Biology
SCI1000

Course Description
Biology is an examination of God’s living creations, from the smallest bacterium to the massive blue whale, the largest creature on the Earth. God is definitively presented as the Creator of life according to the description on the pages of Genesis. A wide variety of topics will be discussed including the scientific method, cells, genetics, taxonomic classifications of organisms, human anatomy, and topics in evolution from a creationist perspective. Students will be challenged to think critically about the intricacies of God’s creation.

Rationale
The study of biology allows students an opportunity to view and better understand life as a big picture. An appreciation of biology gives students a deeper understanding of their Creator. Students are given the opportunity to examine living organisms from the cellular level to the ecosystem in which the organism lives. Biology also allows students to explore the significance of both historical and modern scientific discoveries.

Prerequisite
None

Biblical Integration Outcomes
A. The student will demonstrate an understanding of a biblical worldview as it relates to biology
B. The student will investigate and understand the creation account in Genesis and how it relates to biology
C. The student will evaluate and compare biological evolution with creation models regarding the origin of life, biological change, and the relatedness of species

Measurable Learning Outcomes
A. The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations
B. The student will investigate and understand the chemical and biochemical principles essential for life
C. The student will investigate and understand relationships between cell structure and function
D. The student will investigate and understand life functions of archaea, bacteria, and eukarya
E. The student will investigate and understand common mechanisms of inheritance and protein synthesis
F. The student will investigate and understand bases for modern classification systems
G. The student will investigate and understand how populations change through time
H. The student will investigate and understand dynamic equilibria within populations, communities, and ecosystems

Course Materials
See LUOA's Systems Requirements for computer specifications necessary to operate LUOA curriculum. Also view Digital Literacy Requirements for LUOA's expectation of users' digital literacy.

- Note: Embedded YouTube videos may be utilized to supplement LUOA curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the Jerry Falwell Library.

Course Grading Policies
The student's grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades Page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student's grade are found in Tier 0.

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>Assignment Weights</th>
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</thead>
<tbody>
<tr>
<td>A 90-100%</td>
<td>Tier 0 0%</td>
</tr>
<tr>
<td>B 80-89%</td>
<td>Tier 1 25%</td>
</tr>
<tr>
<td>C 70-79%</td>
<td>Tier 2 35%</td>
</tr>
<tr>
<td>D 60-69%</td>
<td>Tier 3 40%</td>
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<tr>
<td>F 0-59%</td>
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Course Policies
Students are accountable for all information in the Student Handbook. Below are a few policies that have been highlighted from the Student Handbook.

Types of Assessments
To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, “1.2.W Quiz: The American Revolution.” These identifiers were placed on the Modules
page to help students understand which Honor Code and Resubmission policies apply to that
assessment (see the Honor Code and Resubmission policies on the pages that follow for further
details).

- **Lesson:** *Any item on the Modules page designated as a “Lesson”*
  These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an “Assignment”*
  Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a “Quiz”*
  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a “Test”*
  This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

**Resubmission Policy**

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a Lesson. The student may freely resubmit for their first two attempts without the need for teacher approval.

- **Assignment:** Students are intended to do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4 but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.

- **Quiz:** Students may NOT resubmit for an increased grade.

- **Test:** Students may NOT resubmit for an increased grade.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request, and that request will need to be approved by a Department Chair.

**Consequences for Violations to the Honor Code**

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:
• **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
  
  • **Lessons:** A zero will be assigned for the question only.
  • **Elementary/Middle School Assignment:** The student must redo his or her work; however, the student may retain his or her original grade.

• **1st Offense:**
  
  • **Lesson, Quiz, or Test:** The student will receive a 0% on the entire assessment.
  • **Assignment:** The student will either:
    
    • Receive a 0% on the original assignment
    • Complete the Plagiarism Workshop
    • Retry the assignment for a maximum grade of 80%

• **2nd Offense:** The student will receive a 0% and be placed on academic probation.

• **3rd Offense:** The student will receive a 0% and the Faculty Chair will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.
Scope and Sequence

Biology

Module 1: Introduction to Biology
Week 1: Course Expectations
Week 2: Origins of Life & Science
Week 3: Scientific Method
Week 4: Module Assessment

Module 2: Molecular Biology
Week 5: Matter
Week 6: Biomolecules
Week 7: Ionic Compounds
Week 8: Module Assessment

Module 3: Cell Biology
Week 9: Cell Basics
Week 10: Cell Transport
Week 11: Cell Energy Production
Week 12: Module Assessment

Module 4: Mendelian and Molecular Genetics
Week 13: Cellular Division
Week 14: Medelian Genetics
Week 15: Molecular Genetics
Week 16: Module Assessment

Module 5: Classification of Organisms
Week 17: Scientific Classification
Week 18: Semester Assessment

Module 6: Kingdoms Eubacteria, Archaea, Protista and Fungi
Week 19: Kingdoms Eubacteria and Archaea
Week 20: Kingdom Protista
Week 21: Kingdom Fungi
Week 22: Module Assessment

Module 7: Kingdom Plantae
Week 23: Plants
Week 24: Plant Characteristics
Week 25: Plant Types
Week 26: Module Assessment

Module 8: Kingdom Animalia
Week 27: Vertebrates
Week 28: Invertebrates
Week 29: Module Assessment

Module 9: Human Anatomy and Environmental Impact
Week 30: Human Anatomy: Part I
Week 31: Human Anatomy: Part II
Week 32: Human Anatomy: Part III
Week 33: Ecology
Week 34: Module Assessment

Module 10: Evolution
Week 35: Understanding Evolution
Week 36: Semester Assessment