Final Exam – Bio 111
Study Guide
Right now I am hoping to get through all of this, we will update as we get closer to the final!

Darwin and Natural Selection
What inspired Darwin to suggest that the mechanism of evolution was Natural selection?
What were the 4 key observations that Darwin made about populations.
What is decent with modification?
What are homologous structures, analogous?
What are vestigial structures?

Evolution of Populations
What is a population?
What is a gene pool?
What are the 5 conditions for Hardy-Weinberg equilibrium?
Can you tell me what will happen to allelic frequencies when a population experiences the following: a bottleneck, a founder effect, genetic drift, natural selection and gene flow?
Describe directional, stabilizing and disruptive selection.
What is sexual selection, what is some evidence of it occurring?
Do Darwin’s principles apply to humans?

The Origin of Species
What is a species, how do we define a species?
Describe the 5 types of prezygotic barriers to reproduction.
Describe postzygotic barriers to reproduction.
What are allopatric and sympatric speciation? Which is more common?
What is punctuated equilibrium and how is it different from Darwin’s gradual evolution model?

Life on Earth
What is a mass extinction?
What happens to the species in the millions of years after a mass extinction?
Why do the continents move?
Can you put the major steps in the evolution of life in order, for example which came first, the evolution of plants or the evolution of eukaryotes? Who colonized land first, plants and fungi or animals?

Viruses (virus simulation game)
Why is a virus not alive?
What types of genetic materials do viruses use?

Prokaryotes and the Protista
What makes Prokaryotes different from Eukaryotes?
What are the two domains of Prokaryotes?
Can you describe Stanley Miller’s experiment on how life evolved?
Are bacteria alive?
Are prokaryotes helpful or harmful to humans, give an example of each.
Why are algae not plants?
Do all protista have cell walls?
Are all protista single-celled?
What is the difference between unicellular and colonial algae?

Fungi
What are fungi cell walls made of?
What is a lichen?
What are some ways that fungus is used by people (name 2)
How do fungi obtain nutrients?

Plants - Their structure and function
Be able to tell the difference between a monocot and a dicot. (They are both angiosperms)
How are spores and seed different from each other?
What characteristics unite the plants?
What distinguishes the angiosperms from the gymnosperms? How about ferms from mosses.
Why would a plant waste energy to make a fruit?
What are some various ways that plants disperse their seeds?
Label the parts of a flower on a diagram.

For our entire class things to think on
What is life? What may be confusing about how we define life?
What clues do we have that all life on Earth is related?
If evolution has been going on for so long, why are the species on Earth not perfect?
How are plants and animals similar? How are the different?
What is science? Can you still design a good experiment and conduct one? What are the steps of the scientific method?
How is energy transferred through living systems?