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 227 and 228.
Five hours lecture.
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 227 and 228.
Five hours lecture.
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 227 and 228.
Five hours lecture.
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.
Five hours lecture.
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 Mandarin will be the primary language of instruction. Emphasis will be on language as an expression of culture and a medium of communication. Develop reading, learning, writing skills at the high intermediate level. Language laboratory practice will be part of the regular instruction to reinforce pronunciation, grammar, syntax, and conversation.

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.
Five hours lecture.
Continuation of Mandarin 4. 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 intermediate Chinese. 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. Develop reading, listening, speaking and writing skills at the high advanced level. Language laboratory practice will be part of the regular instruction to reinforce pronunciation, grammar, syntax, and conversation.

MAND 6 Intermediate Mandarin (Third Quarter) 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mandarin 5 or equivalent.
Five hours lecture.
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 advanced Chinese. 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. Develop reading, listening, speaking and writing skills at the advanced level. Language laboratory practice will be part of the regular instruction to reinforce pronunciation, grammar, syntax, and conversation.

MAND 60A Mandarin - Introductory Conversation (First Quarter) 3 Units
(Formerly Mandarin 90A.)
Three hours lecture.
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 (Second Quarter) 3 Units
(Formerly Mandarin 90B.)
Prerequisite: Mandarin 60A.
Three hours lecture.
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 (Third Quarter) 3 Units
(Formerly Mandarin 90C.)
Prerequisite: Mandarin 60B.
Three hours lecture.
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. Elements of Chinese for business are introduced. Mandarin 60C is focused on speaking and comprehension proficiency.

MAND 61A Mandarin - Intermediate Conversation (First Quarter) 3 Units
(Formerly Mandarin 90A.)
Prerequisite: Mandarin 60C or equivalent.
Three hours lecture.
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 introduced. Mandarin 61A is focused on speaking and comprehension proficiency near native speaker level.

MAND 61B Mandarin - Intermediate Conversation (Second Quarter) 3 Units
(Formerly Mandarin 90B.)
Prerequisite: Mandarin 61A or equivalent.
Three hours lecture.
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. Mandarin 61B is focused on speaking and comprehension proficiency near native speaker level.

MAND 61C Mandarin - Intermediate Conversation (Third Quarter) 3 Units
(Formerly Mandarin 90C.)
Prerequisite: Mandarin 61B or equivalent.
Three hours lecture.
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
2 Units
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit.
(Any combination of Manufacturing and CNC 56, 56X and 56Y may be taken up
to six times, not to exceed 18 units, as long as the projects are different each
term.)
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 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; keyboarding skills 40 words
per minute minimum.
Four hours lecture-laboratory.
The application of word processing and spreadsheet programs to communicate
technical information used in various fields of technology including manufacturing,
product design, nursing, and similar disciplines.
MCNC 61B Project Designer’s Portfolio 2 Units
Prerequisite: Manufacturing and CNC 61A with a grade of C or better.
Four hours lecture-laboratory.
Overview of the steps and procedures required to plan, develop and promote a manufactured product or business related project. Completion of a project designer’s portfolio for submission to potential employers.
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.
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 62B Intermediate Technical Calculations 2 Units
(Formerly Manufacturing and Design Technology 62B.)
Prerequisite: Manufacturing and CNC 62A.
Four hours lecture-laboratory.
The application of fundamental mathematics to various fields of technology including machining, automotive, mechanical drafting, sheet metal, nursing and similar disciplines. Review and development of algebraic skills, plane geometry, geometric constructions, and trigonometric concepts. The use of a scientific calculator in problem solving is essential.
MCNC 62C Advanced Technical Calculations 2 Units
Prerequisite: Manufacturing and CNC 62B with a grade of C or better.
Four hours lecture-laboratory.
Review and development of fundamental algebraic operations on real numbers and real variables with emphasis on linear functions and equations, polynomials, rational expressions and equations, and plane geometry. Elementary trigonometry and their applications as they relate to applied technologies.
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.
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.
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.
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 lecture-laboratory.
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.
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.
Introduction of 3D CAD software tools and techniques for mechanical design. Emphasis on using computer-aided three-dimensional modeling software.
MCNC 74D Survey of Industrial Mechanisms  2 Units
Prerequisite: Manufacturing and CNC 62B and 74B with a grade of C or better, or equivalent.
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.
The application of basic physical principles to the operation and design of mechanical and hydraulic mechanisms.
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.
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 74A with a grade of C or better, or equivalent.
Nine hours lecture-laboratory.
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.
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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCNC 200Y</td>
<td>1 1/2 Units</td>
<td></td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 200X</td>
<td>1 Unit</td>
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<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 76B</td>
<td>4 1/2 Units</td>
<td></td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 76A</td>
<td>CAD/CAM Based Computer Numerical Control Programming Using Mastercam</td>
<td>4 1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 76F</td>
<td>CAD/CAM Based Computer Numerical Control Programming Using Mastercam</td>
<td>4 1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 76G</td>
<td>CAD/CAM Based Computer Numerical Control Programming Using Mastercam</td>
<td>4 1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 76L</td>
<td>CAD/CAM Based Computer Numerical Control Programming Using Mastercam</td>
<td>4 1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 77</td>
<td>Machining Practices Using Conventional Machine Tools, Tool Design, Abrasive Machining</td>
<td>4 1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 200X</td>
<td>Open Manufacturing and CNC Technology Laboratory</td>
<td>1/2</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MCNC 200Y</td>
<td>1 Unit</td>
<td></td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 200Z</td>
<td>1 1/2 Units</td>
<td></td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
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<tr>
<td>MCNC 200Z</td>
<td>2 Units</td>
<td></td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
</tbody>
</table>

**Mathematics**

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<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1A</td>
<td>Calculus</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 1B</td>
<td>Calculus</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 1C</td>
<td>Calculus</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 1D</td>
<td>Calculus</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 2A</td>
<td>Differential Equations</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 2B</td>
<td>Linear Algebra</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 10</td>
<td>Elementary Statistics and Probability</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
<tr>
<td>MATH 11</td>
<td>Finite Mathematics</td>
<td>5</td>
<td>Time to complete machining and/or CNC programs, projects and exercises. Use of Manufacturing and CNC Technology labs for those who need/desire more time to complete machining and/or CNC programs, projects and exercises.</td>
</tr>
</tbody>
</table>

All courses are for unit credit and apply to a De Anza associate’s degree unless otherwise noted.
MATH 12 Introductory Calculus for Business and Social Science 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 11.
Five hours lecture.
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 41 or 49A (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 227 and 273.
Five hours lecture.
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 227 and 273.
Five hours lecture.
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 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 227 and 273.
Five hours lecture.
Polynomial, rational, exponential and logarithmic functions, graphs, solving equations.

MATH 43 Precalculus III: Advanced Topics 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 41 and 52 (both 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 227 and 273.
Five hours lecture.
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 Intermediate Algebra 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 227 and 273.
Five hours lecture.
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 symmetry; graph 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.
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. Student may enroll in either department, but not both, for credit.)
Five hours lecture.
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.

MATH 49A Pre-Calculus Algebra 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 51 with a grade of C or better, or 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 227 and 273.
Five hours lecture.
Polynomial, rational, exponential and logarithmic functions, graphs, solving equations; conic sections.

MATH 49B Pre-Calculus Algebra 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 49A with a grade of C or better, or satisfactory score on the 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 227 and 273.
Five hours lecture.
Systems of equations and inequalities, vectors, lines and planes, sequences and series, polar coordinates.

MATH 52 Precalculus II: Trigonometric Functions 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mathematics 61 (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 227 and 273.
Five hours lecture.
The theory of trigonometric functions and their applications.

MATH 77 Special Projects in Mathematics 1 Unit
Three hours laboratory for each unit of credit.
(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.)
(See general education pages for the requirement this course meets.)
(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.

MATH 80 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; or five hours lecture, four hours lecture-laboratory.
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 104 College Math Preparation Level 3: Intermediate Algebra 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Qualifying score on the Math Placement Test within the last calendar year; or Mathematics 212 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 227 and 273.
Five hours lecture; or four hours lecture and two hours lecture-laboratory.
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.
Pass-No Pass (P-NP) course.
Review of content of Mathematics 110 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.
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 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.
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 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; or four hours lecture and two hours lecture-laboratory.
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 5 Units
(Formerly Mathematics 112.)
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 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; or four hours lecture and two hours lecture-laboratory.
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.
Corequisite: Mathematics 241 students must also enroll in Mathematics 61.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory.
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 243 Academic Excellence in Precalculus 1 Unit
(Formerly Mathematics 249B.)
Credit course - Does not apply to De Anza Associate degree.
Corequisite: Mathematics 243 students must also enroll in Mathematics 63.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory.
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.

MATH 252 Academic Excellence in Trigonometry 1 Unit
(Formerly Mathematics 251.)
Credit course - Does not apply to De Anza Associate degree.
Corequisite: Mathematics 252 students must also enroll in Mathematics 52.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Three hours laboratory.
Critical thinking and skills reinforcement in a trigonometry setting: cooperative learning/study techniques, concept development, 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.
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.
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 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 77X Special Projects in Meteorology 1/2 Unit
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit.
(Arrange arrangement of special projects in Meteorology 77X 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 reports(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 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 408.864.8773.
Aerospace Studies  
(Air Force Reserve Officers Training Corps) The Air Force Reserve Officer Training Program (Air Force ROTC) at San Jose State 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 Air Force ROTC program at San Jose State University, contact the Aerospace Studies Department at San Jose State University at 408.924.2960.

Military Science  
(Army 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  
(Navy 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.  
Introduction to the discipline of music; methods of understanding music available in modern culture; listening techniques; use of fundamental concepts including form, style, musical elements, and cultures; 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.  
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.  
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.  
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  
Three hours lecture, two hours lecture-laboratory.  
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.  
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.  
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.  
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.  
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 4C Comprehensive Musicianship II (Third Quarter) 4 Units  
Advisory: Music 4B or equivalent.  
Three hours lecture, two hours lecture-laboratory.  
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  
Two hours lecture, two hours lecture-laboratory.  
Modal counterpoint in two and three parts using both the species approach and the Phoenomenological 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.  
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 recommended, but not required.
MUSI 9  Jazz Piano 2 Units
Prerequisite: Ability to play a keyboard instrument and read music.
One hour lecture, two hours lecture-laboratory.
(May be taken up to six times for credit as long as the topics/projects are different each time.)
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 from 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.
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, 12A or 12B.
Three hours lecture.
The analysis and writing of music which is considered traditional (tonal). Study of traditional harmonies and structures (18th century choral style) will be supplemented with the use of chord symbols and contemporary popular notational practices.

MUSI 12A  Class Piano I 1 1/2 Units
Advisory: Music 10A.
Three hours lecture-laboratory.
(Any combination of MUSI 12A, 12B, 12C and 18 may be taken up to six times, not to exceed 18 units, 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.
(Any combination of MUSI 12A, 12B, 12C and 18 may be taken up to six times, not to exceed 18 units, 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 the instructor.
Three hours lecture-laboratory.
(Any combination of MUSI 12A, 12B, 12C and 18 may be taken up to six times, not to exceed 18 units, 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 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.
(Any combination of Music 13A and 13B may be taken up to six times for credit for the family of courses.)
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.
Three hours lecture-laboratory.
(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, 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.
(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.
(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, slur 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.
(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.
(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.
(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 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 position through fifth positions.
Four hours lecture-laboratory.
(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 18  Intermediate Piano 1 1/2 Units
Prerequisite: Music 12C or approval of the instructor.
Three hours lecture-laboratory.
(Any combination of MUSI 12A, 12B, 12C and 18 may be taken up to six times, not to exceed 18 units, 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.
(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 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  Vocal Jazz Ensemble  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.
Five hours lecture-laboratory.
(May be taken up to six times for credit as long as the topics/projects are different each time.)
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.

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 or 12A is recommended.
Four hours lecture-laboratory.
(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 or 12A is recommended.
Four hours lecture-laboratory.
(May be taken up to six times for credit as long as the topics/projects are different each time.)
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)  1 1/2 Units
Prerequisite: Placement by audition.
Three hours lecture-laboratory.
(Any combination of Music 25G-VJ may be taken up to six times, not to exceed 18 units, for the family of courses.)
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.
Corequisite: 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.
(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 Units
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 25G, 25K, 25N, 34, or 48 is recommended.
Four hours lecture-laboratory.
(May be taken up to six times for credit as long as the topics/projects are different each time.)
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 Units
(Formerly Music 45C.)
Prerequisite: Ability to play an instrument and read music.
Four hours lecture-laboratory.
(May be taken up to six times for credit as long as the topics/projects are different each time.)
Preparation, improvisation, and performance of music for jazz combos. 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 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.
(May be taken six times for credit as long as the instrument is different each time.)
Beginning performance methods and techniques on brass, woodwind, and percussion instruments. Fundamentals of embouchure, fingerings, articulation, rhythm, intonation, and reading musical notation.

MUSI 48  Jazz Improvisation  1 1/2 Units
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.
(May be taken six times for credit as long as the music performed is different each time.)
Development of improvisational skill in the jazz idiom. Analysis of scales, chords, and forms as applicable to improvisational 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 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.
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.
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 56  Jazz, Blues and Popular Guitar  1 1/2 Units
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.
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 techniques, and development of solo skills in these styles will be emphasized.

MUSI 58A  Beginning African and African-Influenced Percussion and Rhythms  1 1/2 Units
(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-laboratory.
(Any combination of Music 58A and 58B may be taken up to six times, for the family of courses, as long as the subject matter is different each time.)
An exploration of selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, drumset and percussion instruments.

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.
(Any combination of Music 58A and 58B may be taken up to six times, for the family of courses, as long as the subject matter is different each time.)
Intermediate-level skill development of selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, stick drums and percussion instruments.

MUSI 202  Music Reading  1 Unit
(Formerly Music 102.)
Credit course - Does not apply to De Anza Associate degree.
Required for music majors not qualifying on the Music Placement Exam.
Two hours lecture-laboratory.
Learning to read music by continuous supervised practice. Limited reference to theoretical matters; concentration on reading music notation at sight and on development of aural skills. For students with no previous musical experience. Enrollment in one of the following beginning performance classes is recommended: Music 8, 12A, 13A, 14A, 24, 46, or 51. Does not fulfill any music major requirements.

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

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.