

Maybeck HS  
Biology  
Shyam Sundar

The Biology course is a first-year course in biology at the high school level. The course emphasizes a multi-representational approach to algebra, with concepts, results, and problems being expressed graphically, analytically, and verbally. The course will attempt to integrate concepts and ideas from various disciplines such as chemistry, physics and environmental science. The course uses four themes to organize important concepts throughout the course: science, technology, and society; evolution; the relationship between structure and function; and science as a process.

The Biology course involves the scientific study of living organisms. The course considers the interactions among the vast number of organisms that inhabit planet Earth. It presents the basic form and function of these organisms, from cells to organ systems, from simple viruses to complex humans. It delves into interactions between organisms, and between an organism and its environment. It also looks into how biotechnology is used to improve our health and daily lives.

### Course Objectives

After completing this course students will be able to:

- Understand basic biochemistry
- Understand the makeup and energetics of plant and animal cells
- Determine basic inheritance patterns
- Understand the basic classification of organisms
- Understand the form and function of microorganisms
- Understand the form and function of plants
- Understand the form and function of animals
- Understand the workings of human biological systems
- Understand biology as it relates to the Earth's environment

Grading:

Homework: 20% Lab Reports 20% Exams 50% Unannounced Quizzes 10%

Lecture Schedule (Tentative)Lab

9/22-9/23	Introduction, Basic Chemistry	
9/26-9/30	Macromolecules	Scientific Method
10/3-10/7	Cell Biology	Microscopy, Cheek cell mount
10/10-10/14	Enzymes Cell Respiration	Diffusion and Osmosis
10/17-10/21	Photosynthesis	Photosynthesis
10/24-10/28	Cell Division	Respiration Lab
10/31-11/4	Genetics	Mitosis Meiosis
11/7-11/11	Molecular Genetics	Mutations lab/Bacterial Swabs
11/14-11/18	Microbiology	Bacterial swabs lab
11/28-12/2	Evolution	Hardy Weinberg lab
12/5-12/9	Ecology/Animal Diversity	Al Gore Movie
12/12-12/16	Plant Diversity	Genetics Lab
1/2-1/6	Plant Nutrition	Transpiration lab
1/9-1/13	Plant Reproduction	Review for Final
1/30-2/3	Nervous System	Action Potential lab
2/6-2/10	Endocrine System	Daphnia lab
2/13-2/17	Muscle	Muscle action potential
2/20-2/24	Cardiovascular System	Cardiovascular lab
2/27-3/2	Respiration, Excretion	Urinalysis lab
3/5-3/9	Excretion, Digestion	Macromolecules lab
3/12-3/16	Growth and Metabolism	Nutrition lab
3/19-3/23	Special Topic: Diseases of metabolism	
4/16-4/20	Male Reproduction	Male Contraception

4/23-4/27	Female Reproduction	Female Contraception
4/30-5/3	Development	Embryonic histology
5/6-5/10	Animal Behavior	Snail Responses
5/14-5/18	Cancer Biology	
5/21-5/25	Heart Disease	
5/28-6/1	Final Review	

### Course Policies

1. Late homework and late labs will be accepted only three times all semester and will have to be accompanied by a note from the parent stating the excuse. There will be a grade penalty for lates, for each day's delay, 10% of the grade will be deducted.
2. You may miss no more than 2 exams in a semester. I will need a note from parent as well as a doctor's note if you were sick.
3. Exams will be short answer format. If you perform poorly (D or F) on exams, you may do the correction work for a maximum of 50% of the original grade. This you may do for a maximum of 3 exams per semester. This CANNOT carry over to the spring.
4. Final exams will be comprehensive.
5. More than three lates and or no turn-ins will result in information to your parent as well as to the Rules Committee for further action.
6. Disruptive classroom behavior will result in disciplinary action.