

科目ナンバリング									
授業科目名 <英訳>		Principles of Genetics-E2 Principles of Genetics-E2				担当者所属 職名・氏名		医学研究科 教授 Shohab YOUSSEFIAN	
群	自然科学科目群			分野(分類)	生物学(各論)			使用言語	英語
旧群	B群	単位数	2単位	週コマ数	1コマ	授業形態	講義 ( 対面授業科目 )		
開講年度・ 開講期	2025・前期		曜時限	火2		配当学年	主として1・2回生	対象学生	理系向
【授業の概要・目的】									
<p>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.</p> <p>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.</p>									
【到達目標】									
To acquire a basic understanding of the principles of classical and molecular genetics and their relevance and application to modern biological sciences									
【授業計画と内容】									
<p>Main Topics:</p> <ol style="list-style-type: none"> <li>1. Development of modern genetics</li> <li>2. Cells and cell division</li> <li>3. Mendelian inheritance</li> <li>4. Extensions of Mendelian genetics</li> <li>5. Chromosomes and chromosome aberrations</li> <li>6. Genomes, DNA structure and replication</li> <li>7. Gene expression and regulation</li> <li>8. DNA mutations and repair</li> <li>9. Techniques in molecular genetics and genomics</li> <li>10. Cancer genetics</li> <li>11. Developmental genetics</li> <li>12. Behavioral, population and evolutionary genetics</li> <li>13. Special topics in modern genetics</li> <li>14. Applications of molecular genetics in microbiology, agriculture and medicine</li> <li>15. Final Exam</li> <li>16. Feedback</li> </ol>									
【履修要件】									
特になし									
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## Principles of Genetics-E2(2)

### 【成績評価の方法・観点】

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

### 【教科書】

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 )

### 【参考書等】

( 参考書 )  
授業中に紹介する

### 【授業外学修（予習・復習）等】

\*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

### 【その他（オフィスアワー等）】

\*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.

### 【主要授業科目（学部・学科名）】