GENETICS AND GENOMICS, BS

LEARNING OUTCOMES

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1. Analyze the transmission of genes and chromosomes between cells during cell division and within pedigrees over generations.
2. Demonstrate a deep understanding of how information encoded in DNA can be mutated, epigenetically modified, transcribed into RNA, and translated for protein production, enabling this information to orchestrate the activities of cells singly or collectively throughout development in multicellular organisms.
3. Predict the impact of the forces of mutation, natural selection, chance, and genetic recombination on the amount of genetic variation in populations at the DNA and phenotypic levels using quantitative models.
4. Formulate research questions about the genetic control of biological processes and design experiments to answer these questions using appropriate genetic tools including model organisms.
5. Demonstrate team-work, interpersonal and problem-solving skills to address societal, ethical and scientific issues related to genetics, and communicate their findings through written, oral and multi-media reports.