Development and Regeneration Biology (发育与再生生物学)

Schedule and Address:

Lecture: Monday 8:00am-9:40am; Thursday 8:00am-9:40am
Seminar/Discussion: Wednesday 8:00am-11:40am
Address: Zhiyuan College, Room 602

Course Description:

This course provides an introduction to principles of developmental biology across a wide range of organisms, and highlights medical applications of animal development and tissue regeneration. Developmental biology is to study how a single cell (fertilized egg) undergoes a series of changes in space and time to produce a complex multicellular organism with multiple functional organs. This course also highlights the most advanced technologies in developmental biology, and reveals association of development with regeneration and human diseases. This course consists of Animal Development and Plant Development. This course is suitable to students in biology and basic medicine majors, and will benefit to students in chemistry, physics and mathematics, who are interested in understanding developmental biology and human disorders.

Exams:

The final grade consists of three parts: home work (20%, 10% each for plant and animal development), plant development exam (35%) and animal development exam (45%).

Professors:

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Text books:

植物细胞分化与器官发生(植物部分课程) and Developmental biology, 10th edition, by **Scott F. Gilbert.**

Development and Regeneration Biology
Syllabus Spring 2016

DATE	PROF.	TOPIC
Feb. 22, Monday	**WS**	Introduction to developmental biology
Feb. 24, Wednesday	**WS**	Discussion
Feb. 25, Thursday	**WS**	Germ lines: generation of sperms and oocytes
Feb. 29, Monday	**WS**	Fertilization and sex determination
March 2, Wednesday	**WS**	Discussion
March 3, Thursday	**WS**	Aging and Evo/Devo
March 7, Monday	**WL**	Introduction/Plant life cycle/Fertilization
March 9, Wednesday	**WL**	Discussion
March 10, Thursday	**WL**	Hormonal regulation of plant development
March 14, Monday	**GS**	Axis formation: from drosophila to mammals
March 16, Wednesday	**GS**	Discussion
March 17, Thursday	**GS**	Early development: gastrulation
March 21, Monday	**GS**	Mesoderm (axial, paraxial, intermediate, lateral plate and extraembryonic)
March 23, Wednesday	**GS**	Discussion
March 24, Thursday	**GS**	Neural crest and endoderm
March 28, Monday	**WL**	Plant embryogenesis and seed development
March 30, Wednesday	**WL**	Discussion
March 31, Thursday	**WL**	Shoot apical meristem formation and function
April 11, Monday	**WL**	Root development
April 13, Wednesday	**WL**	Discussion
April 14, Thursday	**WL**	Leaf development
April 18, Monday	**WL**	Light regulation of plant development
April 20, Wednesday	**WL**	Discussion
April 21, Thursday	**WL**	Stomatal patterning and development
April 25, Monday	**WL**	Environmental control of flowering
April 27, Wednesday	**WL**	Discussion

April 28, Thursday	**WL**	Flower development
May 4, Wednesday	**WL**	Discussion
May 5, Thursday	**WL**	**Exam-1**
May 9, Monday	**HS**	Drosophila genetics and development
May 11, Wednesday	**HS**	Discussion
May 12, Thursday	**JL**	Limb development
May 16, Monday	**QW**	Developmental genetics, gene targeting and CRISPR
May 18, Wednesday	**QW**	Neurogene regulation
May 19, Thursday	**QW**	3D genome and gene expression
May 23, Monday	**JC**	Embryonic stem cells, re-programming and regeneration
May 25, Wednesday	**JC**	Discussion
May 26, Thursday	**JC**	Spinal cord development and injuries
May 30, Monday	**TS**	Development of the central nervous system
June 1, Wednesday	**TS**	Discussion
June 2, Thursday	**TS**	Noncoding RNAs in development
June 6, Monday	**TS**	Medical aspects of developmental biology: development and diseases
June 8, Wednesday	**TS**	Discussion
TBD		**Exam-2**

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