**Week 1 (9/1/2016)**

**Introduction – What is Life?**

* Icebreaker and Introduction
* Course syllabus: objectives and expectations
* Lecture: What is life?
* Small breakout group discussion
* Reconvene to report back from small groups
* Lecture: What is the scientific method?
  + Hypotheses and theories
  + Types of scientific studies
  + Steps of the scientific method
* ***Assign pre-lecture questions and reading for week 2***

**Week 2 (9/8/2016)**

**Organization of Life - Cells**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: A tour of the cell - part 1
* Small group in-class assignment
* Lecture: A tour of the cell - part 2
* ***Assign pre-lecture questions and reading for week 3***
* ***Assign homework 1***

**Week 3 (9/15/2016)**

**Organization of Life – Nucleus**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: What is DNA and how does it work?
  + Structure
  + Chromosomes
  + Bacteria, retroviruses
* Small group activity
* Lecture: What does the nucleus do?
  + Cellular boss
  + Nucleic acids
* ***Assign pre-lecture questions and reading for week 4***
* ***Assign homework 2***

**Week 4 (9/22/2016)**

**Cellular Reproduction**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Mitosis
  + Cell cycle
  + Steps of mitosis
  + Cancer and cell cycle control
* Small group assignment
* Lecture: Meiosis and sexual life cycles
  + Gene inheritance
  + Stages of meiosis
* ***Assign pre-lecture questions and reading for week 5***
* ***Assign homework 3***

**Week 5 (9/29/2016)**

**Energy Dynamics - Photosynthesis**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Steps of photosynthesis
  + Photosynthetic structures
  + Light/dark reactions
* Small group activity
* Lecture: Types of photosynthesis
  + Alternative mechanisms
  + Photorespiration
* ***Assign pre-lecture questions and reading for week 6***
* ***Midterm Review***

**Week 6 (10/6/2016)**

**Energy Dynamics – Metabolism and Respiration**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Midterm
* Lecture: Metabolism and respiration in cells
  + Forms of energy
  + Enzyme activity
  + Types of metabolic pathways
* Small group activity
* ***Assign pre-lecture questions and reading for week 7***
* ***Assign homework 4***

**Week 7 (10/13/2016)**

**Plant Form and Function**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Where did plants come from?
  + Origins and classification
  + Plant structure
* Small group activity
* Lecture: Plant resource acquisition
  + Transport systems
  + Soils and nutrients
* ***Assign pre-lecture questions and reading for week 8***
* ***Assign homework 5***

**Week 8 (10/20/2016)**

**Animal Form and Function**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Where did animals come from?
  + Origins and classification
  + Morphology
* Small group activity
* Lecture: Animal resource acquisition
  + Consumption, digestion, and excretion
  + Circulatory systems
* ***Assign pre-lecture questions and reading for week 9***
* ***Assign homework 6***

**Week 9 (10/27/2016)**

**Plant and Animal Reproduction, Development, and Signaling**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Reproduction and Development
  + Types of reproduction and reproductive structures
  + Growth - from egg/seed to individual
* Small group activity
* Lecture: Signaling
  + Animal behavior
  + Plant chemical cues
  + Neurons and the nervous system
  + Hormones and the endocrine system
* ***Assign pre-lecture questions and reading for week 10***
* ***Midterm Review***

**Week 10 (11/3/2016)**

**Genetics – Mendelian Inheritance**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Midterm
* Lecture: Mendel and Genes
  + Who was Gregor Mendel?
  + Mendelian inheritance
  + Single genes vs. multiple genes
* Small group activity – Punnett squares of blood type
* ***Assign pre-lecture questions and reading for week 11***
* ***Assign homework 7***

**Week 11 (11/10/2016)**

**Genetics – Selective Pressures**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: DNA mutations
  + DNA replication and repair
  + Evolutionary significance of altered DNA
  + Types of small-scale mutations
* Small group activity
* Lecture: Chromosome controls
  + Sex-linked genes
  + Gene linkage
  + Alterations to chromosomes
* ***Assign pre-lecture questions and reading for week 12***
* ***Assign homework 8***

**Week 12 (11/17/2016)**

**Evolution – Darwinian view of natural selection, population level evolution, tree of life**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: Darwin and natural selection
  + Natural selection vs. sexual selection
  + Scientific evidence for evolution
* Small group activity
* Lecture: Consequences of selection
  + Population-level evolution
  + Tree of life and speciation
* ***Assign pre-lecture questions and reading for week 13***
* ***Assign homework 9***

**Week 13 (12/1/2016)**

**Ecology – organisms and interactions**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: What is ecology?
  + Populations and communities
  + Food webs
* Small group activity
* Lecture: Interactions in ecology
  + Competition
  + Predation
  + Symbiosis
  + Facilitation
  + Herbivory
* ***Assign pre-lecture questions and reading for week 14***
* ***Assign homework 10***

**Week 14 (12/8/2016)**

**Ecology – climate and nutrient cycling**

**Review for final exam – bring questions?**

* Checking pre-lecture questions
* Small group discussion; groups report back with answers
* Pre-lecture quiz
* Lecture: What is an ecosystem?
  + Ecosystem energy budgets
  + Primary production
* Small group activity
* Lecture: Global Change
  + Biogeochemical cycles
  + Greenhouse gases and global warming
  + Threats to biodiversity
* Final Exam Group Review – ***no reading or pre-lecture questions assigned!***

**Week 15 (12/15/2016)**

**Final Exam**

**Wrap-up**