ECU COURSE CATALOG

2025-2026 MATHEMATICS COURSES

MATH-0113 Beginning Algebra 3 Credits
REVIEW OF ELEMENTARY ALGEBRA THROUGH INTRODUCTION TO QUADRATIC EQUATIONS. THIS COURSE DOES NOT COUNT FOR DEGREE CREDIT AND DOES NOT SATISFY THE GENERAL EDUCATION REQUIREMENT IN MATHEMATICS. GRADING IS P OR F.

MATH-0214 Intermediate Algebra 4 Credits
A REVIEW OF ELEMENTARY ALGEBRA INCLUDING FRACTIONS, OPERATIONS ON REAL NUMBERS, POLYNOMIALS, FIRST AND SECOND DEGREE EQUATIONS AND INEQUALITIES, EXPONENTS, GRAPHING, RELATIONS AND FUNCTIONS, AND SYSTEMS OF EQUATIONS AND INEQUALITIES. THIS COURSE DOES NOT COUNT FOR DEGREE CREDIT AND DOES NOT SATISFY THE GENERAL EDUCATION REQUIREMENT IN MATHEMATICS. GRADING IS P OR F. Required Previous: Students with ACT of 19 or above may not enroll.

MATH-0221 Supplemental Probability and Statistics 1 Credit
THIS COURSE IS DESIGNED TO BE TAKEN ALONGSIDE AN INTRODUCTION TO PROBABILITY AND STATISTIC COURSE. IT REVIEWS OR INTRODUCES KEY CONCEPTS AND SKILLS STUDENTS NEED TO SUCCEED IN INTRODUCTION TO PROBABILITY AND STATISTICS. THESE CONCEPTS INCLUDE DATA ANALYSIS, ELEMENTARY AND GENERAL PROBABILITY SPACES TREATED FROM AN INTUITIVE POINT OF VIEW, COMMON FREQUENCY DISTRIBUTIONS, AND STATISTICAL INFERENCE.

MATH-0411 Supplemental Survey of Mathematics 1 Credit
THIS COURSE IS DESIGNED TO BE TAKEN ALONGSIDE A SURVEY OF MATHEMATICS COURSE. IT REVIEWS OR INTRODUCES KEY CONCEPTS AND SKILLS STUDENTS NEED TO SUCCEED IN SURVEY OF MATHEMATICS. TOPICS WILL BE SELECTED FROM LOGIC, ALGEBRA, ANALYSIS, GEOMETRY, TOPOLOGY, PROBABILITY, STATISTICS, AND MATHEMATICS OF FINANCE. Required Previous: Students with ACT of 19 or above may not enroll.

MATH-0512 College Algebra Supplemental 2 Credits
THIS COURSE IS DESIGNED TO BE TAKEN ALONGSIDE A COLLEGE ALGEBRA COURSE. IT REVIEWS OR INTRODUCES KEY CONCEPTS AND SKILLS STUDENTS NEED TO SUCCEED IN COLLEGE ALGEBRA. THESE CONCEPTS INCLUDE RATIONAL ARITHMETIC, FACTORING POLYNOMIALS, GRAPHING FUNCTIONS, ALGEBRAIC RULES, AND NOTATION. Required Previous: Students with ACT of 19 of above may not enroll.

MATH-0612 Supplemental Functions and Modeling 2 Credits
THIS COURSE IS DESIGNED TO BE TAKEN ALONGSIDE A FUNCTIONS AND MODELING COURSE. IT REVIEWS OR INTRODUCES KEY CONCEPTS AND SKILLS STUDENTS NEED TO SUCCEED IN FUNCTIONS AND MODELING. THESE CONCEPTS INCLUDE STUDY OF EQUATIONS AND FUNCTIONS (LINEAR, POLYNOMIAL, RATIONAL, EXPONENTIAL, LOGARITHMIC) FROM VARIOUS PERSPECTIVES (SYMBOLIC, VERBAL, NUMERICAL, GRAPHICAL), DIGITAL TECHNIQUES FOR GRAPHING FUNCTIONS, SOLVING EQUATIONS, AND MODELING DATA USING REGRESSIONS. Required Previous: Students with ACT 19 or above may not enroll.

MATH-1223 Introduction to Probability and Statistics 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Must have an ACT Math subject score of 19, OR have a SAT Math subject score of 510, OR have completed Math-0214, OR have tested out of a math deficiency in Accuplacer, OR have an ACT Math subject score of 16 or higher AND enroll in Math-0221.

MATH-1413 Survey of Mathematics 3 Credits
AN INTRODUCTION TO VARIOUS TOPICS IN MATHEMATICS DESIGNED TO CONVEY A GENERAL KNOWLEDGE AND APPRECIATION OF MATHEMATICS. TOPICS WILL BE SELECTED FROM LOGIC, ALGEBRA, ANALYSIS, GEOMETRY, TOPOLOGY, PROBABILITY, STATISTICS, AND MATHEMATICS OF FINANCE. Required Previous: Must have an ACT Math subject score of 19, OR have a SAT Math subject score of 510, OR have completed Math-0203, OR have completed Math-0124, OR have tested out of a math deficiency in Accuplacer, OR have an ACT Math subject score of 16 or higher AND enroll in Math-0411.

MATH-1513 College Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Must have an ACT Math subject score of 19, OR have a SAT Math subject score of 510, OR have completed Math-0124, OR have tested out of a math deficiency in Accuplacer, OR have an ACT Math subject score of 16 or higher AND enroll in Math-0512.

MATH-1613 Functions and Modeling 3 Credits
STUDY OF EQUATIONS AND FUNCTIONS (LINEAR, POLYNOMIAL, RATIONAL, EXPONENTIAL, LOGARITHMIC) FROM VARIOUS PERSPECTIVES (SYMBOLIC, VERBAL, NUMERICAL, GRAPHICAL), DIGITAL TECHNIQUES FOR GRAPHING FUNCTIONS, SOLVING EQUATIONS, AND MODELING DATA USING REGRESSIONS. THIS COURSE IS DESIGNED FOR STUDENTS IN AGRICULTURAL, BUSINESS, LIFE/HEALTH SCIENCE, OR SOCIAL SCIENCE MAJORS. Required Previous: Must have an ACT Math subject score of 19, OR have a SAT Math subject score of 510, OR have completed Math-0124, OR have tested out of a math deficiency in Accuplacer, OR have an ACT Math subject score of 16 or higher AND enroll in Math-0612.

MATH-1653 Mathematics for Biological Science 3 Credits
SELECTED TOPICS FROM ALGEBRA, TRIGONOMETRY, ANALYTICAL GEOMETRY, PROBABILITY, AND OTHER TOPICS APPLICABLE TO THE STUDY OF BIOLOGY. OPEN ONLY TO MEDICAL TECHNOLOGY MAJORS AND BIOLOGY MAJORS AND MINORS. DEGREE CREDIT NOT ALLOWED IN BOTH MATH 1513 & 1653, NOR IN BOTH MATH 1614 & 1653. THIS COURSE DOES NOT SATISFY THE GENERAL EDUCATION REQUIREMENT FOR TEACHER CERTIFICATION. Required Previous: Must have an ACT Math subject score of 19 or have a SAT Math subject score of 510 or have completed Math-0214 or have tested out of a math deficiency in Accuplacer.

MATH-1713 Trigonometry 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous or Concurrent: Take MATH-1513 MATH-1613 or MATH-1653.

MATH-2332 Medical Mathematics 2 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE, NON-ROUTINE, AND REAL-WORLD PROBLEMS. THE CONTENT OF THIS COURSE IS DESIGNED TO STRENGTHEN THE FOUNDATIONAL SKILLSET NEEDED FOR DOSAGE AND OTHER CALCULATIONS IN THE NURSING FIELD AND FURTHER STUDENTS' UNDERSTANDING OF DOSAGE FROM AN ALGEBRAIC STANDPOINT. CAREFUL TREATMENT IS GIVEN TO RATIOS WITH A STRONG FOCUS ON RELATIONSHIPS ACROSS RATIONA

MATH-2613 Calculus for Business, Life and Social Sciences 3 Credits
INFORMAL STUDY OF DIFFERENTIATION AND INTEGRATION OF POLYNOMIAL, EXPONENTIAL AND LOGARITHMIC FUNCTIONS WITH APPLICATIONS TO BUSINESS, LIFE AND SOCIAL SCIENCES. (NOTE: DEGREE CREDIT NOT ALLOWED IN BOTH MATH 2613 & 2825) Required Previous: Take MATH-1513 MATH-1613 or MATH-1653.

MATH-2713 Mathematical Concepts I 3 Credits
THIS COURSE IS DESIGNED TO GIVE EDUCATION MAJORS RICH MATHEMATICAL EXPERIENCES AND OPPORTUNITIES TO DEMONSTRATE CONNECTIONS AND APPLY UNDERSTANDINGS TO THE FOLLOWING MATHEMATICAL CONCEPTS: DEMONSTRATE AND EXPLAIN ARITHMETIC OPERATIONS USING STANDARD AND NON-STANDARD ALGORITHMS WITH VARIOUS MODELS, INTERPRETATIONS, MANIPULATIVES, AND REPRESENTATIONS FOR WHOLE NUMBERS AND INTEGERS.; UTILIZE MENTAL MATH, ESTIMATION, SET THEORY, OTHER BASE NUMERATION SYSTEMS, FACTORING, AND DIVISIBILITY TO SOLVE PRO Required Previous: Must have an ACT Math subject score of 19 or have a SAT Math subject score of 510 or have completed Math-0124 or have tested out of a math deficiency in Accuplacer.

MATH-2723 Mathematical Concepts II 3 Credits
THIS COURSE IS DESIGNED TO GIVE EDUCATION MAJORS RICH MATHEMATICAL EXPERIENCES AND OPPORTUNITIES TO DEMONSTRATE CONNECTIONS AND APPLY UNDERSTANDINGS TO THE FOLLOWING MATHEMATICAL CONCEPTS: USE APPROPRIATE TERMINOLOGY AND NOTATION OF GEOMETRY; CLASSIFY, ANALYZE, AND CATEGORIZE SHAPES IN TWO AND THREE DIMENSIONS; DEFINE AND APPLY UNITS OF MEASURE, INCLUDING THE CREATION AND USE OF NONSTANDARD UNITS; APPLY AND CONSTRUCT ALGEBRAIC FORMULAS RELATING LINEAR MEASUREMENTS OF GEOMETRIC SHAPES TO THE TWO Required Previous or Concurrent: Take MATH-2713

MATH-2733 Mathematical Concepts III 3 Credits
THIS COURSE IS DESIGNED TO GIVE EDUCATION MAJORS RICH MATHEMATICAL EXPERIENCES AND OPPORTUNITIES TO DEMONSTRATE CONNECTIONS AND APPLY UNDERSTANDINGS TO THE FOLLOWING MATHEMATICAL CONCEPTS: USE RATIOS, PROPORTIONS, DRAWINGS, AND/OR MANIPULATIVES TO REPRESENT, EXPLAIN, AND SOLVE PROBLEMS INCORPORATING FRACTIONS, DECIMALS, AND PERCENTAGES; DEMONSTRATE AND DISTINGUISH BETWEEN STANDARD AND NONSTANDARD ALGORITHMS, INTERPRETATIONS, AND REPRESENTATIONS OF RATIONAL AND REAL NUMBERS; IDENTIFY AND APPLY TH Required Previous or Concurrent: Take MATH-2713.

MATH-2825 Calculus and Analytic Geometry I 5 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-1713.

MATH-2881 SPSTU- 1 Credit
DIRECTED STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-2882 SPSTU- 2 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-2883 Special Studies- 3 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-2884 Special Studies- 4 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-3025 Calculus and Analytic Geometry II 5 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Math-2825 or departmental approval.

MATH-3033 Calculus and Analytic Geometry III 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-3025 or departmental approval.

MATH-3093 Introduction to Theorem Proving and Number Theory 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Math-3025 or departmental approval.

MATH-3213 College Geometry 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-3025 and MATH-3093.

MATH-3263 Methods of Teaching Jr High Mathematics 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-2825 and MATH-2733.

MATH-3513 Mathematical Statistics 3 Credits
A STUDY OF ADVANCED PROBABILITY THEORY INCLUDING COUNTING TECHNIQUES, PERMUTATIONS, AND COMBINATIONS, PROPERTIES OF RANDOM VARIABLES WITH EMPHASIS ON DENSITY FUNCTIONS, EXPECTED VALUES, ESTIMATORS, MOMENTS AND MOMENT GENERATING FUNCTIONS, AND DISCRETE AND CONTINUOUS PROBABILTY DISTRIBUTIONS. Required Previous: Math-1223 or departmental approval

MATH-3583 Applied Statistics 3 Credits
AN ADVANCED COURSE IN APPLIED STATISTICS COVERING THE FOLLOWING TOPICS: SAMPLING DISTRIBUTIONS, SUMMARY MEASURES, INTERVAL ESTIMATION, HYPOTHESIS TESTING, CHI-SQUARE TEST, ANALYSIS OF VARIANCE, LINEAR AND MULTIPLE REGRESSION, CORRELATION ANALYSIS, FORECASTING, TIME SERIES, AND NONPARAMETRIC METHODS. Required Previous: Take MATH-1223 or BSEC-2603.

MATH-3713 Linear Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-3025.

MATH-3813 Modern Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-3033 and MATH-3093 or departmental approval.

MATH-4113 Differential Equations 3 Credits
INTRODUCTION TO THE THEORY OF ORDINARY DIFFERENTIAL EQUATIONS, DIFFERENTIAL EQUATIONS OF THE FIRST ORDER AND FIRST DEGREE, FIRST ORDER AND HIGHER DEGREE, LINEAR DIFFERENTIAL EQUATIONS, DIFFERENTIAL EQUATIONS OF ORDER HIGHER THAN THE FIRST, APPLICATIONS. Required Previous: Take MATH-3025 or departmental approval.

MATH-4133 Real Analysis 3 Credits
SOME PROPERTIES OF THE REAL NUMBER SYSTEM, FUNCTIONS, SEQUENCES, LIMITS, DIFFERENTIATION, RIEMANN INTEGRALS. Required Previous: Math-3033 or departmental approval

MATH-4223 Introduction to Point Set Topology 3 Credits
ELEMENTS OF SET THEORY, THE REAL NUMBER SYSTEM, MAPPINGS, METRIC SPACES AND GENERAL TOPOLOGICAL SPACES. Required Previous: Take MATH-3033 and MATH-3093 or departmental approval.

MATH-4313 Introduction to Complex Variables 3 Credits
A STUDY OF THE COMPLEX NUMBER SYSTEM, FUNCTIONS OF A COMPLEX VARIABLE, DIFFERENTIATION, INTEGRATION, SERIES, RESIDUES AND POLES, CONFORMAL MAPPINGS, AND APPLICATIONS TO THE PHYSICAL SCIENCES. Required Previous: Take MATH-3025.

MATH-4363 Mathematical Modeling 3 Credits

MATH-4811 History of Mathematics 1 Credit
THE HISTORICAL DEVELOPMENT OF MATHEMATICAL CONCEPTS AND SYMBOLISM. Required Previous: Take MATH-3025 or departmental approval.

MATH-4922 Methods of Teaching Secondary Mathematics 2 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Math-2825 or departmental approval

MATH-4923 Perspectives in Mathematics 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH Required Previous: Take MATH-3033.

MATH-4981 Seminar- 1 Credit
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4982 Seminar- 2 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4983 Seminar- 3 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4984 Seminar- 4 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4991 Individual Studies- 1 Credit
DIRECTED INDIVIDUAL STUDY ON SPECIAL SUBJECT OR PROBLEM. OPEN ONLY TO SELECTED UNDERGRADUATES.

MATH-4992 Individual Studies- 2 Credits
DIRECTED INDIVIDUAL STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4993 Individual Studies- 3 Credits
DIRECTED INDIVIDUAL STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-4994 Individual Studies- 4 Credits
DIRECTED INDIVIDUAL STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-5981 Seminar- 1 Credit
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-5982 Seminar- 2 Credits
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-5983 Seminar- 3 Credits
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-5984 Seminar- 4 Credits
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-5991 Individual Studies- 1 Credit
DIRECTED INTENSIVE STUDY ON DEFINITE PROBLEM OR SPECIAL SUBJECT, BASED ON APPROVED OUTLINE OR PLAN, CONFERENCES, ORAL AND WRITTEN REPORTS.

MATH-5992 Individual Studies- 2 Credits
DIRECTED INTENSIVE STUDY ON DEFINITE PROBLEM OR SPECIAL SUBJECT, BASED ON APPROVED OUTLINE OR PLAN, CONFERENCES, ORAL AND WRITTEN REPORTS.

MATH-5993 Individual Studies- 3 Credits
DIRECTED INTENSIVE STUDY ON DEFINITE PROBLEM OR SPECIAL SUBJECT, BASED ON APPROVED OUTLINE OR PLAN, CONFERENCES, ORAL AND WRITTEN REPORTS.

MATH-5994 Individual Studies- 4 Credits
DIRECTED INTENSIVE STUDY ON DEFINITE PROBLEM OR SPECIAL SUBJECT, BASED ON APPROVED OUTLINE OR PLAN, CONFERENCES, ORAL AND WRITTEN REPORTS.

MATH-H1223 Honors-Intro to Prob & Stats 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H1513 Honors-College Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H1713 Honors-Trigonometry 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE

CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H2723 Honors-Mathematical Concepts II 3 Credits
THIS COURSE IS DESIGNED TO GIVE EDUCATION MAJORS RICH MATHEMATICAL EXPERIENCES AND OPPORTUNITIES TO DEMONSTRATE CONNECTIONS AND APPLY UNDERSTANDINGS TO THE FOLLOWING MATHEMATICAL CONCEPTS: USE APPROPRIATE TERMINOLOGY AND NOTATION OF GEOMETRY; CLASSIFY, ANALYZE, AND CATEGORIZE SHAPES IN TWO AND THREE DIMENSIONS; DEFINE AND APPLY UNITS OF MEASURE, INCLUDING THE CREATION AND USE OF NONSTANDARD UNITS; APPLY AND CONSTRUCT ALGEBRAIC FORMULAS RELATING LINEAR MEASUREMENTS OF GEOMETRIC SHAPES TO THE TWO Required Previous or Concurrent: Take MATH-2713

MATH-H2825 Honors-Calculus and Analytic Geometry I 5 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H3025 Honors-Calculus and Analytic Geometry II 5 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H3033 Honors-Calculus and Analytic Geometry III 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H3213 Honors-College Geometry 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H3513 Honors-Mathematical Statistics 3 Credits
A STUDY OF ADVANCED PROBABILITY THEORY INCLUDING COUNTING TECHNIQUES, PERMUTATIONS, AND COMBINATIONS, PROPERTIES OF RANDOM VARIABLES WITH EMPHASIS ON DENSITY FUNCTIONS, EXPECTED VALUES, ESTIMATORS, MOMENTS AND MOMENT GENERATING FUNCTIONS, AND DISCRETE AND CONTINOUS PROBABILTY DISTRIBUTIONS.

MATH-H3583 Honors-Applied Statistics 3 Credits
AN ADVANCED COURSE IN APPLIED STATISTICS COVERING THE FOLLOWING TOPICS: SAMPLING DISTRIBUTIONS, SUMMARY MEASURES, INTERVAL ESTIMATION, HYPOTHESES TESTING, CHI-SQUARE TEST, ANALYSIS OF VARIANCE, LINEAR AND MULTIPLE REGRESSION, CORRELATION ANALYSIS, FORECASTING, TIME SERIES, AND NONPARAMETRIC METHODS.

MATH-H3713 Honors-Linear Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H3813 Honors-Modern Algebra 3 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H4113 Honors-Differential Equations 3 Credits
INTRODUCTION TO THE THEORY OF ORDINARY DIFFERENTIAL EQUATIONS, DIFFERENTIAL EQUATIONS OF THE FIRST ORDER AND FIRST DEGREE, FIRST ORDER AND HIGHER DEGREE, LINEAR DIFFERENTIAL EQUATIONS, DIFFERENTIAL EQUATIONS OF ORDER HIGHER THAN THE FIRST, APPLICATIONS.

MATH-H4133 Honors-Intermediate Analysis 3 Credits
SOME PROPERTIES OF THE REAL NUMBER SYSTEM, FUNCTIONS, SEQUENCES, LIMITS,DIFFERENTIATION, RIEMANN INTEGRALS.

MATH-H4313 Honors-Introduction to Complex Variables 3 Credits
A STUDY OF THE COMPLEX NUMBER SYSTEM, FUNCTIONS OF A COMPLEX VARIABLE,DIFFERENTIATION, INTEGRATION, SERIES, RESIDUES AND POLES, CONFORMAL MAPPINGS, AND APPLICATIONS TO THE PHYSICAL SCIENCES.

MATH-H4915 Honors-Methods of Teaching Secondary Mathematics 5 Credits
ACROSS ALL MATHEMATICS COURSES, DEPARTMENT OBJECTIVES FOR CONCLUDING STUDENTS' SKILLSET INCLUDE PROBLEM-SOLVING STRATEGIES AND REASONING SKILLS FOR ROUTINE AND NONROUTINE CONTEXTUAL OR NON-CONTEXTUAL PROBLEMS (ABSTRACT AND REAL-WORLD); COMMUNICATING MATHEMATICAL IDEAS ORALLY AND IN WRITING SUCH AS ANALYZING, REPRESENTING, AND GENERALIZING; CONSTRUCT MATHEMATICAL MODELS AS WELL AS UNDERSTAND THE PROCESS OF MODELING MATHEMATICS; AND COMPETENCY WITH SYMBOLIC MANIPULATION AS WELL AS FLEXIBILITY WITH

MATH-H4983 Honors-Seminar- 3 Credits
DIRECTED GROUP STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-H4993 Honors-Individual Studies- 3 Credits
DIRECTED INDIVIDUAL STUDY ON SPECIAL SUBJECT OR PROBLEM.

MATH-S5981 Seminar in Math-Subject Named in Title title listing) 1 Credit
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-S5982 Seminar in Math-Subject Named in Title title listing) 2 Credits
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.

MATH-S5983 Seminar in Math-Subject Named in Title title listing) 3 Credits
DIRECTED INTENSIVE STUDY ON SELECTED PROBLEM OR SPECIAL TOPIC.