

LIBERAL ARTS & SCIENCE: NATURAL SCIENCES (A.S.) PROGRAM STUDENT LEARNING OUTCOMES

Upon successful completion of the Liberal Arts & Science: Natural Sciences, A.S. the student will be able to:

1. Apply quantitative skills to solve scientific problems.
2. Produce results or findings scientific investigations or experimentation, documenting as appropriate.
3. Analyze and interpret scientific data.
4. Design solutions to scientific problems, based upon carefully planned and executed processes.
5. Explain the foundational theories and principles of at least one of the major fields of the natural sciences (biology, chemistry, physics).
6. CHEMISTRY Concentration
 1. Describe the properties of compounds (type of bonding, orbital overlap, geometry, polarity, intermolecular forces, etc.).
 2. Perform all steps of stoichiometry calculations for chemical reactions.
7. BIOLOGY Concentration
 1. Demonstrate how evolutionary forces shape organisms, leading to changes in species over time.
 2. Explain how structure is essential for function in life from the atomic level to the organism level.
 3. Explain the functioning of the hereditary process (storage, use, replication of genetic information).
8. PHYSICS Concentration
 1. Apply a variety of physics principles to scientific problems (mechanics, thermodynamics, electromagnetism, waves and optics, relativity, quantum mechanics, etc.).
 2. Use advanced quantitative skills to solve physics problems (calculus, vector arithmetic, differential equations, linear algebra, etc.).
9. ENVIRONMENTAL SCIENCE concentration
 1. Assess relationships in ecosystems between living organisms and the environment in which they live.
 2. Solve scientific problems associated with the environment through the evaluation of evidence.