

**Course Purpose / Objective**

The objective of this course is that each student gain biological literacy: being able to understand biological concepts, make moral and ethical judgments about biological issues, and solve real-world problems that involve biology. This course will be taught from a Christian perspective.

Literacy Level	Description	Behavior
Nominal	Recognizes a term as "biological"	Associates "zygote" with biology
Functional	Defines or describes a term from memory	Zygote = cell formed by union of sperm and egg
Structural	Constructs appropriate meaning of concept based upon his/her own understanding/experiences	Zygote is the beginning of a new generation of life in sexually reproducing species
Multidimensional	Applies knowledge to solve real-world problems	How should my spouse and I deal with our apparent infertility?

**Instructor**

Eric Allen Brucker PhD  
 ebrucker@rmlhs.org

**Textbooks**

Prentice Hall Biology (© 2006) K. Miller & J. Levine *text on CD-ROM*  
 Biology: Principles and Perspectives (© 2001) J. Silvius *additional material*

**Course Outline**

Unit 1	Chapter 1	Nature of Life	science of biology
Unit 1.5		Origin of Life	creation vs. evolution
Unit 2	Chapter 3	Ecology	biosphere
Unit 3	Chapters 7-10	Cells	structure & function, growth & division
Unit 4	Chapters 11-14	Genetics	introduction to genetics, DNA & RNA
Unit 6	Chapters 19-21	Microorganisms & Fungi	bacteria & viruses, protists, fungi
Unit 7	Chapters 22-23	Plants	roots, stems, & leaves
Unit 8	Chapter 26	Invertebrates	introduction to animal kingdom
Unit 10	Chapter 38	The Human Body	digestive & excretory systems

**Workload and Grading**

homework	one per section, 1 point per question (about 10 questions each section)
quizzes	one per section, 1 point per question (15 questions per chapter)
exams	one per chapter, 50 points each
labs	as needed, 50 points each
finals	one per semester, 50 points each

**Required Materials**

class	1" three-ring binder and three hole punched paper, black or blue pen
laboratory	composition book (to be used as lab notebook), black or blue pen

**Rules**

Respect & Safety (see also Student Handbook)

**Procedures**

seating	assigned (at lab tables) bring everything needed for class including planner may bring a drink but not food (except during laboratory exercises)
behavior	in class: mature adolescent Christian, "eyes here" in lab: extremely careful, no horseplay
homework	handed in on due date, always individual work (no groups), "over and up, yours on top"
cabinets	closed cabinets off-limits (except under microwaves) open bookshelf for reference materials (all which stay in room)
dismissal	bell for instructor, then instructor dismisses class
tardy	stand at door and ask permission to enter during natural break
absent	receive assignments from classmate

**Laboratory Exercises**

The heart of any biology course is hands-on laboratory work, which compliments, reinforces, and extends the material presented during a lecture. Eye protection, laboratory materials, and equipment are provided. Students are to keep a laboratory notebook documenting each experiment. Note that certain exercises are dissections of once-living organisms and other labs may be virtual.

**Laboratory Procedures / Safety Contract**

I understand a biology laboratory has the potential to be either a safe or dangerous place depending upon my adherence to safe laboratory practices.

1. No food or drink; never put anything in mouth.
2. Wear safety goggles; remove dangling jewelry, roll up long sleeves, and tie back long hair.
3. Maintain an open, clean, and organized work area, free of everything except those materials necessary for the investigation.
4. Never work alone and never perform unauthorized experiments.
5. Keep hands and other body parts away from sharp ends of instruments such as scalpels, dissecting needles, or scissors (e.g. do not dissect while holding specimen).
6. Report an unsafe incident, spill, or accident to the instructor immediately.
7. Clean up thoroughly, including washing hands.
8. Approach laboratory work with maturity!

To keep myself, my fellow labmates, and my instructor safe, I will practice the above procedures in the laboratory.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**Writing Laboratory Reports**

Discoveries become a part of science when they are communicated. In writing, scientists must express themselves so clearly that a person can repeat their procedures exactly and be able to understand every detail of their work. Scientific reports for RMLHS biology will be written into a laboratory notebook using the following form:

1. Title	02 pts	name of laboratory exercise
2. Purpose/Objectives	05 pts	why this lab is being performed
3. Safety	05 pts	lose 5 points per infraction
4. Materials & Equipment	05 pts	list of all supplies needed
5. Procedure	10 pts	account of methods, what you did
6. Results & Observations	10 pts	data obtained from the procedure
7. Analysis & Discussion	10 pts	meaning of results with answers to lab questions
8. Sign & Date	03 pts	verify work at bottom of every page