

## SUPPLEMENTARY MAJOR IN APPLIED MATHEMATICS DEGREE DESCRIPTION

The program consists of 24 credit hours in the designated list of courses. To earn a supplementary major in applied mathematics a student must earn at least 15 credit hours from the listed Categories I.A and I.B of which at least 9 credit hours must be from Category I.B.

A student must also earn at least 9 credit hours from the Category II list of related disciplines. The courses in Category II may be taken from any combination of areas.

**Note:** *Any student in a major other than mathematics who fulfills the mathematics course requirements for SMAM will have automatically fulfilled one VWW requirement under the 9-hour rule.*

If you have questions, please contact the Department of Mathematical Sciences by email ([math@nmsu.edu](mailto:math@nmsu.edu)) or by phone (646-3901) and the appropriate person will get in touch with you.

To apply, fill in the online form at:

<http://artsci.nmsu.edu/language/english/forms/request-for-change-of-major>

I. Mathematics courses: at least 15 credit hours.

I.A MATH 377: *Introduction to Numerical Methods*;  
MATH 391: *Vector Analysis*  
MATH 392: *Ordinary Differential Equations*;  
STAT 371: *Statistics for Engineers and Scientists I*;  
MATH 421: *Financial Mathematics I*.

I.B At least 9 credit hours

MATH 331: *Introduction to Modern Algebra\**;  
MATH 332: *Introduction to Analysis\**;  
MATH 422: *Financial Mathematics II*;  
MATH 423: *Numerical Optimization and Applications to Financial Mathematics*;  
MATH 430: *Combinatorial Mathematics*;  
MATH 451: *Introduction to Differential Geometry*;  
MATH 453: *Introduction to Topology*;  
MATH 454: *Mathematical Logic*;  
MATH 471: *Complex Variables*;  
MATH 472: *Fourier Series and Boundary Value Problems*;  
MATH 473: *Calculus of Variations and Optimal Control*;  
MATH 480: *Vector Spaces and Matrix Algebra*;  
STAT 470: *Probability - Theory and Application*;  
STAT 480: *Statistics - Theory and Applications*.

\* MATH 279 is a prerequisite

More information on back...

II. Related disciplines: at least 9 credit hours.

**Civil Engineering:**

C E 315: Determinate Structural Analysis;  
C E 331: Hydraulic Engineering;  
C E 356: Fund. of Environmental Engineering;  
C E 382: Hydraulic Systems Design.

**Chemical Engineering:**

CH E 305: Transport Operations I – Fluid Flow;  
CH E 306: Transport Operations II– Heat and Mass Transfer;  
CH E 412: Process Dynamics and Control;  
CH E 441: Chemical Kinetics and Reactor Engineering.

**Chemistry:**

CHEM 433: Physical Chemistry I;  
CHEM 434: Physical Chemistry II;  
CHEM 456: Inorganic Structure and Bonding.

**Computer Science:**

C S 372: Data Structures and Algorithms;  
C S 476: Computer Graphics I;  
CS 486: Bioinformatics;  
C S 491: Parallel Programming;  
C S 492: Computer Systems Modeling & Simulation;  
C S 510: Automata, Languages, Computability.  
C S 570: Analysis of Algorithms

**Economics:**

ECON 405: Economic Statistics;  
ECON 457: Mathematical Economics;  
ECON 498: Independent Study (with approval).

**Electrical and Computer Engineering:**

E E 312: Signals and Systems I;  
E E 314: Signals and Systems II;  
E E 351: Applied Electromagnetics;  
E E 395: Intro to Digital Signal Processing;  
E E 470: Physical Optics;  
E E 475: Control Systems II;  
E E 476: Computer Control Systems;  
E E 496: Intro. to Communication Systems;  
E E 497: Digital Communication Systems I.

**Finance:**

FIN 355: Investments;  
FIN 385: Analysis of Financial Markets and Institutions;  
FIN 406: Theory of Financial Decisions;  
FIN 435: Investment Analysis.

**Industrial Engineering:**

I E 365: Quality Control;  
I E 413: Engineering Operations Research I;  
I E 423: Engineering Operations Research II;  
I E 460: Evaluation of Engineering Data;;  
I E 466: Reliability.

**Mechanical Engineering:**

M E 332: Vibrations;  
M E 333: Intermediate Dynamics;  
M E 338: Fluid Mechanics;  
M E 341: Heat Transfer;  
M E 473: Compressible Flow.

**Physics:**

PHYS 451: Intermediate Mechanics I;  
PHYS 454: Intermediate Modern Physics I;  
PHYS 455: Intermediate Modern Physics II;  
PHYS 461: Intermediate Electricity and Magnetism I;  
PHYS 462: Intermediate Electricity and Magnetism II;  
PHYS 470: Physical Optics;  
PHYS 476: Computational Physics;  
PHYS 480: Thermodynamics;  
PHYS 485: Independent Study (with approval)  
PHYS 495: Mathematical Methods of Physics I.

**Surveying Engineering:**

SUR 351: Introductory Survey Measurements, Analysis and Adjustments;  
SUR 451: Advanced Survey Measurements, Analysis and Adjustments;  
SUR 461: Introduction to Satellite Geodesy.