hours lecture (84 hours total per quarter); or five hours lecture, four hours lecture-laboratory (108 hours total per quarter).

Fundamental algebraic operations on real numbers and real variables with emphasis on linear functions and equations, polynomials, plane geometry, elementary trigonometry and their applications as they relate to applied technologies.

MATH 201 Beginning Algebra Refresher  1/2 Unit

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

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

One and one-half hours laboratory (18 hours total per quarter).

Pass-No Pass (P-NP) course.

Review of content of Mathematics 114 including exponential functions, logarithmic functions, rational functions, sequences and series and their applications. This is a self-paced, computer-based course. A diagnostic will determine areas needing review and students will be required to master the identified topics.

MATH 202 Intermediate Algebra Refresher  1/2 Unit

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

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

One and one-half hours laboratory (18 hours total per quarter).

Pass-No Pass (P-NP) course.

Review of content of Mathematics 210 including basic arithmetic, estimation, variables, linear equations and their graphs. This is a self-paced, computer-based course. A diagnostic will determine areas needing review and students will be required to master the identified topics.

MATH 206 College Math Preparation Level 1: Pre-Algebra  5 Units

(Formerly Mathematics 110.)

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

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Five hours lecture (60 hours total per quarter); or four hours lecture and two hours lecture-laboratory (72 hours total per quarter).

Use of basic arithmetic in application problems, estimation, the real number system, variables and linear equations, graphs of linear equations and the Cartesian coordinate system, the concept of function.

MATH 210 College Math Preparation Level 2: Beginning Algebra  5 Units

(Formerly Mathematics 112.)

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

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Five hours lecture (60 hours total per quarter); or four hours lecture and two hours lecture-laboratory (72 hours total per quarter).

Application of linear functions, quadratic functions and linear systems to problems. Emphasis on the development of models of real world applications and interpretation of their characteristics.

MATH 241 Academic Excellence in Precalculus  1 Unit

(Formerly Mathematics 249A.)

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

Co-requisite: Mathematics 241 students must also enroll in Mathematics 41.

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

Three hours laboratory (36 hours total per quarter).

Critical thinking and skills reinforcement in a precalculus setting: cooperative learning/study techniques, concept development related to polynomial, rational, exponential and logarithmic functions and their graphs, and use of technology.
MATH 242 Academic Excellence in Trigonometry 1 Unit
(Formerly Mathematics 252.)
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Mathematics 242 must also enroll in Mathematics 42.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory (36 hours total per quarter).
Critical thinking and skills reinforcement in a trigonometry setting: cooperative
learning/study techniques, concept development, and use of technology.

MATH 243 Academic Excellence in Precalculus 1 Unit
(Formerly Mathematics 249B.)
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Mathematics 243 students must also enroll in Mathematics 43.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory (36 hours total per quarter).
Critical thinking and skills reinforcement in a precalculus setting: cooperative
learning/study techniques, concept development related to conic sections, vectors
and polar and three dimensional coordinates and equations, systems of equations
and inequalities, parametric equations and sequences and series, and mathematical
induction and the binomial theorem; and use of technology.

Meteorology

MET 10 Weather Processes 4 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 210 or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
Introduction to the principles of the science of meteorology including: history of the
science; origin, evolution and structure of the atmosphere; major atmospheric
variables that determine weather; global and local wind circulations; air masses and
frontal systems; birth and development of extra tropical and tropical cyclones and
associated severe weather phenomena; weather map analysis and interpretation;
objective techniques used by meteorologists to forecast weather.

MET 10L Meteorology Laboratory 1 Unit
(Formerly Meteorology 50L)
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 210 or equivalent; Meteorology 10 (may be taken concurrently).
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory (36 hours total per quarter).
Introductory weather lab in which students work with observational data, graphics
products, charts and instruments used by synoptic meteorologists to forecast weather.
Lab sessions will include current weather products downloaded from the
American Meteorological Society’s “Online Weather Studies” homepage which has
been specifically designed for this course and from De Anza College’s automated
topofl floor weather station. Students will practice the analysis and decision-making
skills employed by meteorologists to diagnose air patterns, understand air motions
and predict future atmospheric conditions.

MET 77 Special Projects in Meteorology 1 Unit
MET 77X 2 Units
MET 77Y 3 Units
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of
credit per quarter).
(Any combination of Meteorology 77, 77X and 77Y may be taken up to six times,
not to exceed 18 units, as long as the projects are different each time.)
Pass-No Pass (P-NP) course.
Individual research projects in Meteorology as determined in consultation with the
instructor. Outside reading and written report(s) required. These projects are on
topics not covered in the regular Meteorology curriculum and require the approval
of the PSM&E Division Dean.

Military Studies

Military Studies includes the following: Military Science (Army Reserve Officer's
Training Corps [ROTC]), Aerospace Studies (Air Force ROTC), and Naval Science
(Naval ROTC). Army ROTC courses are offered at Santa Clara University. Aerospace
Studies are offered at San Jose State University. The Naval/Marine ROTC program
is offered at the University of California at Berkeley; however, it does not have a
community college component at this time.

NOTE: Lower-division ROTC programs are open to all students and there is no
military obligation incurred. However, ROTC scholarships and military commissions
do have specific qualifications and commitments. While all students are eligible to
take ROTC courses, not all students who take ROTC courses will be eligible for
either a scholarship or a military commission.

REGISTRATION NOTE: To register from a community college for ROTC courses,
please contact Mission College or West Valley College. De Anza College does not
currently provide for ROTC registration for De Anza College students. For
further information, please contact the Biological and Health Sciences Division
408.864.8775.

Aerospace Studies
(Formerly Aerospace Studies Training Corps) The Air Force Reserve Officer Training Program (Air Force ROTC) at San Jose State University offers a high quality
educational experience structured for all college students. It gives students the
opportunity to learn excellent leadership and management skills while training to
become a commissioned officer in the Air Force. Academic instruction includes
Air Force organization, history, officer skills, leadership and management, and national
security policy and issues. Students find out firsthand what the Air Force has to
offer for scholarship while they are in school and what career opportunities await
them after graduation with a Bachelors Degree.

For direct information on the Air Force ROTC program at San Jose State University,
contact the Aerospace Studies Department at San Jose State University at 408.924.2986.

Military Science
(Formerly Reserve Officers Training Corps) The Army Reserve Officer Training Program
(Army ROTC) program at Santa Clara University offers a high quality educational
experience open to all students. The program is designed to develop men’s
and women’s management skills and leadership abilities for successful careers in both
the corporate world and the military. Instruction is conducted on and off the Santa
Clara University campus. All courses offered by the Military Science Department
are fully accredited and applicable toward fulfilling academic requirements for
graduation at Santa Clara University. Through this voluntary program, Santa
Clara University offers all eligible students the opportunity to obtain an officer’s
commission in the U.S. Army Reserve, National Guard, or active Army, while
earning their college degree.

For direct information on the Army ROTC program at Santa Clara University,
contact the Department of Military Science at Santa Clara University at 408.554.4033.

Naval Science
(Formerly Reserve Officers Training Corps) The Department of Naval Science at the
University of California, Berkeley, offers several programs of instruction for men
and women leading to reserve commissions in the U.S. Navy or U.S. Marine Corps.
There are no NAVY ROTC programs available for community college students. For
information on the four year institution Navy ROTC program, please contact the
Department of Naval Science at 510.642.3551.

Music

MUSI 1A Introduction to Music: Music in Western Cultures 4 Units
(Formerly Music 1)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
Introduction to the discipline of music; methods of understanding music available in
modern culture; listening techniques; use of fundamental concepts including form,
style, musical media, and textures; acquaintance with and comparison of musical
examples from various eras and cultures; roles of music in society.

MUSI 1B Introduction to Music: Jazz Styles 4 Units
(Formerly Music 7A)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
Introduction to the discipline of music through American Jazz; from its multicultural
origins to the present; listening skills and use of fundamental musical elements
for distinguished jazz styles; social issues, noted performers, and technological
advancements found in jazz.
MUSI 1C Introduction to Music: World Music in America 4 Units
(Formerly Music 7B.)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture (48 hours total per quarter).
An introduction to music through world music and its influence on current musical trends in the United States. Music of diverse cultures which may include Native Americans, Asia/Pacific Rim, India, Africa, South and Central America, Mexico, and the Caribbean are presented in conjunction with American and European traditions; listening skills for distinguishing musical cultures, instrumentation, and artists.

MUSI 1D Introduction to Music: Rock - from Roots to Rap 4 Units
(Formerly Music 59.)
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture (48 hours total per quarter).
An introduction to music through rock music, tracing its beginnings in the early 1950s to the present. Various rock styles will be related to the historical trends and events of the time period being studied; listening techniques; use of fundamental concepts including form, style, musical media, and textures; acquaintance with and comparison of musical examples from various styles.

MUSI 3A Comprehensive Musicianship (First Quarter) 4 Units
Requisite/Advisory: None.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Basic knowledge such as notation, key signatures, scales, intervals, and rudimentary harmony as well as skill development including sight singing, rhythmic training, ear training, and keyboard work.

MUSI 3B Comprehensive Musicianship 4 Units
Advisory: Music 3A or equivalent.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Principles, literacy, and parameters of music including writing elementary four part harmony, sight singing, rhythmic training, ear training, and keyboard work for the student with some basic skills and education in standard notation.

MUSI 3C Comprehensive Musicianship (Third Quarter) 4 Units
Advisory: Music 3B or equivalent.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Principles, literacy, and parameters of music including writing, sight singing, rhythmic training, ear training, keyboard work, beginning analysis, and simple melody composition.

MUSI 4A Comprehensive Musicianship II 4 Units
Advisory: Music 3C or equivalent.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Principles, literacy, and parameters of music including writing, comprehensive and aural analysis, sight singing, rhythmic training, ear training, and keyboard work for the more advanced undergraduate student.

MUSI 4B Comprehensive Musicianship II (Second Quarter) 4 Units
Advisory: Music 4A or equivalent.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Principles, literacy, and parameters of music including writing, comprehensive and aural analysis, sight singing, rhythmic training, ear training, and keyboard work for the more advanced undergraduate student exploring chromatic practice and the limits of the tonal system including a review of diatonic practice.

MUSI 4C Comprehensive Musicianship II (Third Quarter) 4 Units
Advisory: Music 4B or equivalent.
Three hours lecture, two hours lecture-laboratory (60 hours total per quarter).
Principles, literacy, and parameters of music including writing, comprehensive and aural analysis, sight singing, rhythmic training, ear training, and keyboard work for the more advanced undergraduate student exploring post tonal practice and the influence of non-notated, experimentally notated, and non Western music on an emerging world wide art music culture.

MUSI 5A Modal Counterpoint 3 Units
Advisory: Music 3A or equivalent.
Two hours lecture, two hours lecture-laboratory (48 hours total per quarter).
Modal counterpoint in two and three parts using both the species approach and the Phenomenological approach to produce species, imitative, and free counterpoint examples.

MUSI 8 Intermediate Electronic Music 3 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Music 51.
Two hours lecture, two hours lecture-laboratory (48 hours total per quarter).
Intermediate level electronic music techniques including digital and analog synthesizer sound design and editing; professional studio and computer music software including integrated audio/MIDI sequencing software, instrument editors, software synthesizers; basic audio/MIDI studio configuration; modular synthesis; basic digital audio recording and editing; basic audio signal processing; introduction to concepts of music notation software; historical and technological development of electronic music; roles of electronic music technology in twentieth-century music.
Some prior music experience and/or concurrent enrollment in Music 10A or Music 12A is recommended, but not required.

MUSI 9 Jazz Piano 1 1/2 Units
Prerequisite: Ability to play a keyboard instrument and read music.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
Development of the ability to play jazz piano arrangements from lead sheets in a variety of jazz styles using knowledge of jazz harmony, jazz piano techniques, and improvisational skills. Improvisational skill on the piano is developed through the understanding and practice of scale choices, and the application of techniques for melodic development.

MUSI 10A Music Fundamentals 3 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Three hours lecture (36 hours total per quarter).
Offers a basic introduction to concepts and skills of music notation, rhythm, major and minor scales and keys, simple sight-reading, key signatures, melody, and triads. Open to all students. May be appropriate for students with low scores on the Music 3A diagnostic test. Music Fundamentals students with no previous musical experience may benefit from concurrent enrollment in a beginning instrumental or vocal performance class.

MUSI 10B Harmony I 3 Units
Advisory: Music 10A or 12A.
Three hours lecture (36 hours total per quarter).
Study of traditional harmonies and structures (18th century choral style) will be supplemented with the use of chord symbols and popular notational practices. Also analysis of 19th century music would be included.

MUSI 12A Class Piano I 1 1/2 Units
Advisory: Music 10A.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 12A, 12B, 12C and 18 may be taken up to six times for credit for the family of courses as long as the topics/projects are different each time.)
Beginning piano for students with no previous instruction, those who need knowledge of piano for a teaching credential, music majors, and the general student.

MUSI 12B Class Piano II 1 1/2 Units
Prerequisite: Music 12A or consent of instructor.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 12A, 12B, 12C and 18 may be taken up to six times for credit for the family of courses as long as the topics/projects are different each time.)
Basic piano for beginning students who read treble and bass clef, and understand music notation.

MUSI 12C Class Piano III 1 1/2 Units
Prerequisite: Music 12B or approval of instructor.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 12A, 12B, 12C and 18 may be taken up to six times for credit for the family of courses as long as the topics/projects are different each time.)
Piano performance with emphasis on interpretation, musical form and harmony.

MUSI 13A Beginning Singing I 1 1/2 Units
Advisory: English Writing 200 and English 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; an understanding of basic music principles, literacy, and parameters of music including writing, comprehensive and improvisational skills. Improvisational skill on the piano is developed through the understanding and practice of scale choices, and the application of techniques for melodic development.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
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MUSI 13B  Beginning Singing II  1 1/2 Units
Prerequisite: Music 15A or equivalent.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; an understanding of basic music notation and some possession of basic piano skills, or concurrent enrollment in Music 10A or 12A.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 13A and 13B may be taken up to six times for credit for the family of courses.)
Continuation of Music 13A with emphasis on musicianship, memorization, legato singing, correction of individual problems, and the rudiments of performance. Training in controlling tonal production, breathing, diction, and musical accuracy.

MUSI 14A  Classical Guitar I  1 1/2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 14A, 14B and 14C may be taken up to six times for credit for the family of courses.)
Beginning instruction for playing the classical, nylon-stringed guitar, assuming no prior musical experience. Introduces basic note reading on the first four frets of the instrument, left and right hand techniques, including free strokes, rest strokes, arpeggio technique, left-hand development of strength and independence. Chords, chord progression and basic strumming techniques will also be introduced.

MUSI 14B  Classical Guitar II  1 1/2 Units
Prerequisite: Music 14A or equivalent level; admission by instructor approval.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 14A, 14B and 14C may be taken up to six times for credit for the family of courses.)
Refinement and expansion of classical guitar techniques learned in Classical Guitar I. Topics include expanded arpeggio techniques, free stroke and rest stroke development, slurs technique, complex rhythms, multiple-voice music reading, and repertoire development. Music fundamentals such as major and minor scales and chord construction will also be covered.

MUSI 14C  Classical Guitar III  1 1/2 Units
Prerequisite: Music 14B or equivalent level; admission by instructor approval.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 14A, 14B and 14C may be taken up to six times for credit for the family of courses.)
Continuation and expansion of skills learned in Classical Guitar II. Development of sight-reading skills, complex rhythms and multiple-voice music in positions two through five through exercises and standard guitar repertoire. Emphasis on proper technique, interpretation, dynamics and tone color.

MUSI 15A  Guitar Ensemble I  2 Units
(Formerly Music 60A.)
Prerequisite: Enrollment subject to audition; ability to execute proper classical guitar technique and read music.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 18 units, as long as the subject matter is different each time.)
Introduction to the performance of music for guitar ensemble, emphasizing sight-reading, rhythmic accuracy and ensemble skills. Music from the 15th century to the present will be rehearsed and performed.

MUSI 15B  Guitar Ensemble II  2 Units
(Formerly Music 60B.)
Prerequisite: Music 15A or equivalent. Enrollment subject to audition; ability to execute proper classical guitar technique and read music at sight in the first position.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 18 units, as long as the subject matter is different each time.)
Continuation of Guitar Ensemble I, emphasizing sight-reading at higher positions, greater accuracy at increased tempos and/or rhythms, and ensemble leadership skills. Music from the 15th century to the present will be rehearsed and performed.

MUSI 15C  Guitar Ensemble III  2 Units
(Formerly Music 60C.)
Prerequisite: Music 15B or equivalent. Enrollment subject to audition; ability to execute proper classical guitar technique and read music at sight in the first through fifth positions.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 18 units, as long as the subject matter is different each time.)
Continuation of Guitar Ensemble II, emphasizing sight-reading at seventh and higher positions, greater accuracy at increased tempos and/or rhythms, ensemble leadership skills. Music from the 15th century to the present will be rehearsed and performed.

MUSI 16  Jazz, Blues and Popular Guitar  1 1/2 Units
(Formerly Music 56.)
Prerequisite: Ability to play first-position and movable major, minor and dominant 7th chords.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
An intermediate-level study of the common practices used in jazz, blues and selected styles of popular music. Guitar styles from the 1940's to the present will be examined through the use of recording and written examples. Chord voicing, scales, right hand picking instrumental techniques, and development of solo skills in these styles will be emphasized.

MUSI 18  Intermediate Piano  1 1/2 Units
Prerequisite: Music 12C or approval of instructor.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 12A, 12B, 12C and 18 may be taken up to six times for credit for the family of courses as long as the topics/projects are different each time.)
Piano music from the Baroque era to the present, with emphasis on the style of each period and differences in interpretation.

MUSI 20  De Anza Chorale  2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 10A, 12A or 13A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit as long as the topics change each quarter)
Study and performance of traditional, classical choral literature. Cultivation of performance skills in accompaniment. Attendance at all scheduled performances is required. Enrollment is open to all students. An introductory audition will assess pitch-matching ability and determine vocal range and appropriate choral part.

MUSI 21  Vintage Singers  2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 10A, 10B, 3A, 3B, 3C or 12A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Study and performance of specialized choral styles from early to modern in an ensemble of limited size. Enrollment subject to audition. Choral experience, previous vocal training, and some music reading ability is necessary. Attendance at all scheduled performances is required. Enrollment is open to all students. An introductory audition will determine placement in the appropriate section of singers.

MUSI 22  Early Music Study and Performance  2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 10A, 10B, 3A, 3B, 3C or 12A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Study and performance of instrumental and vocal music from the Medieval and Renaissance periods. Cultivation of performance skills aimed at emulating the spirit and vitality of those periods. Attendance at all scheduled performances is required. Enrollment is open to all students. An introductory audition will determine placement in the appropriate section of singers.

MUSI 24  Women's Chorus  2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 10A, 10B, 3A, 3B, 3C or 12A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
A choir for students interested in singing with a group for enjoyment. Study and performance of music of different styles and periods. Provides basic technique and experience in choral singing. Attendance at all scheduled performances is required. Enrollment is open to all students. An introductory audition will determine placement in the appropriate section of singers.

MUSI 25G  Performance Workshop (Brass)  1 1/2 Units

MUSI 25H  Performance Workshop (Guitar)  1 1/2 Units

MUSI 25J  Performance Workshop (Piano)  1 1/2 Units

MUSI 25K  Performance Workshop (Reeds)  1 1/2 Units

MUSI 25M  Performance Workshop (Voice)  1 1/2 Units

MUSI 25JV  Performance Workshop (Jazz Solo Voice)  1 1/2 Units
Prerequisite: Placement by audition.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 25G-VJ may be taken up to six times, not to exceed
MUSI 27  Vocal Jazz Ensemble  2 U
(Formerly Music 27B.)
Prerequisite: Enrollment subject to a standardized audition demonstrating musical ability and technical proficiency at a level suitable to the course level.
Co-requisite: Concurrent enrollment in Music 3A, 3B, 3C, 10A, 10B or 12A is recommended.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit as long as the topics are different each time.)
Study, rehearsal, and performance of standard and contemporary vocal jazz ensemble literature. Exposure to microphone technique, vocal improvisation, and ensemble interpretation of jazz styles and phrasing. Developing a working vocabulary of traditional vocal jazz performance techniques and an understanding of the cultural and historical contexts that produced the specific vocal jazz styles.

MUSI 31  Chamber Orchestra  2 U
(Formerly Music 31A.)
Prerequisite: Enrollment subject to audition; ability to play an orchestral instrument and read music at sight.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Performance of music for chamber orchestra emphasizing the development of good ensemble and proper musical interpretations.

MUSI 32A  Jazz Solo Voice  1 1/2 U
(Formerly Music 52A.)
Prerequisite: Music 13B or equivalent private vocal instruction or experience. All students should have solo voice experience.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 32A and 32B may be taken up to six times for credit as long as the topics/projects are different each time.)
Study and performance of songs in the jazz idiom. Emphasis on jazz phrasing, melodic and harmonic improvisation, stylistic concepts, vocal consistency, variation of texture, jazz rhythms, rhythm section communication, microphone technique.

MUSI 32B  Jazz Solo Voice II  1 1/2 U
(Formerly Music 52B.)
Prerequisite: Music 32A or equivalent private vocal instruction or experience. Approval of instructor. All students must have vocal jazz solo experience.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263. Concurrent enrollment in Music 10A or 12A is recommended.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 32A and 32B may be taken up to six times for credit as long as the topics/projects are different each time.)
Advanced study and performance of songs in the jazz idiom. In-depth emphasis on jazz phrasing, melodic and harmonic improvisation, stylistic concepts, vocal consistency, variation of texture, jazz rhythms, rhythm section communication, microphone technique, repertoire building, and public performance. This course prepares students for professional activity in the area of vocal jazz solo performance.

MUSI 34  Jazz Ensemble  2 U
Prerequisite: Ability to play an instrument and read music. Enrollment may be subject to audition.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 42 and/or 48 is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Sight-reading, rehearsal, performance and recording of diverse styles of music composed and arranged for standard jazz ensemble. Emphasis on improvising within the ensemble structure is a goal for each individual.

MUSI 41  Rehearsal and Performance  1/2 U
MUSI 41U  1 U
MUSI 41V  1 1/2 U
MUSI 41W  2 U
MUSI 41X  2 1/2 U

Prerequisite: Enrollment subject to a standardized audition demonstrating musical ability and technical proficiency at a level suitable to the course level.
Co-requisite: Concurrent enrollment in Music 3A, 3B, 3C, 10A, 10B or 12A is recommended.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit as long as the topics are different each time.)
Study, rehearsal, and performance of standard and contemporary vocal jazz ensemble literature. Exposure to microphone technique, vocal improvisation, and ensemble interpretation of jazz styles and phrasing. Developing a working vocabulary of traditional vocal jazz performance techniques and an understanding of the cultural and historical contexts that produced the specific vocal jazz styles.

MUSI 42  Symphonic Wind Ensemble  2 U
Prerequisite: Ability to play a band instrument and read music at sight.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 32, 33, or 48 is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Rehearsal, sight-reading, performance, and recording of wind ensemble literature in a variety of styles and time-periods. Attendance at all scheduled performances is required.

MUSI 45  Jazz Combos  2 U
(Formerly Music 45C.)
Prerequisite: Ability to play an instrument and read music.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Preparation and performance of music for jazz combo. Ensemble and improvisational performance are emphasized in addition to playing in all jazz rhythmic styles. Student compositions and arrangements are encouraged. Participation at all scheduled performances is required.

MUSI 46  Beginning Winds and Percussion  1 1/2 U
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 41, 41U, 41V, 41W and 41X may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)
Beginning performance methods and techniques on brass, woodwind, and percussion instruments. Fundamentals of embouchure, fingers, articulation, rhythm, intonation, and reading musical notation.

MUSI 48  Jazz Improvisation  1 1/2 U
Prerequisite: Ability to play an instrument and read music.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 41, 41U, 41V, 41W and 41X may be taken up to six times for credit as long as the instrument is different each time.)
Development of improvisational skill in the jazz idiom. Analysis of scales, chords, and forms as applicable to improvised performance of standard jazz vehicles. Ear training and transcribing solos included. Attendance and participation in final recital is required. Music will vary each quarter.

MUSI 51  Introduction to Electronic Music  3 U
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Two hours lecture, two hours lecture-laboratory (48 hours total per quarter).
Introduction to the use of keyboard controllers, hardware and software synthesizers and instruments, and sequencing and audio software to create music in a variety of styles; basic studio techniques; introduction to Musical Instrument Digital Interface (MIDI); introduction to basic historical developments in electronic music; creation of music/audio projects using basic electronic music hardware and software. Some prior music experience is recommended but not required.

MUSI 53  Music Business  3 U
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture (36 hours total per quarter).
Introduction to the business aspects of music. Examines the areas of copyright laws, publishing, concert promotion, club and record contracts, agents, managers, unions, and the various careers to be found in music. Emphasis on the commercial music field including film, television, sound recording, the record industry, and Internet applications.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
Advanced Placement for Students with Prior Nursing Education

Students are admitted in advanced placement during the fall, winter, or spring quarter on a space available basis only. Placement depends on prior nursing education.

NURS 50 - Career Opportunities in Nursing
Prerequisite: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture (24 hours total per quarter).
CAREERS in the health field with emphasis on education and practice. Required course for entry to De Anza's Registered Nursing Programs. Not required for LVN Transition to RN or Refresher Program for Registered Nurses.

NURS 77 - Special Projects in Nursing
1/2 Unit

NURS 77X 1 Unit
NURS 77Y 2 Units
NURS 77Z 3 Units
(Formerly Nursing 56, 56X, 56Y and 56Z respectively)
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Nursing 77, 77X and 77Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.) Individual special projects in nursing.

Nursing

The following are the nursing education options and career paths for students at De Anza College. For specific program requirements, see Career and Curriculum Certificates and Degrees located elsewhere in this catalog.

Registered Nursing Program
L.V.N. Transition to R.N. Nursing Program
Continuing Education for Nurses
Refresher Program for Registered Nurses
Applications for the licensure programs (R.N., or L.V.N. Transition) are available after successfully completing the following: Nursing 50, the required prerequisites for the program with a Grade Point Average (GPA) of 3.0 or higher and admission through the selection process for entrance. The curriculum of these programs is designed to prepare individuals for beginning professional nursing practice and to define and understand the legal scope of practice within each of the licensed nursing disciplines. The programs promote success in the ability to practice nursing effectively together as a professional team.

See www.deanza.edu/nursing for specific policies regarding application and admission. The majority of courses are scheduled in the daytime. Generally, the nursing programs are not scheduled during the summer session. Costs of uniforms, books, malpractice insurance and miscellaneous supplies are estimated at $4000 for the program. In addition, each student is responsible for his/her own transportation to the clinical agencies.

Registered Nursing Program
Associated Degree Nursing Program is accredited by the California Board of Registered Nursing. The R.N. graduate is eligible to take the California State Board Examination for licensing (NCLEX-R.N.). Students are admitted to this program during the fall, winter, and spring quarters. The majority of courses are scheduled in the daytime. Generally, the R.N. Program is not scheduled in the summer session. The program, once admitted, is six quarters in length.

L.V.N. Transition to the Registered Nursing Program
(Current California L.V.N. license is required.) The L.V.N. Transition to the R.N. graduate is eligible to take the California State Board Examination for licensing (NCLEX-R.N.). Students are admitted throughout the year as advanced placements. The majority of courses are scheduled in the daytime. Generally, the program is not scheduled in the summer session. The program, once admitted, is at least three quarters in length.

Nautical Science

(Navy Reserve Officers Training Corps) For information on Naval ROTC courses, please see Military Studies.

MUSI 58A Beginning African and African-Influenced Percussion and Rhythms
(Formerly Music 58.)
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture (36 hours total per quarter).
(Any combination of Music 58A and 58B may be taken up to six times for credit.)
An introduction to selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, stick drums and percussion instruments. Each quarter focuses on one particular culture area and its traditional and popular music styles. No musical experience required. Instruments for in-class use provided.

MUSI 58B Intermediate African and African-Influenced Percussion and Rhythms
Prerequisite: Music 58A or equivalent level.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 58A and 58B may be taken up to six times for credit.)
Intermediate-level skill development of selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, stick drums and other percussion instruments. Each quarter focuses on one particular culture area and its traditional and popular music styles. Instruments for in-class use provided.

NURS 77 Special Projects in Music
1 Unit

NURS 77X 2 Units
NURS 77Y 3 Units
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Music 77, 77X and 77Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.) Individual advanced projects in music.