

## BIO105: Genetics

This course provides an overview of genetics for biology majors. Topics covered will include:

Basic Mendelian genetics

Chromosome theory of inheritance

Mitosis & meiosis

Medical genetics, Dominance variations, multiple alleles

Linkage and recombination mapping

Mutation and chromosomal rearrangements

Gene function, one gene/ one enzyme

Gene function, Transcription, splicing & translation

Concepts and techniques in recombinant DNA

Concepts in Genomics

Chromosomal organization

Epigenetics

Control of gene expression

<p><b>1</b></p> <p>Introduction:</p> <p>Basic Mendelian Genetics</p> <p>Reading:</p> <p>5th Ed: 2-1, 2-2, 2-3</p> <p>4th Ed: 2-1, 2-2, 2-3</p>	<p><b>2</b></p> <p>DNA, Mitosis and Meiosis</p> <p>Chromosome Theory of Inheritance and Sex chromosome</p> <p>Reading:</p> <p>5th Ed: 6-2, 6-3, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7</p> <p>4th Ed: 6-2, 6-3, 4-1, 4-2, 4-3, 4-4, 4-5</p>
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<p><b>3</b></p> <p>Dominance Relationships</p> <p>Linkage</p> <p>Reading:</p> <p>5th Ed: 3-1, 3-2(part), 5-1</p> <p>4th Ed: 3-1, 3-2(part), 5-1</p>	<p><b>4</b></p> <p>Mapping</p> <p>Recombination</p> <p>Reading:</p> <p>5th Ed: 5-2, 5-3, 5-4, 6-5(optional)</p> <p>4th Ed: 5-2, 5-3, 5-4, 6-5(optional)</p>
<p><b>5</b></p> <p><a href="#">MIDTERM</a></p> <p>Epistasis-Genetic pathways</p> <p>Reading:</p> <p>5th Ed: 3-2 (part)</p> <p>4th Ed: 3-2 (part)</p>	<p><b>6</b></p> <p>Transcription, Translation</p> <p>Complementation</p> <p>Gene to Protein Relationship</p> <p>Reading:</p> <p>5th Ed: 8-1, 8-2, 8-3, 8-4, 11-1, 11-2, 15-1, 16-1, 16-2, 7-1, 7-2, 7-3, 7-4</p> <p>4th Ed: 8-1, 8-2, 8-3, 8-4, 12-1, 12-2, 15-1, 16-1, 16-2, 7-1, 7-2, 7-3</p>
<p><b>7</b></p> <p>Chromosomal Rearrangements</p> <p>Mutation</p> <p>Reading:</p> <p>5th Ed: 12-1, 12-2, 12-4, 12-5, 7-1, 8-5</p> <p>4th Ed: 13-1, 13-4, 7-1, 8-6</p>	<p><b>8</b></p> <p>Recombinant DNA</p> <p>Blotting</p> <p>Reading:</p> <p>5th Ed: 9, 17</p> <p>4th Ed: 9 and 10</p>
<p><b>9</b></p> <p>Genetic Polymorphisms</p> <p>Genomics</p>	<p><b>10</b></p> <p>Epigenetics</p> <p>Control of Gene (Lac) Expression</p>

Reading:

5th Ed: 10

4th Ed: 11-1, 11-2, 11-3, 11-6

Reading:

5th Ed: 11-3, 16-3, 15-1, 15-2

4th Ed: 16-3, 12-3, 15