

## Concepts/Topics

- Evolution - definition
- Misconceptions: no target or “goal” in evolution, an organism or species is **not** more or less evolved than another one, happens over generations (not lengths of time - bact vs. human), individuals don't evolve (populations do), not on purpose (diversity already in population or not), population does not evolve to fit environment – environment evolves the population
- Evidences of Evolution - fossils, homology, embryology, molecular biology, direct observation  
Fossils - absolute (radioactivity, known events) vs. relative dating (Law of Superposition), transitional  
Homology - analogous structures, homologous structures, vestigial structures
- mutations (source of variety)
- Mechanisms or drivers of evolution: random mutations, natural selection, artificial selection, non-random mating (sexual selection), gene flow (emigration/immigration), genetic drift (bottlenecks, founder effect)
- Lamarck's theory of acquired traits
- Types of selection: stabilizing selection, disruptive selection, directional selection
- Types of evolution: convergent evolution (analogous structures), divergent evolution (homologous structures), adaptive radiation, co-evolution
- Hardy-Weinberg equilibrium and equations

## Readings

*Principles of Life* (2013), Chpt. 15

## Homework/Activities

- No homework/activities at this time

Due: \_\_\_\_\_

## Helpful Web Links

Lines of Evidence (UC Museum of Paleontology)

[evolution.berkeley.edu/evolibrary/article/0\\_0\\_0/lines\\_01](http://evolution.berkeley.edu/evolibrary/article/0_0_0/lines_01)

## Videos/Tutorials

Evolution (Crash Course)

[www.youtube.com/watch?v=P3GagfbA2vo](http://www.youtube.com/watch?v=P3GagfbA2vo)

How Evolution Works (Kurzgesagt)

[www.youtube.com/watch?v=hOfRN0KihOU](http://www.youtube.com/watch?v=hOfRN0KihOU)

Common Misconceptions (SciShow)

[www.youtube.com/watch?v=IPjiFG43ZZg](http://www.youtube.com/watch?v=IPjiFG43ZZg)

Date a Planet (MinuteEarth)

[www.youtube.com/watch?v=YSau4HTNjkE](http://www.youtube.com/watch?v=YSau4HTNjkE)

Genetic Mutation (BrightStorm)

[www.youtube.com/watch?v=5h-4mU8pyFc](http://www.youtube.com/watch?v=5h-4mU8pyFc)

Darwin's Theory (BrightStorm)

[www.youtube.com/watch?v=6osEUs9iHcU](http://www.youtube.com/watch?v=6osEUs9iHcU)

Natural Selection (BrightStorm)

[www.youtube.com/watch?v=oB5Etc0RruE](http://www.youtube.com/watch?v=oB5Etc0RruE)

Natural Selection (Crash Course)

[www.youtube.com/watch?v=aTftyFboC\\_M](http://www.youtube.com/watch?v=aTftyFboC_M)

Genetic Drift (2-minute Classroom)

[www.youtube.com/watch?v=-UfrN11V9SM](http://www.youtube.com/watch?v=-UfrN11V9SM)

Gene Flow (BrightStorm)

[www.youtube.com/watch?v=H2BJN\\_\\_Jtzk](http://www.youtube.com/watch?v=H2BJN__Jtzk)

Convergent Evolution (BrightStorm)

[www.youtube.com/watch?v=uBLw5NoA1vw](http://www.youtube.com/watch?v=uBLw5NoA1vw)

Divergent Evolution (BrightStorm)

[www.youtube.com/watch?v=rIF5ZajjJrk](http://www.youtube.com/watch?v=rIF5ZajjJrk)

Adaptive Radiation (BrightStorm)

[www.youtube.com/watch?v=N7mLxvNTSog](http://www.youtube.com/watch?v=N7mLxvNTSog)

Coevolution (BrightStorm)

[www.youtube.com/watch?v=Ewt8QlekhqQ](http://www.youtube.com/watch?v=Ewt8QlekhqQ)

Hardy-Weinberg (BrightStorm)

[www.youtube.com/watch?v=BuiPA8FJ\\_1M](http://www.youtube.com/watch?v=BuiPA8FJ_1M)

Hardy-Weinberg Principle (Penguin Prof)

[www.youtube.com/watch?v=oG7ob-MtO8c](http://www.youtube.com/watch?v=oG7ob-MtO8c)

Hardy-Weinberg Problems (Bozeman)

[www.youtube.com/watch?v=xPkOAnK20kw](http://www.youtube.com/watch?v=xPkOAnK20kw)