

Biology 3201 Unit Checklist

Each student is expected to be able to do the following from Unit Four : “**Evolution, Change, and Diversity**”

You should be able to...

- have a basic understanding of what life forms evolved before what
- define evolution, variation, and adaptation
- use the Peppered Moth story as an example of adaptive change
- explain the difference between natural and artificial selection
- Describe the findings of Lyell, Malthus, Wallace, Darwin, Lamarck, and Cuvier
- Know Lamarck’s and Darwin’s theories in detail ! Compare and contrast them
- Explain why Darwin couldn’t explain inheritance or diversity in his theory
- Explain how modern evidence supports evolution : fossils, biochemistry, comparative anatomy, embryology, and heredity
- be aware of the relationship between the organization and ages of rock strata with the fossils they contain
- the difference between absolute and relative dating
- perform calculations involving half lives and isotope decay
- how chloroplasts and mitochondria support the idea of eukaryotic cells forming through symbiosis (the Lynn Margulis Hypothesis)
- state the Hardy Weinberg Law and know the assumptions a population must meet to be describes with this math model
- have a basic understanding of the processes evolution uses to change populations (mutations, genetic drift, the bottleneck effect, founder effect, gene flow, stabilizing selection, directional selection, disruption selection, sexual selection, speciation, convergent evolution, divergent evolution)
- difference between geographic and reproductive isolation
- how a new species can form through behavioral isolation, geographic isolation, gametic isolation, mechanical isolation, temporal isolation