



DB204/RD201 Aug. 2:0

Genetics

Instructor

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Teaching Assistant

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Department: Molecular Reproduction, Development and Genetics

Course Time: Wednesdays and Fridays 10-11AM

Lecture venue: MRDG Class Room

Detailed Course Page:

Announcements

Brief description of the course

The course is primarily designed as a core course for the Integrated Ph.D. students. It is also suitable for Ph.D. students who wish to improve their understanding of the principles of genetics. The course starts with the concept of the gene as envisioned by Mendel, and builds its way covering classical genetics, the birth of molecular genetics, discovery of the chemical nature of the genetic material, mechanisms of gene regulation, and the most recent developments in genomics. The emphasis is more on concepts, and classic experiments that paved the way for our understanding of heredity.

Prerequisites

As the course starts with basics, no prerequisite is needed.

Syllabus

The topics covered include Mendel's laws of heredity, linkage and recombination, dominance relationship, multiple alleles, gene interaction and epistasis, sex linkage, mapping of genes on chromosomes, emergence of molecular genetics, mechanisms of gene regulation, maternal effect, developmental genetics, elements of population and human genetics, epigenetics and genomics.

Course outcomes

The course aims to make students understand the fundamental principles that govern the dissemination of hereditary information. As this understanding is crucial in all subjects in biology, the course provides the necessary foundation. As the discussions are interactive, the students are challenged to come up with answers to critical questions rather than being spoon-fed with information. As the course also discusses classical experiments, the students gain the understanding of the scientific process of discovery. This also helps to sharpen their critical abilities..

Grading policy

Grading is based on three testes at the end of the three sections of the course with equal weightage.

Assignments

Given periodically to come up with solutions to conceptual problems

Resources

M. Strickberger's Genetics is a basic reference. Other resources from the internet are provided at the end of each discussion