

# Unit Outline for Strand 3: Genetics

## Genetic Terms and Problems

### Scientists and Experiments

- Griffiths
- Hershey and Chase
- Chargaff
- Messelson and Stahl
- Avery et al.
- Franklin and Wilkins
- Watson and Crick
- Sanger

### DNA

- Chromosomes and Genes
- Structure of DNA
- DNA Replication

### Protein Synthesis

- DNA vs. RNA
- Transcription
- Translation
- Genetic code

### Genetic Mutations

- Harmful vs. Beneficial (effect on protein)
- Non-sense, Mis-sense, Neutral
- Point, Frameshift, Inversion, Duplication, Translocation, etc.

### Gene Control

- Lactose Operon
- Tryptophan Operon
- Eukaryotic Gene Control (4 Levels of Control, Introns/Exons)

### Biotechnology

- DNA Extraction From Thymus
- Recombinant DNA
- Biotechnological Tools and Techniques (ie. restriction enzymes)
- DNA Fingerprinting, PCR
- Sanger Method of DNA sequencing