

LIBERTY UNIVERSITY

ONLINE ACADEMY

Associate of Science - STEM (Mathematics): Course Descriptions

Summer Semester after 10th Grade

UNIV 104 (CSB 3101) – Instructional Technology for Successful Online Learning

Designed to equip students for success as they transition into the online classroom, this course offers strategic information tailored to ensure academic excellence in this unique learning environment; this information includes Liberty University's foundations and beliefs, Liberty University Online resources for success, Blackboard navigation techniques, time management strategies, the adult learner's responsibilities, methods for identifying and avoiding academic misconduct, scholarly research tactics, and approaches for selecting the appropriate courses towards completion of the preferred degree program.

College Credits: 3

GOVT 220 (HIS 3220) – American Government

The issues, interest and institutions of American politics, emphasizing the struggle between liberalism and conservatism.

College Credits: 3

11th Grade - Fall Semester

ENGL 101 (LAN 3101) – Composition & Rhetoric

Through the critical engagement of a variety of texts, including written, oral, and visual, this course prepares students to become careful readers, critical thinkers, and skilled writers. Drawing upon rhetorical theory, it emphasizes the practices of analytical reading, informed reasoning, effective writing, and sound argumentation. The course requires 4,000 words of writing in no fewer than five writing projects, three of which are argumentative essays incorporating external sources.

College Credits: 3

RLGN 104 (BIB 3107) – Christian Life & Biblical Worldview

This is a study in the development and application of the biblical worldview. This course will include an introduction and application of critical thinking skills, as well as a study of religious and philosophical worldviews. Special attention will be given to the theology and methodology of evangelism.

College Credits: 4

ENGL 102 (LAN 3102) – Composition & Literature

Composition and Literature continues the emphasis on writing. Two analytical papers—based upon studies of the short story, poetry, and drama—and a research paper, sequentially developed, are required.

College Credits: 3

Course Prerequisites: ENGL 101

BIBL 104 (BIB 3106) – Survey of Old & New Testament

This survey course is designed to lay a foundational understanding of Scripture via a historical survey of the Old and New Testaments. The student will engage a range of learning activities related to the issues interacting with biblical literature, basic hermeneutical principles, key themes and persons of the canon, and the redemptive theme of Scripture.

College Credits: 4

11th Grade - Spring Semester

COMS 101 (LAN 3103) – Speech Communication

Study and practice in communicating ideas competently in public speaking. Students are also given a foundation for the development of communication skills in other human communication contexts, including dyadic and small group communication.

College Credits: 3

BIOL 101 (SCI 3101) – Principles of Biology

An examination of the fundamental characteristics common among living things. Emphasis is placed upon studies of the cell, energy, metabolism, reproduction, heredity, ecology, phylogeny and the diversity of life.

College Credits: 3

PSYC 101 (ASC 3101) – General Psychology

Introduction to Psychology as a scientific discipline concerned with the study of behavior. Consideration will be given to such topics as human development, motivation, emotion, perception, learning, personality, intelligence, measurement, and applied areas.

College Credits: 3

**Subject material may be considered sensitive by some students*

PHSC 121 (SCI 3121) – Introduction to Astronomy

An overview of the principles of astronomy as related to the Solar System for non-science majors.

College Credits: 3

Summer Semester after 11th Grade

MATH 128 (MAT 3128) – Elementary Functions and Coordinate Geometry

A pre-calculus course that includes the study of elementary functions, their graphs and applications including polynomial, rational, algebraic functions, exponential, logarithmic and circular or trigonometric functions. For students with strong high school preparation in mathematics but who are not ready for calculus.

College Credits: 4

Course Prerequisites: MATH 121 or SAT/ACT

PHYS 201 (PHY 3201) – General Physics I

A study of mechanics, gravitation, waves, sound, heat, light, electricity and magnetism, optics and modern physics from a non-calculus perspective.

College Credits: 4

Course Prerequisites: MATH 121

12th Grade – Fall Semester

MATH 131 (MAT 3131) – Calculus and Analytic Geometry I

Functions and graphs, exponential, logarithmic, inverse trigonometric, limits, the derivative, techniques of differentiation, continuity, applications of differentiation, L'Hopital's Rule, the integral.

College Credits: 4

Course Prerequisites: MATH 128 (Minimum grade of C)

ENGL 202 (LAN 3202) – American Literature II

A survey of American literature following the American Renaissance. Two critical papers required.

College Credits: 3

Course Prerequisites: ENGL 101 & ENGL 102

MATH 132 (MAT 3132) – Calculus & Analytic Geometry II

Techniques of integration, improper integrals, applications of integration, introduction to differential equations, sequences, infinite series, parameterizations of curves.

College Credits: 4

Course Prerequisites: MATH 131 or ENGR 131 (Minimum grade of C); Basic proficiency in a computer algebra system

CSIS 110 (CSB 3009) – Intro to Computing Sciences

A breadth-first introduction to the computing disciplines, with an emphasis on computer ethics and how computing technology impacts the world. Topics include computing history; discrete mathematics; computer architecture and organization; algorithm design; languages; compilers; operating systems; applications; networks; databases; intellectual property; privacy; free speech; social consequences; computer crime; and codes of conduct.

College Credits: 3

Course Prerequisites: MATH 121 or higher

12th Grade – Spring Semester

MATH 211 (MAT 3211) – Introduction to Statistical Analysis

An introduction to statistical analysis for students with a background in calculus. Topics covered are probability distributions, expectation, statistical inference, regression, and correlation.

College Credits: 3

Course Prerequisites: MATH 131

THEO 104 (BIB 3104) – Intro to Theology Survey

This course is an introduction to the basic tenets of Christianity.

College Credits: 4

MATH 250 (MAT 3250) – Introduction to Discrete Math

Logic and proofs, set theory, Boolean algebra, functions, sequences, matrices, algorithms, modular arithmetic, mathematical induction, and combinatorics.

College Credits: 3

Course Prerequisites: MATH 121, 128, 131, or ENGR 131 (Minimum grade of C)

PHSC 210 (SCI 3210) – Elements of Earth Science

A study of the principles of physical and historical geology, oceanography, and meteorology.

College Credits: 3