

Bioethics and Genetics Course Outline

Course Intro and What is Bioethics?	<p>Identifying Bioethical topics and the types of questions within these topics.</p> <p>Acquiring skills surrounding Ethics: collecting relevant facts, identifying stakeholders.</p> <p>Applying ethical principles of autonomy, justice, beneficence and maleficence.</p>
Introduction to Major Bioethical Themes	<p>History of Ethics, Scientific Research Ethics, Allocation Ethics, End of Life Ethics and Environmental Ethics</p>
Foundations of Genetics	<p>Highlight bridge between Ethics and Genetics</p> <p>Review of DNA and RNA</p> <p>DNA Extraction Inquiry Lab</p>
DNA Replication and Cell Division	<p>Review DNA Replication and Cell Division</p> <p>Part I: Pipetting Practice LAB</p> <p>Part II: Pipetting Art and stations LAB</p>
Central Dogma	<p>Review of Protein Synthesis</p> <p>BioBits Central Dogma Lab</p> <p>Mutations</p>
Cell Differentiation and Gene Regulation	<p>Regulation of Gene Expression: prokaryotes vs eukaryotes</p> <p>Gene Regulation Lab</p> <p>Pivot Gene Regulation Yeast Lab</p> <p>Lac Operon Activity</p>
Epigenetics	<p>Understanding methylation and histone modification</p> <p>Examining Case Studies Surrounding Epigenetics</p> <p>Film: 3 Identical Strangers</p>
Transformation	<p>Plasmids, Understanding Genetic Modification</p> <p>Ethics of GMO's</p> <p>CRISPR Lab</p> <p>Ethics of CRISPR and Genetic Editing</p>
DNA Replication and Cell Division	
PCR and Gel Electrophoresis	<p>Making a DIY Gel Electrophoresis Lab</p> <p>Pivot Gel Electrophoresis Lab</p> <p>Case Study Earl Washington</p> <p>hmi Bacterial ID Virtual Lab</p>

	<p>Viral Diagnostics Lab Bioethics in Virus Diagnostics and Vaccines</p> <p>Lemur Diversity Lab Conservation Ethics</p>
<p>Introduce Mendelian Genetics and Laws</p>	<p>Plant Seeds for Genetics Corn Lab Review of Monohybrid Crosses</p> <p>Pivot Genetics Single Trait Lab Pivot Fruit Fly Single Trait Crosses Review of Dihybrid Crosses Pivot Fruit Fly 2 trait Crosses Lab Mendelian Corn Genetics Lab (w/ plants)</p>
<p>Complex Inheritance</p>	<p>Lesson on Linked Genes Mapping a Chromosome Lab Pivot control of linked genes Corn Lab and Chi Square Tests Complex Inheritance Review Polygenic inheritance and eye Case Study</p>
<p>Capstone Project</p>	<p>Choice of a Genetics of Bioethics topic you would like to research and teach a lesson on.</p>