

EB100457 Molecular Medicine, spring 2016

Class Time/location: **Wednesday 13:10-16:00 / H503**

INSTRUCTOR: Yang Wei, Ph.D.
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Course Description:

The goal of this course is to discuss the aspects of molecular medicines from the causes, development and diagnosis through to the treatment of diseases, with special focus on the overview of the molecular mechanisms incorporating modules from immunology to signaling, from virology to gene therapy, and the latest development in personalized medicine introduction into the molecular basis of diseases and the novel treatment options that have become available. This includes an analysis of cellular structures and organelles, protein structures and functions, nucleic acid biochemistry, replication and repair of DNA, the processes of transcription and translation, regulation of gene expression, modern molecular techniques used for diagnosis and research, proteins, purines and pyrimidines, and human genetics.

After having completed this course, the students shall have obtained a basic understanding of various human diseases and the underlying molecular, genetic or biochemical basis for the pathogenesis of the clinical disorders and their possible treatments.

Pre-requisite: Undergraduate course in molecular biology

Required Book: No required textbook.

Reference Book:

Introduction to Molecular Medicine, by Dennis W. Ross (ISBN 0-387-95372-8)

Grading:	Homework	20%
	Midterm exams	30%
	Final exam	40%
	(Closed book exams will be scheduled in class)	
	Class Participation	10%

Office Hours: Wednesday, 4:00-5:00 PM

Molecular Medicine, spring 2016; Estimated Schedule

2016/2/17 Course Introduction	2016/4/27 Cancer and aging
2016/2/24 The molecular basis of heredity	2016/5/4 Methods in molecular medicine
2016/3/2 Transcription of genes	2016/5/11 The molecular defense initiative: immune system
2016/3/9 Proteins	2016/5/18 Stem Cells
2016/3/16 Gene transfer in bacteria	2016/5/25 Gene Therapy
2016/3/23 Genetic organization in higher organisms	2016/6/1 Recombinant Protein Drugs
2016/3/30 Mutations & genetic disorders	2016/6/8 Ethics in Molecular Medicine
2016/4/6 Techniques of molecular biology	2016/6/15 *** Final examination
2016/4/13 *** Midterm examination	
2016/4/20 Inherited human disease	

Workload:

Students are required to submit four project reports (5% each), where the four topics are chosen from the fifteen lectures. The project should address all of the "Required Questions" listed below and should be 1-1.5 pages (double-spaced) in length. **Each project report is due one week after the announcement.**

Required Questions:

- Give a description of the topic, technique or other related issue.
- Why is this topic included in this series? What is the relevance to the concept of "Molecular Medicine"?
- What are the major challenges of the topic or technique described?
- How could you integrate the topic or technique into clinical research?

Academic Integrity

"As members of the Asia University community, we have inherited our funder's vision of this institution as a 'high seminary of learning.' Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of an Asia degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Asia University has a responsibility to respond appropriately and expeditiously to charges of violations of academic integrity."

Waiting for Instructor/ Attendance Policy

If the instructor for the class does not show up within 15 minutes of the scheduled beginning of class, students are free to leave and the class should be considered to be canceled for that class period. Students are expected to attend every class. Students are expected to notify the instructor of any planned absence from class. In the event that a student misses a class period, he/she is responsible for obtaining the information that was covered in class from one of the other students in class. Handouts that are missed due to classroom absence may be obtained from the instructor.