Mandarin

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 total 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.

Manufacturing and CNC Technologies

MCNC 60  Print Reading and Dimensional Metrology 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.
Four and one-half hours lecture (54 hours total per quarter).
Interpretation of multi-view engineering blue prints, visualization techniques, auxiliary and section views. Appraisal of revision columns, title blocks and bill of materials. Introduction to geometric dimensioning and tolerancing (GD&T) using ANSI and ISO standards. Applications and capabilities of precision measuring tools, including scaled, vernier and digital instruments, used in manufacturing environments to inspect production and prototype parts.

MCNC 61A  Survey of Writing and Data Communications 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).
The application of word processing and spreadsheet programs, such as Word and Excel, to communicate technical information used in various fields of technology including manufacturing, product design, and similar disciplines.

MCNC 62A  Technical Calculations 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).
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 64  Manufacturing Materials and Processes 4 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
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 Processes  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.
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
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 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 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 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 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 Technology 75A or equivalent with a grade of C or better.
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 & Horizontal Machining Centers; Programming & Operation, 4th Axis Rotary, Fixture Design 4 1/2 Units
Prerequisite: Manufacturing and CNC 75A or equivalent work experience.
Nine hours lecture-laboratory (108 hours total per quarter). CNC lathe tool path programming using G & 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 Aided Numerical Control Programming Using Mastercam 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; 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 CNC Surface Contouring Programming Using Mastercam 4 1/2 Units
Prerequisite: Manufacturing and CNC 76A-E.
Nine hours lecture-laboratory (108 hours total per quarter). Programming for continuous 3-axis contouring on machining centers using wireframe, splines, surface and solid modeling. Rough, finish and high speed machining. Editing, post-processing and verifying programs.

MCNC 76C CAD/CAM Based CNC 4 and 5 Axis Mill/Lathe Programming Using Mastercam 4 1/2 Units
Prerequisite: Manufacturing and CNC 76A-E.
Nine hours lecture-laboratory (108 hours total per quarter). Advanced Mastercam multi-axis toolpaths for horizontal milling machines, vertical milling machines with rotary 4th axis, five axis indexing machining centers and CNC lathe with live tooling. Tooling, process, fixture design, work holding techniques and toolpath applications with rotary axis.

MCNC 76D CAD/CAM Based CNC Multi-Axis Programming Using Mastercam 4 1/2 Units
Prerequisite: Manufacturing and CNC 76A-E.
Nine hours lecture-laboratory (108 hours total per quarter). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 76E CAD/CAM Based CNC Multi-Axis Programming Using Mastercam 4 1/2 Units
Prerequisite: 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). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

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 78A CAM Based CNC Multi-Axis Programming Using NX 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.
Nine hours lecture-laboratory (108 hours total per quarter). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 78B CAM Based CNC Multi-Axis Programming Using NX 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.
Nine hours lecture-laboratory (108 hours total per quarter). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 78C CAM Based CNC Multi-Axis Programming Using NX 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.
Nine hours lecture-laboratory (108 hours total per quarter). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 78D CAM Based CNC Multi-Axis Programming Using NX 4 1/2 Units
Prerequisite: 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). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 78E CAM Based CNC Multi-Axis Programming Using NX 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.
Nine hours lecture-laboratory (108 hours total per quarter). A fixed-axis and multi-axis milling course designed for CNC programmers who machine simple or complex parts with fixed and variable tool capabilities. Students will learn how to create fixed and variable axis tool paths. NX workflows for machining contoured parts, high-speed machining methods, milling holes and threads, and milling turbine blade type parts will be introduced.

MCNC 80A Special Projects in Manufacturing and CNC/Mastercam Certification Level 1 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter). Projects advancing student’s knowledge and experience in computer numerical control machining using Mastercam CAD/CAM software, a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.
MCNC 80B Special Projects In Manufacturing and CNC/Mastercam Certification Level 2 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter).
Projects advancing student’s knowledge and experience in computer numerical control machining using Mastercam CAD/CAM software, a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Advanced Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.

MCNC 80C Special Projects In Manufacturing and CNC/NIMS Level 3 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter).
Projects advancing student’s knowledge and experience in computer numerical control machining using Mastercam CAD/CAM software, a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Advanced Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.

MCNC 80D Special Projects In Manufacturing and CNC/NIMS Level 2 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter).
Projects advancing student’s knowledge and experience in computer numerical control and conventional machining, selected areas of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Advanced Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.

MCNC 80E Special Projects In Manufacturing and CNC/NIMS Level 2 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter).
Projects advancing student’s knowledge and experience in computer numerical control and conventional machining, selected areas of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Advanced Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.

MCNC 80F Special Projects In Manufacturing and CNC/NIMS Level 3 2 Units
Prerequisite: Consent of instructor and division dean.
Six hours laboratory (72 hours total per quarter).
Projects advancing student’s knowledge and experience in computer numerical control, a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on the National Institute for Metalworking Skills certification program. Upon successful completion of the course the student will have the opportunity to earn multiple Level 3 NIMS certifications.

MCNC 201 Manufacturing and CNC Technology Laboratory/Conventional Machining 1 2 Units
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 201 students must also be enrolled in Manufacturing and CNC 71.
Six hours laboratory (72 hours total per quarter).
Pass-No Pass (P-NP) course.
Use of Manufacturing and CNC Technology labs for additional/advanced projects in Manufacturing and CNC 71, Introduction to Machining. Projects will vary based on the students skill level and the direction of the instructor.

MCNC 202 Manufacturing and CNC Technology Laboratory/CNC Machining 1 2 Units
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 202 students must also be enrolled in Manufacturing and CNC 75A.
Six hours laboratory (72 hours total per quarter).
Pass-No Pass (P-NP) course.
Use of Manufacturing and CNC Technology labs for additional/advanced projects in Manufacturing and CNC 75A, Introduction to Computer-Aided Numerical Control (CNC). Projects will vary based on the students skill level and the direction of the instructor.

MCNC 203 Manufacturing and CNC Technology Laboratory/CNC Machining 2 2 Units
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 203 students must also be enrolled in Manufacturing and CNC 75B.
Six hours laboratory (72 hours total per quarter).
Pass-No Pass (P-NP) course.
Projects advancing student’s knowledge and experience in computer numerical control machining using Mastercam CAD/CAM software, a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor based on Advanced Mill Design and Toolpaths. Upon successful completion of the course the student will have the opportunity to earn an Associate Level Certificate from Mastercam.

MCNC 204 Manufacturing and CNC Technology Laboratory/CNC Machining 3 2 Units
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 204 students must also be enrolled in Manufacturing and CNC 75C.
Six hours laboratory (72 hours total per quarter).
Pass-No Pass (P-NP) course.
Use of Manufacturing and CNC Technology labs for additional/advanced projects in Manufacturing and CNC 75C, Computer-Aided Numerical Control (CNC) Lathes and Horizontal Machining Centers; Programming and Operation, 4th Axis Rotary, Fixture Design. Projects will vary based on the students skill level and the direction of the instructor.

MCNC 205 Manufacturing and CNC Technology Laboratory/CAD CAM Programming 1 2 Units
Credit course - Does not apply to De Anza Associate degree.
Co-requisite: Manufacturing and CNC 205 students must also be enrolled in any Manufacturing and CNC 76A-E course.
Six hours laboratory (72 hours total per quarter).
Pass-No Pass (P-NP) course.
Use of Manufacturing and CNC Technology labs for advanced/advanced projects in Manufacturing and CNC 76A-E, CAD/CAM Programming Using Mastercam. Projects will vary based on the students skill level and the direction of the instructor.

Mathematics

MATH 1A Calculus 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 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.
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 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 student studies 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. The course 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 equations, sets, 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 multivariable 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 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: 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 a satisfactory score on the College Level Math 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).
Polynomial, rational, exponential and logarithmic functions, graphs, solving equations.

MATH 42  Precalculus II: Trigonometric Functions  5 Units
(Formerly Mathematics 52.)
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 41 (with a grade of C or better); or a satisfactory score on the College Level Math 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).
The theory of trigonometric functions and their applications.

MATH 43  Precalculus III: Advanced Topics  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 41 and 42 (both with a grade of C or better); or a satisfactory score on Calculus Readiness 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).
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.)
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).
A survey of selected topics from contemporary mathematics, including problem solving techniques and connections between mathematics and culture. Includes a selection of introductory topics from geometry, number theory, chaos and fractals, topology; number theory; geometry; combinatorics and counting; the mathematics of social choice; data analysis, probability and statistics; consumer mathematics and personal financial management.

MATH 46  Mathematics for Elementary Education  5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 114 with a grade of C or better, or a qualifying score on Intermediate Algebra 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.
(Also listed as Education 46. Students may enroll in either department, but not both, for credit.)
Five hours lecture (60 hours total per quarter).
Designed for prospective elementary and middle school teachers. An introduction to the discipline of mathematics as the use of logical, quantitative, and spatial reasoning in the abstraction, modeling, and problem solving of real-world situations. The main topics in the course include the origins of mathematics, mathematical reasoning and problem solving strategies, theory of sets, integers and integral number theory, rational numbers and proportion, real numbers and decimal notation, and measurement. Throughout the course students will experience the learning of mathematics in a way that models how they can create an active learning environment for their future students.

MATH 57  Integrated Statistics  2 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 217.
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).
This is the second quarter of two in the Statway sequence comprised of Mathematics 217 and Mathematics 57. This sequence covers concepts and methods of statistics with an emphasis on data analysis. Sequence topics include methods for collecting data, graphical and numerical descriptive statistics, correlation, simple linear regression, basic concepts of probability, probability distributions, confidence intervals, hypothesis tests for means and proportions, chi-square tests, and ANOVA. The course introduces students to applications in engineering, business, economics, medicine, education, the sciences, and those pertaining to issues of contemporary interest. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced. This sequence is recommended for students with majors that require no mathematics beyond freshman-level statistics. It is not appropriate for students with majors in math, science, computer science or business, nor for students desiring to attend UC or private universities.

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).
Pass-No Pass (P-NP) course.
Individual special reading, writing, or study projects in mathematics as determined in consultation with the instructor.
MATH 114 College Math Preparation Level 3: Intermediate Algebra 5 Units
Prerequisite: Qualifying score on the Math Placement Test within last calendar year; or Mathematics 212 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); or four hours lecture and two hours lecture-laboratory (72 hours total per quarter).
Application of exponential and logarithmic functions, rational functions, and sequences and series to problems. Emphasis on the development of models of real world applications and interpretation of their characteristics.

MATH 201 Pre-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 202 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 212 including linear functions, quadratic functions, linear systems 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 203 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 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 210 College Math Preparation Level 1: Pre-Algebra (Formerly Mathematics 110) 5 Units
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 (30 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 212 College Math Preparation Level 2: Beginning Algebra (Formerly Mathematics 112) 5 Units
Credit course - Does not apply to De Anza Associate degree.
Prerequisite: Qualifying score on the Math Placement Test within last calendar year; or Mathematics 210 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); 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 217 Integrated Statistics I 10 Units
Credit course - Does not apply to De Anza Associate degree.
Prerequisite: Qualifying score on the Math Placement Test within last calendar year; or Mathematics 210 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.
Ten hours lecture (60 hours total per quarter).
This is the first quarter of two in the Statway sequence comprised of Mathematics 217 and Mathematics 57. This sequence covers concepts and methods of statistics with an emphasis on data analysis. Topics include methods for collecting data, graphical and numerical descriptive statistics, correlation, simple linear regression, non-linear models and basic concepts of probability. The course introduces the student to applications in engineering, business, economics, medicine, education, the sciences, and those pertaining to issues of contemporary interest. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced. This sequence is recommended for students with majors that require no mathematics beyond freshman-level statistics. It is not appropriate for students with majors in math, science, computer science or business, nor for students desiring to transfer to a UC or private university.

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 students 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 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.

MET 10 Weather and Climate Processes 5 Units
(See general education pages for the requirement this course meets.)
Advisory: Mathematics 210 or equivalent; 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 principles of the sciences of meteorology and climatology including: history of the sciences; origin, evolution and structure of the atmosphere; major atmospheric variables that determine weather; global and local wind circulations; weather mass systems; weather map analysis and interpretation; objective techniques used by meteorologists to forecast weather; air pollution; atmospheric optics, global climate and the processes that produce climate change including “global warming.”

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 (“Online Weather Studies”) which has been specifically designed for this course and from De Anza College’s automated rooftop 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 20L Climate Studies Laboratory 1 Unit
(See general education pages for the requirement this course meets.)
Prerequisite: 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; Mathematics 210 or equivalent.
Three hours laboratory (36 hours total per quarter).
Introductory climatology lab developed in collaboration with the American Meteorological Society which places students in a dynamic learning environment where they investigate Earth’s climate system using real-world data used by professional climatologists to study and forecast future changes in Earth’s climate system. Lab sessions will include current computer graphics products downloaded from the American Meteorological Society's “Online Weather Studies” program.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
from the American Meteorological Society's "Online Climate Studies" homepage which has been specifically designed for this course. Students will practice the analytical skills used by climatologists in assessing the world's climate and will examine the factors that produce critical changes in climate such as "global warming." While focusing on science, students will address many of the societal and political implications of impending climate change.

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

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; 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 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
An introduction to music through world music and its influence on current musical trends in the United States. Music of diverse cultures which 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 211 and English Reading 211 (or Language Arts 211) or English as a Second Language 272 and 273.
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 1E Introduction to Music: Latin America and the Caribbean 4 Units
(See general education pages for the requirement this course meets.)
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Four hours lecture (48 hours total per quarter).
Introduction to the discipline of Music through the Music of Latin America and the Caribbean; methods of understanding music in Latin American countries and regions including Argentina, the Andes, Brazil, Caribbean nations and Mexico. Includes study of traditional, popular and "art" music; historical roots and cultural analysis, including musical influences on and from the United States; listening techniques; and use of fundamental concepts including musical elements, form and style.

MUSI 3A Comprehensive Musicianship (First Quarter) 4 Units
(Formerly Music 3A.)
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, and keyboard work for the more advanced undergraduate student.

MUSI 3D Comprehensive Musicianship 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 exploring chromatic practice and the limits of the tonal system including a review of diatonic practice.

MUSI 3E Comprehensive Musicianship 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, 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 3F Comprehensive Musicianship 4 Units
(Advisory: Music 3E or equivalent.
Three hours lecture, two hours lecture-laboratory (48 hours total per quarter).
Musical counterpoint in two and three parts using both the species approach and the Phenomenological approach to produce species, imitative, and free counterpoint examples.

MUSI 4A Comprehensive Musicianship II (Second Quarter) 4 Units
(Formerly Music 7A.)
(Third Quarter)
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, 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 limits of the tonal system including a review of diatonic practice.

MUSI 4B Comprehensive Musicianship II (Second Quarter) 4 Units
(Formerly Music 7B.)
(Third Quarter)
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 post tonal practice and the influence of non-notated, experimentally notated, and non Western music on an emerging world wide art music culture.

MUSI 4C Comprehensive Musicianship II (Third Quarter) 4 Units
(Formerly Music 7C.)
(Third Quarter)
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 4D Comprehensive Musicianship II (Third Quarter) 4 Units
(Advisory: Music 4C 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 4E Comprehensive Musicianship II (Third Quarter) 4 Units
(Advisory: Music 4D 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 4F Comprehensive Musicianship II (Third Quarter) 4 Units
(Advisory: Music 4E 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 4A 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 5B Modal Counterpoint 3 Units
(Advisory: Music 4B 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 6 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. 12A is recommended, but not required.
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 7A Jazz Piano I 1 1/2 Units
(Formerly Music 8.)
(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).
This course is included in the Class Applied Performance - Jazz and Non-Western Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.)
Development of the ability to play basic jazz piano arrangements from lead sheets in a variety of jazz styles using knowledge of jazz harmony, jazz piano techniques, and improvisational skills. Improvisational skills are developed through the application of provided scale choices and techniques for melodic development.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
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, scales, 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 12A  Class Piano I  1 1/2 Units
Advisory: Music 10A.
Three hours lecture-laboratory (36 hours total per quarter).
(This course is included in the Piano Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) 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).
(This course is included in the Piano Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) 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 consent of instructor.
Three hours lecture-laboratory (36 hours total per quarter).
(This course is included in the Piano Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) Piano performance with emphasis on interpretation, musical form and harmony.

MUSI 13A  Beginning Singing 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; 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).
(This course is included in the Voice Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) Class instruction for beginners in techniques of solo and group singing. Training in controlling tonal production, breathing, diction, and musical accuracy.

MUSI 13B  Beginning Singing II  1 1/2 Units
Prerequisite: Music 13A 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).
(This course is included in the Voice Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) 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).
(This course is included in the Guitar Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) 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).
(This course is included in the Guitar Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) Refinement and expansion of classical guitar techniques learned in Classical Guitar I. Topics include expanded arpeggio techniques, free stroke and rest stroke development, slurred 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 consent.
Three hours lecture-laboratory (36 hours total per quarter).
(This course is included in the Guitar Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) Continuation and expansion of skills learned in Classical Guitar II. Development of sight-reading skills, complex rhythms and multiple-voice music in first through third positions using 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.
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).
(Satisfies the Associate’s Degree music ensemble requirement. Any combination of Music 15A and Music 15B may be taken up to six times for credit.) 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).
(Satisfies the Associate’s Degree music ensemble requirement. Any combination of Music 15A and Music 15B may be taken up to six times for credit.) Continuation of Guitar Ensemble I, emphasizing sight-reading at higher positions, greater accuracy at increased tempo and/or rhythms, and ensemble 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).
(This course is included in the Class Applied Performance - Jazz and Non-Western Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) An intermediate-level study of the common practices used in jazz, blues and selected styles of popular music. Guitar styles from the 1940s to the present will be examined through the use of recording and written examples. Chord voicing, scales, right hand picking 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).
(This course is included in the Piano Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.) 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).
(Satisfies the Associate’s Degree music ensemble requirement. May be taken up to six times for credit.)
Study and performance of traditional, classical choral literature. Cultivation of performance skills in accompanied music. 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).
(Satisfies the Associate’s Degree music ensemble requirement. 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.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
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).
(Satisfies the Associate’s Degree music ensemble requirement. 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).
(Satisfies the Associate’s Degree music ensemble requirement. 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 25VJ Performance Workshop (Jazz Solo Voice)

Prerequisite: Placement by audition.
Three hours lecture-laboratory (36 hours total per quarter).
Master class instruction in solo and ensemble performance technique, requiring technical command of the instrument and basic knowledge of musicianship.

MUSI 27 Vocal Jazz Ensemble 2 Units
(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).
(Satisfies the Associate’s Degree music ensemble requirement. May be taken up to six times for credit.)
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 Units
(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).
(Satisfies the Associate’s Degree music ensemble requirement. 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 I 1 1/2 Units
(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).
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 51 Introduction to 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.
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 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).
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.

MUSI 54D Classical Guitar IV 1 1/2 Units
Prerequisite: Music 14B or equivalent level; admission by instructor consent.
Three hours lecture-laboratory (36 hours total per quarter).
(This course is included in the Guitar Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families page for more information.)
Continuation of skills learned in Music 14C, with greater emphasis on higher positions and longer/more difficult compositions.

MUSI 58A Beginning African and African-Influenced Percussion and Rhythms 1 1/2 Units
(Formerly Music 58A)
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).
(This course is included in the Class Applied Performance Family of activity courses. Please see Course Repetition, Repeatability and Families pages for more information.)
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 1 1/2 Units
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).
(This course is included in the Class Applied Performance - Jazz and Non-Western Family of activity courses. Please see Course Repetition, Repeatability and Families pages for more information.)
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.

MUSI 66B Jazz Improvisation II 1 1/2 Units
Prerequisite: Music 66A or by instructor consent.
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).
Further development of improvisational skill in the jazz idiom. Higher level of difficulty in analysis of scales, chords, and forms applicable to improvisational performance of intermediate level jazz songs. Ear training and transcribing solos included. Participation in a final recital is required.

MUSI 68C Jazz Improvisation III 1 1/2 Units
Prerequisite: Music 68B or by instructor consent.
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 improvisational skill in the jazz idiom. More advanced analysis of scales, chords, and forms applicable to improvisational performance of advanced jazz songs. Ear training and transcribing solos is included. Participation in final recital is required.

MUSI 69B Jazz Piano II 1 1/2 Units
Prerequisite: Music 9A or by instructor consent.
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 intermediate jazz piano arrangements from lead sheets in a variety of jazz styles and settings using knowledge of jazz theory, jazz piano techniques, and improvisational skills. Improvisational skill on the piano is developed through the application of scales determined through the use of jazz theory and harmonic analysis, and the application of techniques for melodic development.

MUSI 69C Jazz Piano III 1 1/2 Units
Prerequisite: Music 69B or by instructor consent.
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 advanced jazz piano arrangements from lead sheets in a variety of jazz styles and settings using knowledge of jazz harmony, jazz piano techniques, and improvisational skills. Improvisational skill on the piano is developed through the application of basic to advanced scales determined through the use of jazz theory and harmonic analysis, and the application of idiomatic phrases.

MUSI 77 Special Projects in Music 1 Unit
MUSI 77X 2 Units
MUSI 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).
Individual advanced projects in music.

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 programs 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, (not including prerequisites) 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, (not including prerequisites) is at least three quarters in length.

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 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Two hours lecture (24 hours total per quarter).
Pass-No Pass (P-NP) course.
Career in the health field with emphasis on education and practice. Required course for entry to De Anza’s Registered Nursing Programs. Not required for L.V.N Transition to RN or Refresher Program for Registered Nurses.

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.