**Fall 2011**  **Lecturer: Ewing**

**BIO 2**

**Cells, Molecules and Genes**

**Schedule**

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| **Week** | **Lecture Date** | **Topic** | **Reading** | **Activity** | **Lab** |
| 1 | Aug 30 | Course IntroductionEvolution Defines BiologyChemistry and Life |   Chapter 1: 1-25 Chapter 2: 30-44 | * Introduction to Activities
* Chapter 2 Review
 | Introduction,Lab Safety, Lab NotebookLab 1: Measurement Madness |
| Sept. 1 | Chemistry: Water, Carbon and Life | Chapter 3: 46-56Chapter 4: 58-66 |
| 2 | Sept. 6 | Chemistry: Macromolecules | Chapter 5: 68-90 | * Exploring Macromolecules: Protein Folding
 | **No Lab this week** |
| Sept. 8 | Chemistry: Macromolecules | Chapter 5: 68-90 |
| 3 | Sept. 13 | Cell Structure-- A Tour of the Cell | Chapter 6: 94-123 | * Concept mapping Ch. 6. (Bring book/notes to class.)
 | **Lab 2:**  Macromolecules |
| Sept. 15 | Cell Structure--A Tour of the Cell | Chapter 6: 94-123 |
| 4 | Sept. 20 | Membrane Structure and Function | Chapter 7:125-140 | * Acting Transport
* Exam 1 review
 | **Lab 3:** Diffusion/Osmosis/Tonicity |
| Sept. 22 | Membrane Structure and Function |   Chapter 7: 125-140 |
| 5 | Sept. 27 | **Lecture Exam 1** |  | * Introduction to Genes and Disease
* Mystery Gene
 | **Lab 4:** Preparing and Transforming Competent Cells |
| Sept. 29 | Thermodynamics and Enzymes  | Ch 8: |
| 6 | Oct. 4 | The Molecular Basis of Inheritance | Chapter 16: 305-324 | * Bioinformatics: Pompe Disease
* How to cite references properly
* Plagiarism exercise
 | **Lab 5:** Plasmid Prep and Restriction Digest |
| Oct. 6 | The Molecular Basis of Inheritance | Chapter 16: 305-324 |
| 7 | Oct. 11 | From Gene to Protein: Transcriptionand Translation | Chapter 17: 325-350 | * Bioinformatics: Fox P2
* (Intro to PCR?)
 | **Lab 6:** Agarose Gel Electrophoresis and Restriction Analysis |
| Oct. 13 | From Gene to Protein: Transcription and Translation | Chapter 17: 325-350 |
| 8 | Oct. 18 | Regulation of Gene Expression | Chapter 18: 351-366; 373-378 | * Exam 2 Review
* (Due: First draft of Gene structure diagrams—normal gene and its products)
 | **Lab 7:** GMO I |
| Oct. 20 | Regulation of Gene Expression | Chapter 18: 351-366; 373-378 |
| 9 | Oct. 25 | **Exam 2** |  | * Genes and Disease Presentations
 | **Lab 8:** GMO II |
| Oct. 27 | Cell Communication | Chapter 11:  |
| 10 | Nov. 1 | Cell Cycle | Chapter 12: 228- 244 | * Case Studies in Cell Communication and Control of the Cell Cycle
 | **Lab 9:** Mitosis |
| Nov. 3 | Meiosis and Sexual Life Cycles | Chapter 13: 248-261 |
| 11 | Nov. 8 | Mendel and the Gene | Chapter 14: 262-284 | * Genes and Disease in class work time
* Personal Genomics video
 | Mendelian Genetics? |
| Nov. 10 | Mendel and the Gene | Chapter 14: 262-284 |
| 12 | Nov. 15 | Chromosomal Basis of Inheritance | Chapter 15: 286-303 | * Phenotypes, Probabilities and Pedigrees
 | **Lab 10:** Fermentation |
| Nov. 17 | Chromosomal Basis of Inheritance |  Chapter 15: 286-303 |
| 13 | Nov. 22 | **Exam 3** |  | * **No Activity sections this week**
 |  **No labs this week** |
| Nov. 24 | **Thanksgiving Campus Closed** |   |
| 14 | Nov. 29 | Energy Transfer: Metabolism and Enzyme Activity | Chapter 8: 142-161 | * “Why is Patrick Paralyzed” Clicker Case Study (room change for this session)
 | **Lab 11**:Respiration |
| Dec. 1 | Energy Transfer: Cellular Respiration | Chapter 9: 162-183 |
| 15 | Dec. 6 | Energy Transfer: Cellular RespirationEnergy Transfer: Photosynthesis | Chapter 9: 162-183Chapter 10: 185-205 | * Genes and Disease Projects Poster Presentations
 | **Lab 12:** Photosynthesis  |
| Dec. 8 | Energy Transfer: Photosynthesis | Chapter 10: 185-205 |
| 16 | Dec. 13 | **Final Exam: Tuesday, Dec. 13,** **8-10 AM** | Chapters 8, 9 and 10 |  | **More poster presentations? There are six hours set aside for the period covered by lab** |