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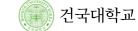
1. (Course Overview)

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	particular emphasis is the intimate connection between developmental biology and evolution, which will be a theme throughout the course. Additional emphasis is on the connection between mechanisms of normal development and disease etiology. The course will cover general principles of development and current important issues. Relevant ethical issues will be discussed. Both invertebrate and vertebrate model systems will be covered including Drosophila C. elegans, chick, frog, zebrafish, mice and human								inciples n			
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## (Course Schedule)

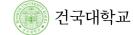
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		Introduction to developmental biology: the anatomical tradition
1	03/09~03/13	1. The question of developmental biology 2. Approaches to developmental biology 3. The anatomical approach 4. Evolutionary embryology 5. Medical embryology and teratology
		3
	-	2. Life cycle and the evolution of developmental patterns
2	03/16~03/20	The circle of life: the stages of animal development     The frog life cycle     The evolution of developmental patterns in unicellular protists     Multicellularity: The evolution of differentiation
	_	25
		3. Principles of experimental embryology
3	03/23~03/27	Environmental developmental biology     The developmental dynamics of cell specification     Morphogenesis and cell adhesion
	_	51
		4. The genetic core of development
4	03/30~04/03	<ol> <li>The embryological of origins of the gene theory</li> <li>Evidence of genomic equivalence</li> <li>Amphibian cloning</li> <li>Cloning mammals</li> <li>Differentail gene expression</li> <li>Determination of the function of genes during development</li> </ol>
		81
		5. The paradism of differential of gene expression
5	04/06~04/10	Differential gene transcription     Methylation pattern and the control of transcription     Differential RNA processing     Control of gene expression at the level of translation
		107

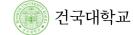


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		6. Cell-cell communication in development
6	04/13~04/17	Induction and competence     Paracrine factors     Cell surface receptors and their signal transduction     Cell death pathways
		143
		7. Fertilization
7	04/20~04/24	1. Structure of the gametes 2. Recognition of egg and sperm 3. Gamete fusion and the prevention of polyspermy 4. The activation of egg metabolism 5. Fusion of the genetic materials 6. Rearrangement of cytoplasmic materials
		183
8	04/27~05/01	Mid-term test  I am going to give you some documents and materials to prepare the mid-term test
	_	on the website.
		Searly development in selected invertebrates
9	05/04~05/08	1. In introduction to early developmental process 1-1. Cleavage 1-2. gastrulation 1-3. Cell specification and axis formation 2. The early development of sea urchins 3. The early development of snails
		221
		10. Early development in selected invertebrates
10	05/11~05/15	1. Early development in tunicates 2. Early development of the nematode C elegans 2-1. Why C. elegans? 2-2. Cleavage and axis formation in C elegans 2-3. Gastrulation in C. elegans
		246



		11. The genetic axis of specification in Drosophila
11	05/18~05/22	1. Early Drosophila development 1-1. Cleavage 1-2. Gastrulation 2. The origin of anterior-posterior polarity 2-1. The maternal effectof genes 2-2. The segmentalion of genes 2-3. The Homeiotic selector genes
		263
		12. The genetic axis of specification in Drosophila
12	05/25~05/29	3. The generation of dorsal-ventral polarity 3-1. Dorsal: the morphogenetic agent for dorsal-ventral polarity 3-2. Axes and organ primordia: the Cartesian coordinate model 3-3. coda
		290
		13. Early development and axis formation in amphibians
	06/01~06/05	
13		1. Cleavage in amphibians 2. Amphibian gastrulation 2-1. The Xenopus fate map 2-2. Cell movement during amphibian gastrulation 2-3 Invagination and involution 2-4. The convergent extension of the dorsal mesoderm 2-5. Epiboly of the ectoderm
		305
		14. Sex determination
14	06/08~06/12	<ol> <li>Chromosomal sex determination in mammals</li> <li>Primary and secondary sex determination in mammals</li> <li>The developing gonads</li> <li>The mechanisms of mammalian primary sex determination</li> <li>Secondary sex determination : Hormonal regulation of the sexual phenotype</li> </ol>
		547



		15. The nature and use of stem cells
15	06/15~06/19	Stem cells have two important characteristics that distinguish them from other types of cells.  First, they are unspecialized cells that renew themselves for long periods through cell divisions.?  The second is that under certain physiological or experimental conditions, they can be induced to become cells with special functions such as beating cells of the heart muscle or the insulin-producing cells of the pancreas.
		The materials are on the website
		Final test
16	06/22~06/26	I am going to give you some documents and materials to prepare the final test on the website

	Students have to summarize all the lecturs, then submit the note.	
	presentation	