

Name: \_\_\_\_\_

ANT 3514 – Introduction to Biological Anthropology  
**Lab 1 - Natural Selection: Darwin's War**  
Week of 1/10/05

This lab is designed to illustrate the basic principles of natural selection. In the card game “Darwin's War”, high cards represent advantageous traits or characteristics within the current environmental setting. The cards in everyone's hands represent the genetic make-up of the population.

**Directions:**

1. Each student will draw 10 cards at random from our randomly distributed “gene pool”.
2. Write down the number of cards in each numeric category in your starting hand (this is generation 0) – use the table below
3. Partner up with another student and play a round of “Darwin's War”

Rules for Darwin's War:

1. Randomize (i.e. shuffle) your hand
2. The low card in each confrontation is removed (and returned to the gene pool) and the high card is kept (by the original owner)
3. After the round is over, return all “dead” cards to the gene pool and replenish your hand from the gene pool so you once again have 10 cards
4. Record your new hand
5. Choose a different partner to play another round
6. Repeat steps 1-5 until you have gone through 15 generations

Note: Aces are high in this game

4. At the end of class, record your data on the board. You will receive an email with the combined class results one day after lab. Please use the combined data you receive to answer the lab questions for this week.

<b>Generation</b>	<b>2 – 4</b>	<b>5 – 7</b>	<b>8 – 10</b>	<b>J - A</b>
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

\*\* Example: If your starting hand looks like this: 2, 2, 3, 7, 9, 10, J, Q, Q, K, record 3 in the 1<sup>st</sup> column (“2-4”), 1 in the 2<sup>nd</sup> column, 2 in the 3<sup>rd</sup> column and 4 in the 4<sup>th</sup> column.

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**Question 1:**

In your own words, briefly state the principles of Darwinian natural selection.

**Question 2:**

Using the Darwin's War data sent to you by your TA, how did the percentage of face cards in the class population change over time, and what accounts for this pattern?

**Question 3:**

What role does the environment play in the process of natural selection? How in the game of Darwin's War could we simulate the effect of changing environmental conditions on the selection pressures?

**Question 4:**

Farmer Otto is spraying pesticide on his farm to prevent aphids from eating his crops. When Otto first starts to spray, only 0.1% of the aphid population is resistant to the pesticide. What would you expect to happen to the effectiveness of the pesticide in reducing aphid populations over time and why?

**READING QUESTIONS:**

**Question 1:**

What are the characteristics of a good scientific hypothesis as stated by Gould (Park, Ch. 5)? How do good scientific hypotheses differ from speculation?

**Question 2:**

Briefly summarize Lamarck's theory of evolution.

- 2a) Provide at least 2 examples of Lamarckian evolution (see Root-Bernstein chapter or be creative and come up with your own).