SC 118 Human Biology
Credit for Prior Learning
Study Guide

Part 1: Ecology and Environmental Science

Demographic Transition	Carrying Capacity	Nutrient Cycles
Population	Food Pyramid	Greenhouse effect
Age Structure	Carnivore	Biological Magnification
Succession	Detritivore	Ozone Depletion
Community	Herbivore	Ecosystem
Sustainability	Entropy	Biodiversity

Describe how human population size has changed throughout history.

Does the Earth have a set carrying capacity for humans?

What was the "green revolution"? What was its effect?

Do we see S-shaped (sigmoid) population growth in nature?

List some species that can replenish their numbers readily after a crash and some species that have very slow population growth.

If the number of births per woman in the US stabilized at 2 tomorrow, would the US population stop growing immediately?

A small island has a population of rabbits with no natural predators. A pregnant coyote swims to the island. Describe what you think will happen to the populations of rabbits, coyotes, and vegetation over the next few decades. What influence would the following factors have: alternative food source for the coyotes (mice, for example), areas of the island where coyotes can't go (refuges), and disease?

How does the movement of energy through a biological community differ from the movement of nutrients?

Why do we see tons of algae, a bunch of algae-eating fish, but few fish-eating fish in a pond?

Describe some possible effects of global warming.

Describe some of the problems that radioactive wastes might cause for living things.
Is radiation a greater concern than air pollution?

We fertilize our lawns and farms to increase their productivity. Why do we complain when our water gets fertilized (eutrophication)?

Part 2: Genetics, Evolution, and Scientific Methodology

Statistical significance	Microevolution	Homozygous
Theory	Macroevolution	Heterozygous
Hypothesis	Mutation	Dominant
Species	Fitness	Recessive
Meiosis	Natural selection	Diploid
Phenotype	Linkage	Inbreeding depression
Genotype	Crossover	DNA
Sex linked (X-linked)	Sex determination	RNA

What is the difference between evidence and proof?

What is the difference between causation and correlation?

What types of questions can be answered by science?

Assume that pointy ears (vs. floppy ears) and curly tails (vs. straight tails) are dominant traits in dogs. Naia has floppy ears and a straight tail. What is her **genotype**? Nanook has pointy ears and a curly tail. What is her **genotype**? If more than one genotype is possible for either, write all the possibilities.

For a particular species of plant, assume that red flowers are the dominant trait. If you cross a heterozygous flower with a white flower, what proportion of the resulting plants will be white?

The codes for the visual pigments that let us see color are found on the X chromosome. Bob is color-blind. What are the chances that he inherited this condition from his father? What are the chances he got it from his mother? What are the chances that his sister will be color-blind?

Describe how natural selection has created diseases that are resistant to antibiotics.

Why do lethal mutation stay in the population at low levels? Why don't they disappear?

"Social Darwinism" is a phrase coined by industrialists to justify bad treatment of the poor on the basis that the rich must be more fit, so they should take what they could get. What is the difference between natural selection and "Social Darwinism"?

Evaluate the following statement: We are putting a lot of additives in our food, so we will see adaptations in our grandchildren that allow them to eat additives without being harmed.

Rev1/8/16

Part 3: Cell Biology, Anatomy and Physiology

Ovary	Antibody	Plasma membrane
Oviducts (Fallopian tubes)	Antigen	Cytoplasm
Testes	Immunity	ATP
Estrogen	Vaccine	Nucleus
Testosterone	Bacteria	Mitochondria
Ovulation	Virus	Hemoglobin
Meiosis	Artery	Platelet
Embryo	Vein	Lymph
Fetus	Capillary	Trachea
Placenta (chorion)	Red blood cell	Blood Pressure
Amnion	White blood cell	Larynx
Protein	Diuretic	Vitamin
Carbohydrate	Filtration	Amino acid
Saturated/unsaturated fat	Enzyme	Cholesterol

What are the major differences between plant cells and animal cells?

In which trimester of pregnancy are drugs, radiation, and disease most likely to cause the most damage? Why?

What are some of the advantages and disadvantages of breast feeding?

How do vaccines work?

Why don't antibiotics help you get rid of viral infections?

Why is fasting (self-starvation) ineffective in weight loss and dangerous to one's health?

What things increase metabolic rate?

If vitamins are recycled by the body, what happens to extra vitamins (note the difference between fat-soluble vitamins and water-soluble vitamins)?

How does cholesterol lead to heart attacks and stroke?

How does smoking damage lungs?

How does the body get rid of waste products in the blood?

Why is high blood pressure dangerous?