COURSE DETAIL

FUNCTIONAL GENOMICS

Country
Korea, South

Host Institution
Yonsei University

Program(s)
Yonsei University

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Biological Sciences

UCEAP Course Number
141

UCEAP Course Suffix

UCEAP Official Title
FUNCTIONAL GENOMICS

UCEAP Transcript Title
FUNCTIONAL GENOMICS

UCEAP Quarter Units
4.50

UCEAP Semester Units
3.00

Course Description

In today's world, data-driven science is paramount, and biology is no exception. This course delves into the principles of data-driven biology, exploring platform technologies and their applications across various domains, including genomics, transcriptomics, proteomics, interactomics, and other 'omics ' branches of biology.

Students engage in discussions about the influence of 'omics' on human disease research and medicine. This course helps students to understand the latest trends in data-driven bio research and forecasts for the future bio industry. The course builds fundamental understanding and application skills in various omics technologies, and explores the past, present, and future of genomic medicine in relation to paradigm shifts in healthcare.

The key topics of the course include the following: 1. Introduction of Omics and data-driven biology 2. Genome Projects 3. Next-generation sequencing technology (NGS) 4. Transcriptomics with DNA-chip and NGS 5. Proteomics with Mass Spectrometry 6. Variomics (human genetic variation, genotype-to-phenotype) 7. Pharmacogenomics 8. Epigenomics 9. Regulomics 10. Interactomics (molecular interactions) 11. Metagenomics (Microbiomics) 12. Single-cell Omics (Single Cell Transcriptomics) 13. Cancer Genomics 14. Cancer Immunogenomics.

Prerequisites: General Biology, Biochemistry, Genetics

Language(s) of Instruction
English

Host Institution Course Number
BTE4603

Host Institution Course Title
FUNCTIONAL GENOMICS

Host Institution Course Details

Host Institution Campus

Host Institution Faculty
Host Institution Degree
Host Institution Department
Course Last Reviewed 2024-2025

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