

COURSE DETAIL

MOLECULAR GENETICS

Country

Ghana

Host Institution

University of Ghana, Legon

Program(s)

Explore Ghana, University of Ghana

UCEAP Course Level

Upper Division

UCEAP Subject Area(s)

Biological Sciences

UCEAP Course Number

109

UCEAP Course Suffix**UCEAP Official Title**

MOLECULAR GENETICS

UCEAP Transcript Title

MOLECULAR GENETICS

UCEAP Quarter Units

4.00

UCEAP Semester Units

2.70

Course Description

This course introduces molecular genetic principles, starting with basic properties of genes and genomes and extending to the complex, hierarchical interactions, fundamental to living organisms. It examines the ways molecular genetics is applied to the analysis of complex systems, including advances that reveal basic features of gene regulation during cell growth and differentiation, and in response to a changing environment, as well as developments that are more related to commercial and medical applications. The course focuses on genetic foundations, chromatin and chromosomes, genomics, genome maintenance, and gene regulation and analysis. Topics include Mendelian and non-Mendelian inheritance; transformation, transduction, and conjugation; recombination and complementation; mutational analysis; genetic mapping and linkage; karyotypes; translocations, inversions, deletions, and duplications; aneuploidy and polyploidy structure; genome structure; physical mapping; repeated DNA and gene families; gene identification; transposable elements; DNA replication, damage, repair, modification, recombination, and gene conversion; cis-acting regulatory elements; trans-acting regulatory factors; gene rearrangements and amplifications; genetic manipulation of bacteria (transposons and plasmids); and the human genome project.

Language(s) of Instruction

English

Host Institution Course Number

BCMB406

Host Institution Course Title

MOLECULAR GENETICS

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Biochemistry, Cell and Molecular Biology

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