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**BIN 506, Assignment #1**

***How would you solve the genetic code if you only know there are 4 nucleotides and 20 amino acids ?***

The formation of combinations of nucleotides to represent the 20 amino acids can be given as an answer to this question. Triple combinations of nucleotides allow 64 different outputs (6x6x6=64). However, since there are only 20 amino acids that need to be encoded, a problem arises that an amino acid is represented in more than one triplet combination. Therefore, amino acids must be represented by more than one triple combination of nucleotides. In other words, there must be more than one triple nucleotide combination representing an amino acid. Considering that each of the triple combinations has a representative value, it is expected that some combinations give "start" and some combinations "end" commands and create a meaningful start and end point for the RNA desired to be synthesized. Thus, some ternary combinations initiate synthesis, while some others are terminated. Except for the start and stop commands, the remaining triple combinations must represent certain amino acids and form the protein code to produce the desired output.

***References***

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