Course number	U-LAS14 20029 LE68

Course title (and course title in English)	Principles of Genetics-E2 Principles of Genetics-E2	Instructor's name, job title, and department of affiliation	Graduate School of Medicine Professor,Shohab YOUSSEFIAN

Group	Natural Sciences	Field(Classification)	Biology(Issues)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)	Year/semesters	2024 First semester

Days and periods	Tue.2	Target year	Mainly 1st & 2nd year students	Eligible students	For science students

[Overview and purpose of the course]

Genetics is the science of heredity that seeks to explain variation between related organisms. All aspects of life are affected by the expression of genes. As our understanding of the genome increases, it is expected that the application of classical and molecular genetic information will become an indispensable tool in the development of microbial, plant, animal and medical studies.
The course will begin by considering the basic concepts of inheritance, i.e. how Mendelian traits are passed to the next generation, will then outline our current understanding of chromosomes, DNA and genes and their regulation, and will finally examine how such genes can affect developmental programmes, cancer and behavior of organisms.

[Course objectives]

To acquire a basic understanding of the principles of classical and molecular genetics and their relevance and application to modern biological sciences

[Course schedule and contents)]

Main Topics:
 1. Development of modern genetics
 2. Cells and cell division
 3. Mendelian inheritance
 4. Extensions of Mendelian genetics
 5. Chromosomes and chromosome aberrations
 6. Genomes, DNA structure and replication
 7. Gene expression and regulation
 8. DNA mutations and repair
 9. Techniques in molecular genetics and genomics
10. Cancer genetics
11. Developmental genetics
12. Behavioral, population and evolutionary genetics
13. Special topics in modern genetics
14. Applications of molecular genetics in microbiology, agriculture and medicine
15. Final Exam
16. Feedback

Principles of Genetics-E2(2)

[Course requirements]

None

[Evaluation methods and policy]

Evaluation will be based on class attendance and active participation (~20 %), mid-course tests (~30 %) and a final examination (~50 %)

[Textbooks]

Klug, Cummings, Spencer, Palladino   Concepts of Genetics 10th Edition 2012   Pearson   ISBN:978-0-321-72412-0   Few copies are available in the Medical School Library

[References, etc.]

References, etc.
Introduced during class

[Study outside of class (preparation and review)]

*Full lecture handouts will be provided one week before each lecture, and will also be uploaded on KULASIS. It is expected that students will have read through the handouts at least once before each lecture to familiarize themselves with the contents. During the lecture, active listening and participation (e.g. by asking questions) will ensure a greater understanding of the basic concepts. Finally, and most importantly, a private review of the handout immediately after the lecture will ensure a full and solid understanding of the lecture concepts

[Other information (office hours, etc.)]

*The course is presented as a series of engaging and active lectures with demonstrations and video presentations.
*Questions and discussions during class are highly encouraged.
*I run an open door policy; questions and discussions will be happily addressed anytime, even outside the official office hour.