

Advanced Topic Lesson Catalog

Topic: Advanced Enzyme Kinetics and Other Topics in Biochemistry

Time: 1 hour

Description: Learn enzyme kinetics models like Michaelis Menten and Lineweaver Burk and how they can be applied to biology problems. In addition, explore various biochemical pathways including those leading to the synthesis of the major macromolecules.

Topic: Biostatistics

Time: 1-2 hour(s)

Description: Learn topics of statistics that are relevant in biological contexts such as performing T and Chi Square tests. In addition, get practice with Biology Olympiad style questions using these concepts. This lesson will take 1 or 2 hours to cover based on the student's background in statistics.

Topic: Histology

Time: 1 hour

Description: Learn how to identify animal cells from microscope images. This lesson will also cover histological procedures including blood stains and frog blood smears.

Topic: Advanced Topics in Botany

Time: 2-3 hours

Description: Learn material from select chapters of Raven's *Biology of Plants*. This lesson will have a strong focus on identifying features in plant cross-section images. This lesson will take 2 or 3 hours depending on the student's background in plants and on time restraints.

Topic: Advanced Topics in Genetics

Time: 1-2 hour(s)

Description: Genetics problems often involve both specialized knowledge and strong critical thinking skills. Learn many advanced genetics topics and master them by applying them to relevant problems. This lesson will take 1 or 2 hours depending on the student's background in genetics.

Topic: Problem Solving Skills

Time: 1+ hour(s) (2-4 recommended)

Description: Complete practice tests on your own, then, during the lesson, learn the specialized knowledge and test strategies to help you answer the problems you had trouble with. This lesson can be done as many hours as the student desires, though the recommended time is 2-4 hours.