Liberal Arts – Associate of Arts/Science

Math & Natural Science
Math

2080422000 Intermediate Algebra
Studies the construction and resulting properties of the real number system. Students simplify and factor algebraic expressions using fundamental laws and order of operations; solve first and second degree equations and inequalities in one variable, systems of equations, and exponential and logarithmic equations; graph first degree and second degree equations and inequalities in two variables; and solve equations involving rational expressions, fractional exponents and radicals. Prerequisite(s): 1083411000 Elem Algebra with Apps (C or better) or 1080413400 Mathematical Reasoning (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 300) or ACT Math score ≥ 20 or Tailwind Math CMath Fund score ≥ 47. 4 credits

2080422400 Algebra for Calculus
Covers properties of the real number system, algebraic expressions, equations and inequalities, functions and graphs, polynomial and rational functions, exponential and logarithmic functions, analytic geometry, matrices, determinants, and systems of linear equations, sequences and series. Prerequisite(s): 2080422000 Intermediate Algebra (C or better) or 2080425000 Quantitative Reasoning (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 416) or (Tailwind Math Adv Alg score ≥ 51 and Tailwind Math Trig Geom score ≥ 56). 4 credits

2080422700 Elementary Math Education I
Covers mathematics content necessary for prospective early childhood and elementary teachers. Topics include foundational and historical concepts from arithmetic and algebra. Prerequisite(s): 1080413400 Mathematical Reasoning (C or better) or 1083411000 Elem Algebra with Apps (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 300) or Tailwind Math CMath Fund score ≥ 47. 4 credits

2080422800 Plane Trigonometry
Covers trigonometric functions and their inverse functions, graphing trigonometric functions, trigonometric identities, solving triangles, solving equations and inequalities, complex numbers in trigonometric form, and polar curves. Prerequisite(s): 2080422000 Intermediate Algebra (C or better) or 2080425000 Quantitative Reasoning (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 475) or (Tailwind Math Adv Alg score ≥ 58 and Tailwind Math Trig Geom score ≥ 15).

2080423000 Statistics
Studies statistical techniques for the systematic collection, presentation, analysis and interpretation of data. Studies statistical inference, including confidence intervals, Types I and II errors, hypothesis testing. Also includes descriptive statistics, basic probability theory, the Central Limit Theorem, distributions, linear regression, and correlation. May require use of a graphing calculator or computer software. Prerequisite(s): 1083411000 Elem Algebra with Apps (C or better) or 1080413400 Mathematical Reasoning (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 300) or Tailwind Math CMath Fund score ≥ 47. 3 credits

2080423600 Calculus and Analytic Geometry I
Covers limits and continuity of functions, the derivative, and its applications. Prerequisite(s): 2080422400 Algebra for Calculus (C or better) and 2080422800 Plane Trigonometry (C or better)) or (UW Math Placement Basic Math score >= 440 and UW Math Placement Algebra score >= 550) or (Tailwind Math Adv Alg score >= 58 and Tailwind Math Trig score >= 57). 5 credits

2080423700 Elementary Math Education II
Includes concepts of proportionality, statistics and probability, plane geometry, the geometry of solids, and measurement. Prerequisite(s): 1080413400 Mathematical Reasoning (C or better) or 1083411000 Elem Algebra with Apps (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 300) or Tailwind Math CMath Fund score ≥ 47. 4 credits

2080424000 Calculus and Analytic Geometry II
Covers transcendental functions, methods of integration, indeterminate forms, improper integrals, Taylor's formula, infinite series, topics from analytic geometry, plane curves, and polar coordinates. Prerequisite(s): 2080423600 Calculus and Analytic Geometry I (C or better). 5 credits

2080424100 Calculus and Analytic Geometry III
Topics covered include differentiation of vectors, space curves and curvature, functions of more than one variable, level curves and level surfaces, limits and continuity, partial derivatives, total differential, tangent planes, the gradient operator, the directional derivative, multivariable forms of the chain rule, locating maxima, minima, saddle points, the method of Lagrange multipliers, multiple integrals in rectangular, polar, cylindrical and spherical coordinates, transformations of multiple integrals and the Jacobian, surface area, applications of multiple integrals to geometry and mechanics, line integrals in two and three dimensions, vector fields, circulation and flux in two dimensions, and Green's Theorem. Prerequisite(s): 2080424000 Calculus and Analytic Geometry II (C or better). 5 credits

2080425000 Quantitative Reasoning
Intended to develop analytic reasoning and the ability to solve quantitative problems. Topics to be covered include construction and interpretation of graphs, basic probability, geometry, and spatial visualizations. This is a suitable final mathematics course for students who do not intend to take

Calculus. Prerequisite(s): 1080413400 Mathematical Reasoning (C or better) or 1083411000 Elem Algebra with Apps (C or better) or (UW Math Placement Basic Math score ≥ 365 and UW Math Placement Algebra score ≥ 300) or Tailwind Math CMath Fund score ≥ 47. 4 credits

Biology
2080620100 Principles of Biology
Introduces the biological principles common to plants and animals. Emphasizes preparing for subsequent biology courses and understanding the health, ecological, and environmental issues facing our society, 4 credits

2080620600 Introduction to Physical Geography
An introduction to the spatial and temporal patterns, processes, origins, and relationships of Earth's systems (atmosphere, biosphere, hydrosphere, and lithosphere). This course will utilize geographic tools and a scientific approach to explore how Earth's systems function, as well as how humans interact with these systems. 5 credits

2080620700 Physical Geography Landforms
Introduction to landforms: their origin, classification, and distribution on the earth's surface. 4 credits

2080620800 Physical Geography Weather & Climate
Studies the elements of weather, weather forecasting, and distribution of the earth's surface. 4 credits

2080620900 General Botany
Survey of plant science, covering morphology, life cycles, taxonomy, ecology, physiology of bacteria, algae, fungi, and non-flowering and flowering plants. Previous college biology course or equivalent recommended. 5 credits

2080621000 General Ecology
Covers organism/environment interrelationships, including human impacts and changes. Discusses evolution, ecological processes, species interactions, communities, and local ecosystems. Designed for those interested in natural resources. 4 credits

2080621100 Intro to Soil and Water Resources
Integrated concepts of soil and water resources at the landscape level. Physical chemical and biological interactions relating to watershed processes and response to land use and management. 4 credits

2080621200 Geographic Information Systems
Includes working with map layers and attribute tables, mapping basics, map design, choropleth maps, pin (point) maps, hyperlinks, data sources, entry, editing, metadata, GIS outputs (print layouts, custom templates, report, graphs), geodatabases, importing spatial and attribute data, map projections, vector spatial data formats, and export data. Additional topics include photos and satellite images, digitizing new features, spatially adjusting vector data, table manipulation, geocoding, basics of spatial analysis, vector and raster data analysis, spatial data processing, terrain models, spatial analysis, optimal routing and location, and site selection. Special project development analysis: Capstone Project. Explores the creation of a model of a problem, gathering data, use spatial analysis tools to edit and manipulate data, solving the problem, and creating a layout of the solution with a map, chart, and table. 3 credits

2080621300 General Zoology
Survey of animal science, covering structure, function, life histories, ecology, and classification of major invertebrate and vertebrate groups. 5 credits

2080621500 Environmental Science
Develops an understanding of environmental concerns and current issues including water resources, total land use, air pollution, biocides, energy use, population, pollution, and health. Examines, ecological, economic, historical, and philosophic views of issues. 3 credits

2080623200 Intro to Forestry Fisheries & Wildlife
Integrates principles of managing forests, fisheries, and wildlife. Focus will be on maintaining ecosystem integrity while human needs for goods and services. 4 credits

Geology
2080623000 Physical Geology
Introduces the student to the composition and structure of the earth, the processes and systems that produce earth's features, and provides a better understand9ing of why the earth's features are constantly changing. Provides a hands-on examination of topographic and geologic maps, earth processes, and identification of rocks and minerals. 4 credits

2080623100 Historical Geology
Examines earth history through three main themes: plate tectonics, organic evolution, and geologic time. Students will come to understand that the dynamic history of the earth, and the complex interaction between the evolution of life and the evolution of the earth. Students develop a new understanding of the fantastic interactions that have resulted in earth's current state. Students will learn the principles of historical geology and how these principles are applied to unraveling earth's biologic and geologic history. 4 credits

Chemistry
2080624000 Survey of Chemistry
Introduces aspects of chemistry that are important for the life sciences, including the study of biochemical processes using atomic theories, structure-reactivity relationships, and thermodynamics. 3 credits

2080624100 Introductory Chemistry
Deals with the composition, characteristics, and changes of atoms and molecules. A laboratory based course, designed specifically for liberal arts students. 5 credits

2080624500 College Chemistry I
First semester of two-semester sequence in general college chemistry which includes the topics of measurement, chemical nomenclature, chemical reactions and stoichiometry, atomic structure, gas laws, thermochemistry, chemical bonding, and solution chemistry. Laboratory work assist in understanding chemical concepts and developing problem-solving skills. Prerequisite(s): 2080422000 Intermediate Algebra (C or better) or 2080425000 Quantitative Reasoning (C or better). 5 credits

2080624900 College Chemistry II
A continuation of 20806245. This course includes applications of the principles to the mathematical treatment of the topics of kinetics, equilibrium, thermodynamics, electrochemistry, coordination compounds, nuclear chemistry, organic structures, and nomenclature. Prerequisite(s): 2080624500 College Chemistry I (D- or better). 5 credits

Physics
2080627600 College Physics I
First semester course of a one-year introductory algebra-based college physics sequence. Appropriate for students wishing to pursue a program of study in the liberal arts, general education, life sciences, or pre-professional programs. Develops a conceptual understanding of the basics of physics and provides practical hands-on laboratory experiences to broaden the understanding of physics and the scientific method. Covers the properties of motion, force, energy, momentum, rotation, fluids, heat, and sound. Stresses developing good problem-solving strategies. Prerequisite(s): 2080422000 Intermediate Algebra (D- or better) or 2080425000 Quantitative Reasoning (C or better). 4 credits

2080628000 College Physics II
Second semester course of a one-year introductory algebra-based college physics sequence. Appropriate for students wishing to pursue a program of study in the liberal arts, general education, life sciences, or pre-professional programs. Continues to develop the student's problem solving skills and conceptual understanding of physics through lecture, demonstrations, and practical hands-on laboratory experiences. Topics studied include electricity, magnetism, geometric and physical optics, and the basics of modern physics. Prerequisite(s): 2080627600 College Physics I (D- or better). 4 credits

2080628600 College Physics I Calculus Based
First semester course of a one-year introductory calculus-based college physics sequence. Intended for students wishing to pursue a program of study in the natural sciences or engineering fields. Students will develop a conceptual understanding of physics, as they explore the theoretical and experimental treatment of mechanics, material properties, fluids, heat, sound, and wave motion. Critical thinking and sound problem solving skills are stressed. Prerequisite(s):

2080423600 Calculus and Analytic Geometry I (D- or better) (concurrent enrollment allowed). 5 credits

2080628700 College Physics II Calculus Based
Second semester course of a one-year introductory calculus-based college physics sequence. Intended for students wishing to pursue a program of study in the natural sciences or engineering fields. Topics covered include electricity, magnetism, electro-magnetic waves, optics, and an introduction to modern physics. Completion of the sequence provides a background for more advanced work in these fields. Prerequisite(s): 2080628600 College Physics I Calculus Based (D- or better). 5 credits