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 Intermediate Chinese. Speaking,
listening, reading, and writing of second-quarter intermediate level of Mandarin
will be introduced and practiced within a cultural framework.
MAND 6 Intermediate Mandarin (Third Quarter) 5 Units
(See general education pages for the requirement this course meets.)
Prerequisite: Mandarin 5 or equivalent.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or
English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter).
Continuation of Mandarin 5. Read, discuss and analyze texts dealing with arts,
geography, history, literature, social and cultural practices of the Chinese-speaking
world. Review the linguistic functions and grammatical structures of Intermediate
Chinese. Speaking, listening, reading, and writing of third-quarter high intermediate
level of Mandarin will be introduced and practiced within a cultural framework.
MAND 60A Mandarin - Introductory Conversation (First Quarter) 3 Units
(Formerly Mandarin 90A.)
Requisite/Advisory: None.
Three hours lecture (36 hours total per quarter).
Introduction to the language and cultures of Mandarin-speaking countries and
communities. Spoken Chinese will be mastered 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 (36 hours total per quarter).
The next course in the introductory conversation Mandarin course sequence, following
Mandarin 60A. Continues the introduction to the language and cultures of Mandarin-
speaking countries and communities. The vocabulary and grammatical structures
mastered in Mandarin 60A will be consolidated and further developed, in connection
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 (36 hours total per quarter).
The next course in the introductory conversation Mandarin course sequence, following
Mandarin 60B. Continues the introduction to the language and cultures of Mandarin-
speaking countries and communities. The vocabulary and grammatical structures
mastered in Mandarin 60B will be consolidated and further developed, in conjunction
with elements of Chinese culture. 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 50A.)
Prerequisite: Mandarin 60C or equivalent.
Three hours lecture (36 hours total per quarter).
The first course in the intermediate conversation Mandarin course sequence, following
Mandarin 60C. Continues the introduction to the language and cultures of Mandarin-
speaking countries and communities. The vocabulary and grammatical structures
mastered in Mandarin 60C will be consolidated and further developed, in conjunction
with elements of Chinese culture. Elements of Chinese for business are further introduced. Mandarin 61A is focused on speaking and comprehension proficiency near native speaker level.
MAND 61B Mandarin - Intermediate Conversation (Second Quarter) 3 Units
(Formerly Mandarin 50B.)
Prerequisite: Mandarin 61A or equivalent.
Three hours lecture (36 hours total per quarter).
The next course in the intermediate conversation Mandarin course sequence, following
Mandarin 61A. Continues the introduction to the language and cultures of Mandarin-
speaking countries and communities. The vocabulary and grammatical structures
mastered in Mandarin 61A will be consolidated and further developed, in conjunction with elements of Chinese culture. Elements of Chinese for business are further introduced including a meeting conversation. Mandarin 61B is focused on speaking and comprehension proficiency near native speaker level.
MAND 61C Mandarin - Intermediate Conversation (Third Quarter) 3 Units
(Formerly Mandarin 50C.)
Prerequisite: Mandarin 61B or equivalent.
Three hours lecture (36 hours total per quarter).
The advanced level of conversation, following Mandarin 61B. Continues the
introduction to the language and cultures of Mandarin-speaking countries and
communities. The vocabulary and grammatical structures mastered in Mandarin
61B will be consolidated and further developed, in conjunction with elements of
Chinese culture. Elements of Chinese for business are further introduced including
make business presentations, conducting simple business negotiations, and travel
Chinese. Mandarin 61C is focused on speaking and comprehension proficiency at
native speaker level.
MCNC 56 Special Projects in Manufacturing and CNC 1 Unit

MCNC 56X 2 Units
MCNC 56Y 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).

(App 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 time.)

Projects advancing student's knowledge and experience in a selected area of Manufacturing and CNC Technology. Project type and design will be determined through consultation with the instructor.

MCNC 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).

Advised 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, and 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 Y14.5.5 Geometric Dimensioning and Tolerancing (GD&T) standards. Applications and capabilities of precision measuring tools, including the computer-aided Coordinate Measuring Machine (CMM), used in manufacturing environments to inspect discrete complex parts. Machine and inspected part set-up for measuring form, orientation, and position call outs.

MCNC 74A Survey of Computer Drawings 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.

Four hours lecture-laboratory (48 hours total per quarter).

Principles and applications of computer drawings using industry standard software. Emphasis is on 3-D and articulated drawings.

MCNC 74B Survey of Computer Aided Design 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; Mathematics 210 or equivalent.

Four hours lecture-laboratory (48 hours total per quarter).

Principles and applications of computer aided design (CAD) using industry standard software. Emphasis is on 2-D drawings.

MCNC 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 clamping practices.

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 75C1 Manufacturing and CNC Technology Laboratory 4 1/2 Units
MCNC 75D Introduction to Computer-Aided CNC 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 75E CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Prerequisite: Manufacturing and CNC 76C.

Nine hours lecture-laboratory (108 hours total per quarter). Programming procedures using wireframe, splines, and surface modeling. Rough, finish, and high speed machining. Editing, post-processing, verifying programs.

MCNC 76M CAD/CAM Based Computer Numerical Control Programming Using Mastercam 4 1/2 Units
Prerequisite: Manufacturing and CNC 76C.

Nine hours lecture-laboratory (108 hours total per quarter). Advanced Mastercam; complex surfacing for milling machines and contouring surfaces for lathes. Tooling, workflow and programming for horizontal machining centers.

MCNC 77B Machining Practices Using Conventional Machine Tools, Tool Design, Abrasive Machining 4 1/2 Units
Prerequisite: Manufacturing and CNC 71 with a grade of C or better or equivalent.

Nine hours lecture-laboratory (108 hours total per quarter).

Advanced machining practices using conventional machine tools. Introduction to fixture design including location and clamping methods and computation of fits and allowances. Abrasive machining.

MCNC 200 Manufacturing and CNC Technology Laboratory 1/2 Unit
MCNC 200X 1 Unit
MCNC 200Y 1 1/2 Units
MCNC 200Z 2 Units
Credit course - Does not apply to De Anza Associate degree.

Co-requisite: Manufacturing and CNC 200, 200X, 200Y and 200Z students must also enroll in any Manufacturing and CNC Technology course.

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

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
Use of Manufacturing and CNC Technology labs for additional/advanced projects in MCNC. Projects will vary each quarter based on the students other MCNC classes and the direction of the instructor.

### Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1A</td>
<td>Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH 1B</td>
<td>Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH 1C</td>
<td>Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH 1D</td>
<td>Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH 2A</td>
<td>Differential Equations</td>
<td>5</td>
</tr>
<tr>
<td>MATH 2B</td>
<td>Linear Algebra</td>
<td>5</td>
</tr>
<tr>
<td>MATH 10</td>
<td>Elementary Statistics and Probability</td>
<td>5</td>
</tr>
<tr>
<td>MATH 11</td>
<td>Finite Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>MATH 12</td>
<td>Introductory Calculus for Business and Social Science</td>
<td>5</td>
</tr>
<tr>
<td>MATH 22</td>
<td>Discrete Mathematics</td>
<td>5</td>
</tr>
<tr>
<td>MATH 23</td>
<td>Engineering Statistics</td>
<td>5</td>
</tr>
<tr>
<td>MATH 41</td>
<td>Precalculus I: Theory of Functions</td>
<td>5</td>
</tr>
<tr>
<td>MATH 42</td>
<td>Precalculus II: Trigonometric Functions</td>
<td>5</td>
</tr>
<tr>
<td>MATH 43</td>
<td>Precalculus III: Advanced Topics</td>
<td>5</td>
</tr>
</tbody>
</table>

### Course Descriptions

**MATH 1A Calculus**

See general education pages for the requirement this course meets.
Prerequisite: Mathematics 43 (with a grade of C or better), or appropriate score on 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**

See general education pages for the requirement this course meets.
Prerequisite: Mathematatics 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**

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**

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**

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**

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**

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**

See general education pages for the requirement this course meets.
Prerequisite: Qualifying score on the 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**

See general education pages for the requirement this course meets.
Prerequisite: Mathematics 10 or 41.
Five hours lecture (60 hours total per quarter).
Introduction to limits, differentiation, and integration of single variable functions. Differentiation of multivariate functions. Applications in business, economics, and social science.

**MATH 22 Discrete Mathematics**

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**

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

**MATH 41 Precalculus I: Theory of Functions**

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**

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**

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  
(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 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  
(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 acquisition of knowledge, 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 77  Special Projects in Mathematics  
1 Unit

MATH 77X  2 Units
MATH 77Y  3 Units
Prerequisite: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Mathematics 77, 77X and 77Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.)
Pass-No Pass (P-NP) course.
Individual special reading, writing, or study projects in mathematics as determined in consultation with the instructor.

MATH 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, 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 212 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  
5 Units
(Formerly Mathematics 110.)
Credit course - Does not apply to De Anza Associate degree.
Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.
Five hours lecture (60 hours total per quarter); or four hours lecture and two hours lecture-laboratory (72 hours total per quarter).
Use of basic arithmetic in application problems, estimation, the real number system, variables and linear equations, graphs of linear equations and the Cartesian coordinate system, the concept of function.

MATH 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 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 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, and use of technology.

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

Meteorology

MET 10  Weather 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

All courses are for unit credit and apply to a De Anza associate degree unless otherwise noted.
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 phenomena 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; 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’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 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 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 social and societal impacts of impending climate change.

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.

Five hours lecture (60 hours total per quarter).

An introduction to music through world music and its influence on current musical trends in the United States. Students find out first hand what the Air Force has to offer for scholars while they are in school and what career opportunities await them after graduation with a Bachelors Degree.

For direct information on the Air Force ROTC program at San Jose State University, contact the Aerospace Studies Department at San Jose State University at 408.924.2960.

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.

Navy 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 77  Special Projects in Meteorology 1 Unit

MET 77X 2 Units
MET 77Y 3 Units
Prerequisite: Consent of instructor and division dean.

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

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

Pass-No Pass (P-NP) course.

Individual research projects in Meteorology as determined in consultation with the instructor. Outside reading and written report(s) required. These projects are on topics not covered in the regular Meteorology curriculum and require the approval of the PSM&E Division Dean.

Military Studies

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

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

REGISTRATION NOTE: To register from a community college for ROTC courses, please contact Mission College or West Valley College. De Anza College does not currently provide for ROTC registration for De Anza College students. For further information, please contact the Biological and Health Sciences Division 408.864.8773.
MUSI 1D
Introduction to Music: Rock—From Roots to Rap
4 Units
Formerly Music 59.
(See general education pages for the requirement this course meets.)
Advisory: English Writing 1A or English as a Second Language 5.
Four hours lecture (48 hours total per quarter).
An introduction to music through rock music, tracing its beginnings in the early
1950s to the present. Various rock styles will be related to the historical trends and
events of the time period being studied; listening techniques; use of fundamental
concepts including form, style, musical media, and texts; acquaintance with
and comparison of musical examples from various styles.

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

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

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

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

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

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

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

MUSI 8
Intermediate Electronic Music
3 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or
English as a Second Language 261, 262 and 263; Music 51.
Two hours lecture, two hours lecture-laboratory (48 hours total per quarter).
Intermediate level electronic music techniques including digital and analog
synthesizer sound design and editing; professional studio and computer music
software including integrated audio/MIDI sequencing software, instrument editors,
software synthesizers; basic audio/MIDI studio configuration; modular synthesis;
basic digital audio recording and editing; basic audio signal processing; introduction
to concepts of music notation software; historical and technological development
of electronic music; roles of electronic music technology in twentieth-century music.
Some prior music experience and/or concurrent enrollment in Music 10A or Music
12A is recommended, but not required.
MUSI 14A Classical Guitar I 1 1/2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 14A, 14B and 14C may be taken up to six times for credit for the family of courses.)
Beginning instruction for playing the classical, nylon-stringed guitar, assuming no prior musical experience. Introduces basic note reading on the first four frets of the instrument, left and right hand techniques, including free strokes, rest strokes, arpeggio technique, left-hand development of strength and independence, Chords, chord progression and basic strumming techniques will also be introduced.

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

MUSI 15A Guitar Ensemble I 2 Units
(Formerly Music 60A)
Prerequisite: Enrollment subject to audition; ability to execute proper classical guitar technique and read music.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 16 units, as long as the subject matter is different each time.)
Introduction to the performance of music for guitar ensemble, emphasizing sight reading, rhythmic accuracy and ensemble skills. Music from the 15th century to the present will be rehearsed and performed.

MUSI 15B Guitar Ensemble II 2 Units
(Formerly Music 60B)
Prerequisite: Music 15A or equivalent. Enrollment subject to audition; ability to execute proper classical guitar technique and read music at sight in the first position.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 16 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 15A 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 (48 hours total per quarter).
(Any combination of Music 15A, 15B and 15C may be taken up to six times, not to exceed 16 units, as long as the subject matter is different each time.)
Continuation of Guitar Ensemble II, emphasizing sight-reading at seventh and higher positions, greater accuracy at increased tempos and/or rhythms, ensemble leadership skills. Music from the 15th century to the present will be rehearsed and performed.

MUSI 16 Jazz, Blues and Popular Guitar 1 1/2 Units
(Formerly Music 56)
Prerequisite: Ability to play first-position and movable major, minor and dominant 7th chords.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
An intermediate 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).
(Any combination of Music 12A, 12B, 12C and 18 may be taken up to six times for credit for the family of courses as long as the topics/projects are different each time.)
Piano music from the Baroque era to the present, with emphasis on the style of each period and differences in interpretation.

MUSI 20 De Anza Chorale 2 Units
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263; concurrent enrollment in Music 10A, 12A or 13A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 20, 25G-VJ 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).
(Any combination of Music 21, 25G-VJ 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, preparation, enrollment training, and an audition are required. 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, 10B, 3A, 3B, 3C or 12A is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(Any combination of Music 22, 25G-VJ 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 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).
(Any combination of Music 24, 25G-VJ 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 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 (36 hours total per quarter).
(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.
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).
(Any combination of Music 27, 25G-VJ may be taken up to six times, not to exceed 18 units, for the family of courses.)
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).
(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).
(Any combination of Music 32A and 32B may be taken up to six times for credit as long as the topics/projects are different each time.)
Study and performance of songs in the jazz idiom. Emphasis on jazz phrasing, melodic and harmonic improvisation, stylistic concepts, vocal consistency, variation of texture, jazz rhythms, rhythm section communication, microphone technique.

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

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

MUSI 41  Rehearsal and Performance 1/2 Unit
MUSI 41U  1 Unit
MUSI 41V  1 1/2 Units
MUSI 41W  2 Units
MUSI 41X  2 1/2 Units
Requisite/Advisory: None.
Two hours lecture-laboratory for each unit of credit (24 hours total for each unit of credit per quarter).
(Any combination of Music 41, 41U, 41V, 41W and 41X may be taken up to six times, not to exceed 18 units, as long as the topics/projects are different each time.)
Supervised participation in the various aspects of music rehearsal and/or performance.

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 32, 34, or 48 is recommended.
Four hours lecture-laboratory (48 hours total per quarter).
(May be taken up to six times for credit.)
Rehearsal, sight-reading, performance, and recording of wind ensemble literature in a variety of styles and time-periods. Attendance at all scheduled performances is required.

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

MUSI 46  Beginning Winds and Percussion 1 1/2 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).
(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 (36 hours total per quarter).
(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 (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 technical 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 55A  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 (36 hours total per quarter).
(Any combination of Music 55A and 55B may be taken up to six times for credit.)
An introduction to selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, stick drums and percussion instruments. Each quarter focuses on one particular culture area and its traditional and popular music styles. No musical experience required. Instruments for in-class use provided.

MUSI 55B  Intermediate African and African-Influenced Percussion and Rhythms 1 1/2 Units
Prerequisite: Music 55A or equivalent level.
Advisory: English Writing 200 and Reading 200 (or Language Arts 200), or English as a Second Language 261, 262 and 263.
Three hours lecture-laboratory (36 hours total per quarter).
(Any combination of Music 55A and 55B may be taken up to six times for credit.)
Intermediate-level skill development of selected African, Afro-Caribbean and Latin American rhythms applied to hand drums, stick drums and other percussion instruments. Each quarter focuses on one particular culture area and its traditional and popular music styles. Instruments for in-class use provided.

MUSI 77  Special Projects in Music 1 Unit
MUSI 77X  2 Units
MUSI 77Y  3 Units
Requisite/Advisory: Consent of instructor and division dean.
Three hours laboratory for each unit of credit (36 hours total for each unit of credit per quarter).
(Any combination of Music 77, 77X and 77Y may be taken up to six times, not to exceed 18 units, as long as the projects are different each time.)
Individual advanced projects in music.

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

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