The following material will appear on the upcoming exam. Use this preview to familiarize yourself with the material, and guide you in studying. Be sure to look up the definitions of any words you do not know. You are free to discuss this material or ask questions about it.

Use a #2 pencil to fill in the information on your NCS answer sheet. Put your **O-Key Account Username** in the boxes indicated **for LAST NAME** and darken the appropriate circles. **Write your Name (Last, First)** and "**Star**" or "**NoStar**" **in the space above the boxes containing your O-Key Account Username**. Darken the **(S) or (N)** in the **last column of the name circles**. Enter the number **1533** and **darken the corresponding circles** in the **first 4 columns** of the **"Student ID."** Failure to perform this correctly will incur a **-10pt handling fee**. Read all questions and answers *carefully* before choosing the **single BEST response** for each question. Feel free to ask the instructor for clarification.

mRNA-Codon-to-Amino-Acid Decoder Chart									
		2nd Letter							
1st Letter	U		C		A		G		3rd Letter
U	UUU	Phenylalanine	UCU	Serine	UAU	Tyrosine	UGU	Cysteine	U
	UUC		UCC		UAC		UGC		C
	UUA	Leucine	UCA		UAA	STOP	UGA	STOP	A
	UUG		UCG		UAG		UGG	Tryptophan	G
C	CUU	Leucine	CCU	Proline	CAU	Histidine	CGU	Arginine	U
	CUC		CCC		CAC		CGC		C
	CUA		CCA		CAA	Glutamine	CGA		A
	CUG		CCG		CAG		CGG		G
A	AUU	Isoleucine	ACU	Threonine	AAU	Asparagine	AGU	Serine	U
	AUC		ACC		AAC		AGC		C
	AUA		ACA		AAA	Lysine	AGA	Arginine	A
	AUG	Methionine; START	ACG		AAG		AGG		G
G	GUU	Valine	GCU	Alanine	GAU	Aspartate	GGU	Glycine	U
	GUC		GCC		GAC		GGC		C
	GUA		GCA		GAA	Glutamate	GGA		A
	GUG		GCG		GAG		GGG		G

Use the following formulas and chart as needed.

r = # of births - # of deaths   **G = rN**   **G = rN(K − N)**
　　　　　N　　　　　　　　　　　　　　　　　　　　　　　**K**

Pistol "Sherlock" Pete is investigating a possible crime scene: A blood spot is found on a sidewalk traversing the Formal Gardens. Pete's lab immediately concludes that the blood is type O human blood (with 46 chromosomes) from a male who had been vaccinated against the flu virus.

The diverse flowers planted within OSU's Formal Gardens are a favorite source of sugary nectar for honeybees. Certain pigments within flowers within the Gardens reflect only ultraviolet light. Honey bees, unlike humans, can detect patterns illuminated by ultraviolet light and gorge themselves on those flowers' nectar.

Recently, there has been speculation that there are Big Foot creatures in southeast Oklahoma. People claim that a small Big Foot group of 10 individuals moved from Arkansas to an isolated valley area near Broken Bow Lake. There are 2 births and no deaths in the valley in the first year and the growth rate (r) remained the same in subsequent years. The area of the valley is approximately 5,000 acres, has plentiful food, water sources and tree cover.

There was a mix up in a research lab and now they are not sure which mice have specific genotypes. The lab group has only one mouse that they know for sure is heterozygous for both fur and eye color. They name him "Lucky". They have been mating Lucky to the other mice to determine their genotypes.

Mouse	Fur color (brown = B is dominant to white)	Eye color (green = G is dominant to gray)	Offspring when mated with "Lucky"
1	Brown	Gray	When mated with "Lucky", 75% of the offspring have Brown fur.
2	White	Green	
3	White	Gray	
4	Brown	Green	When mated with "Lucky", all offspring have Brown fur and Green eyes.

Plants and animals that were domesticated by humans possess traits their wild counterparts do not. For example, mature fruit of a wheat crop does not shatter to release seeds whereas a wild wheat plant does shatter easily to release seeds. Domestic animals in general have smaller brains and less sensitive sense organs than do their closely related wild relatives. Many different-looking vegetables (e.g., cabbage, kale, broccoli, cauliflower, and Brussels sprout) were derived from one ancestor species in which all the individuals looked very much alike.

A scientist measured average organ sizes of three populations of species x (see the graphs below) that he placed under the following conditions:
Population 1 – lived alone for 30 generations;
Population 2 - lived with species y for 8 generations, then alone for 22 more generations;
Population 3 – lived with species y for 30 generations.