

August 2015

Greetings! My name is Debra Hansen, and I am the new UIL Biology Director for the 2015-16 year. I believe my approach to the study of biology (and to the UIL contest) is very similar to that of my predecessor, Dr. Jennifer Fritz, and I am hoping this will provide you with a sense of continuity from previous years.

UIL Biology 2015-16 List of Main Topics (same as previous year!)

1. Structure Relates To Function

Basic Biochemistry, Basic Cell Biology, Biological Membrane

2. Energy is Stored, Used And Transformed In Living Systems

Respiration, Photosynthesis, Metabolism, Enzyme kinetics

3. Gene Expression

DNA, RNA, and Proteins, Protein synthesis
Regulation of gene expression
DNA Technology

4. Genetics and Inheritance

Mendelian inheritance, Molecular inheritance: Chromatin/chromosomes/chromatids
Genome Structure/Human Life Cycle, Cell Division and its regulation, Mitosis and Meiosis

5. Evolution

Microevolution: Selection, Mutation, Migration, Genetic Drift
Evidence of Macroevolution, Speciation and Extinction

6. Origin and Diversity of Life on Earth

The Three Domains of Life, Animal and Plant Behavior, Biological Hierarchy

7. Ecology and the Environment

Population Biology, Community Dynamics, Biogeochemical Cycles

Exam Topics and Student Preparation Suggestions:

Each contest will encompass all 7 main biological topics with increasing level of difficulty as we progress from the Invitational to the State meets. Encourage your students to *read the question prompts carefully* before they look at the possible answers! I will include application-based questions as well as detailed content-based questions.

Participants should expect 3 levels of questions. Approximately 75% of the UIL exam will consist of questions from levels 1 and 2 and 25% of the UIL exam will draw from level 3 questions. The relative level of difficulty will increase with each exam tier.

1. **Knowledge and Comprehension:** Advanced recall and identification of subject matter.
2. **Application and Analysis:** Demonstration of quantitative reasoning using and generating graphs and data.
3. **Synthesis and Evaluation:** Using information and prior content knowledge to formulate conclusions and generate hypotheses.

Recommended Textbook Resources: *Biology* by Campbell et al. (9th or 10th ed)

Recommended Online Resources:

University of Texas Bio 311C site: <http://bio311.biosci.utexas.edu/>

Learn Genetics University of Utah: <http://learn.genetics.utah.edu/>

Kimball's Biology Pages: <http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/>

To all the coaches and students, thank you for your dedication and hard work!

Best Regards,

Debra

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