**Advanced Placement Biology**

**2019/2020 academic year- 1.0 version**

**Readings from *Biology in Focus* (AP edition) and *Cliff’s AP Biology 4th edition***

**Topic Sequence, Assigned Readings and Chapter Reviews, Laboratory Activities, Special Projects, Field-Based Experiences and other Exciting Stuff - a Tentative** **Schedule**

The following table lays out our course for this class. Due to the vast amount of content covered, in-class activities will help to elucidate main ideas presented in the assigned readings. Questions and discussion are encouraged over material read outside of class. **It is important** that you keep up with the assigned reading! Your Chapter Review(s) will be due Thursdays BOP.

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|  | **Introduction to Biology and SCIENTIFIC INQUIRY** | | | | |  |
| **Week/date** | **Essential Knowledge** | **Focus topic**  ***Cliffs review*** | ***Chapter/Section -Campbell and Reece*** | ***Ancillary Readings*** | ***Class activity*** | ***Assessment: AP Classroom Unit Exam*** |
| 1/6-1/10 | 2.A.2: f (1-4).  2.A.2: b | Ch.4  Cliffs Notes:  Cellular respiration  CN:45-53 | 7.1-7.6: Cellular Respiration and Fermentation |  | Student directed investigation- cell respiration: Invest. 6: Cellular Respiration | FRQ:  Cell respiration |
| 1/13-1/17 | 2.A.2: a, c, d (1-5) & e.  2.A.2: f (1-4), g (1-5).& h.4.C.1: a | Ch.5  Cliffs Notes:  Photosynthesis  CN: 61-67 | 8.1-8-3: Photosynthesis |  | Paper chromatography lab | FRQ: photosynthesis  Oral quiz:  Light Reaction Model  AP Classroom: Unit 3 diagnostic/Exam |
| **Information Transfer** | | | | | | |
| 1/20-1/24  X Mon-MLK | 3.A.2. a(1-5)/b(1-4). |  | 9.1-9.3: The Cell Cycle | HHMI: P53 and cancer | Invest. 7: Cell Division- mitosis | AP Classroom: Unit 4 diagnostic/Exam |
| 1/27-1/31 | 3.A.2 c (1-5) | Ch.7  Cliffs Notes:  Cell Division  CN: 88-91 | 10.1-10.4: Meiosis and Sexual Life Cycle |  | Genetics- practice- Chapter 11 (TYU- Part II)  \*Lab: Dihybrid Corn and chi square test |  |
| 2/3-2/7 | 3.A.3- a/b/c3.A.1 e |  | 11.1-11.4: Mendel and the Gene Idea |  | Pedigree practice/non Mendelian patterns | Human Genetic Disorder Presentations |
| 2/10-2/14 | 3.A.3 b/c/d  3.C.1 c (1&2). | Ch. 8  Cliffs Notes: Heredity CN: 101-112 | 12.1-12.4: The Chromosomal Basis of Inheritance | *Genetic Twists of Fate*-Ch.1 | How do we know DNA is the molecule of inheritance? | AP Classroom: Unit 5 diagnostic/Exam |
| 2/17-2-21  Mid-winter break | 3.A.1 a  (1-5) and b (1-3). |  | 13.1-13.4: The Molecular Basis of Inheritance | *Genetic Twists of Fate*-Ch.2- CN/4 level 2/3 questions due 2/12 | DNA modeling investigation DNA replication modeling |  |
| 2/24-2/28 | 3.A.1 b  (1-4).  3.A.1 c (1-4).  3.A.1 e  3.C.1 a,b,c (1&2)& d. |  | 14.1-14.5: Gene Expression: From Gene to Protein | *Genetic Twists of Fate*-Ch.3 CN/4 level 2/3 questions due 2/16 | Modeling protein synthesis  FRQ: mutations |  |
| 3/2-3/6 | 3.A.1 c (1-4).  3.A.1 f  3.B.1: a (1-2) and b/c&d). |  | 15.1-15.4: Regulation of Gene Expression |  | HHHMI:   * Genetic switches |  |
| **Week/date** | **Essential Knowledge** | **Focus topic**  ***Cliffs review*** | ***Chapter/Section -Campbell and Reece*** | ***Ancillary Readings*** | ***Class activity*** | ***Assessment: AP Classroom Unit Exam*** |
| 3/9-3/13 | 3.B.2: a/b  2.E.1:a-3  4.A.3:a-c |  | 16.1-16.3: Development, Stem Cells and Cancer |  | HHMI- stem cells | Exam- Ch.10-17 |
| 3/16-3/20 | 3.A.6  3.C.3 a (1-6)&b(1-2). |  | 17.1-17.3: Viruses |  | Invest. 8: DNA Transformation (AKA p Glo lab)  FRQ: Gene regulation |  |
| 3/23-3/27 | 3.B.2:b  1.B.1 (a&b). | Ch. 9  Cliff Notes: Molecular biology  CN: 123-143 | 18.1-18.6: Genomes and Their Evolution (Biotechnology) |  | Invest. 9: Restriction Enzyme Cleavage of DNA  DNA fingerprinting lab | AP Classroom: Unit 6 diagnostic |
| **Evolution** | | | | | | |
| 3/30-4/3 | 1.A.4: a&b (1-3)  1.C.3: a&b.  1.A.4: b (4)  1.B.2: (a-d).  3.A.1: e |  | 19.1-19.3: Descent with Modification: A Darwinian View of Life |  | HHMI:  Endless Forms Most Beautiful- Discussion  Evidence for evolution: student presentations |  |
| 4/6-4/10  Spring Break | 1.A.2: a,b,c,d  1.A.4: b (4)  1.C.1: a  1.C.2: a&b.  4.C.1: b  4.C.2: b |  | 20.1-20.5: Phylogeny  21.1-21.4 The Evolution of Populations |  | Invest. 3: Comparing DNA Sequences to Understand Evolutionary Relationships with BLAST. |  |
| 4/13-4/17 | 1.C.1: b; 1.A.2: c  4.B.4: b; 4.C.3: c |  | 22.1-22.4: The Origin of Species  23.1-23.4: Broad Patterns of Evolution |  | Invest. 2: Mathematical Modeling: Hardy-Weinberg Evolution  HHMI: The Day the Mesozoic Died |  |
| 4/20-4/24 | 1.D.1: a (1-5),  1.D.2: a/b;  4.B.2: a (3) | Ch. 10  Evolution  CN: 153-166 | 24.1-24.5: Early Life and the Diversification of Prokaryotes |  |  | AP Classroom: Unit 6 diagnostic |
| 4/27-5-1 | Buffer |  |  |  |  |  |
| 5/4-5/8 | Buffer |  |  |  |  |  |
| 5/11 (Monday) | **AP Biology Exam**  **May 14- Location TBA** |  |  |  |  |  |