**发育生物学 课程教学大纲**

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| 课程基本信息（Course Information） | | | | | | | |
| 课程代码  （Course Code） | BI419 | 学时  （Credit Hours） | 32 | 学分  （Credits） | | 2 | |
| 课程名称  （Course Name） | 发育生物学 | | | | | | |
| Developmental Biology | | | | | | |
| 课程性质  (Course Type) | 培养计划内课程 | | | | | | |
| 授课对象  （Target Audience） | 生命学院本科生 | | | | | | |
| 授课语言  (Language of Instruction) | 中英双语 | | | | | | |
| 开课院系  （School） | 生命科学技术学院 | | | | | | |
| 先修课程  （Prerequisite） | 动物学、植物学、细胞生物学、遗传学等 | | | | | | |
| 授课教师  （Teacher） | 李明发 | | 课程网址  (Course Webpage) | |  | |
| \*课程简介（Description） | 一个多细胞生物体如何由受精卵发育而来？这是发育生物学需解答的核心科学问题。作为当代生物学的一个有机组成部分，发育生物学源自经典的胚胎学，但其在研究深度及广度上已超越了胚胎学的范畴。本课程以模式动、植物发育为主线，系统讲授主要发育事件所涵盖的形态学过程及发育基本原理，始终强调发育基本原理如细胞增殖与凋亡、细胞命运决定与分化、细胞诱导、细胞识别与黏附、细胞形变与运动以及模式建成与形态发生等是所有发育事件（过程）的核心与本质。授课重点内容包括生殖细胞发育、胚胎发育与器官发生、植物发育以及干细胞生物学等。同时，对发育过程中的遗传调控机制的阐述也是本课程教学的中心环节。总之，本课程旨在深化对发育生物学学科思想乃至生命科学整体的的理解和把握，使学生熟悉本学科的研究思路和基本方法，进而提高发现问题、分析及解决问题的能力。 | | | | | | |
| \*课程简介（Description） | How does a multicellular organism develop from a fertilized egg? This is a key question that needs to be resolved by studies in developmental biology. As one of the most important parts of comtemporary biology, developmental biology as an independent discipline stems from, but is beyond embryology in regards to the depth and width. In this course, we will systematically discuss all major developmental event/processes throughout the development of selected model animals and plants, focusing on the underlying morphological processes and essential developmental principles. The course will highlight the essential principles of development such as cell proliferation and programmed cell death, cell fate determination and differentiation, cell induction, cell recognition and adhesion, change in cell shape and cell movements, patterning and morphogenesis that are considered as the cores of development. The lectures in this course will cover germ cell development, embryonic development, organogenesis , plant development and stem cell biology etc. Meanwhile, we will definitely introduce and study developmental genetics in the course, that is to dissect genetic regulatory mechanisms controlling the developmental processes. In sum, this course is aimed at providing those undergraduates with capcities for fully understanding developmental biology and life sciences as a whole, enabling them master the research strategies and essential approaches for this discipline, and promote their abilities of asking and answering questions. | | | | | | |
| 课程教学大纲（course syllabus） | | | | | | | |
| \*学习目标(Learning Outcomes) | 1．掌握发育的基本原理、主要发育过程及其遗传调控机制  2．熟悉发育生物学学科的研究思路与基本方法，提高分析、解答问题的能力  3．从整体层面加深对生命科学的理解与把握 | | | | | | |
| \*教学内容、进度安排及要求  (Class Schedule  & Requirements) | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 教学内容 | 学时 | 教学方式 | 作业及要求 | 基本要求 | 考查方式 | | 发育概论 | 2 | 讲授 |  |  |  | | 发育信号 | 2 | 讲授 |  |  |  | | 生殖细胞发育与受精 | 4 | 讲授 |  |  |  | | 早期胚胎发育 | 4 | 讲授 |  |  |  | | 体轴的模式建成（无脊椎动物） | 6 | 讲授 |  |  |  | | 体轴的模式建成（脊椎动物） | 4 | 讲授 |  |  |  | | 器官发生（I） | 2 | 讲授 |  |  |  | | 器官发生（II） | 2 | 讲授 |  |  |  | | 植物发育 | 4 | 讲授 |  |  |  | | 干细胞生物学 | 2 | 讲授 |  |  |  | |  |  |  |  |  |  | | …… |  |  |  |  |  | | | | | | | |
| \*考核方式  (Grading) | 由课堂表现、平时作业及期末考试成绩三部分组成 | | | | | | |
| \*教材或参考资料  (Textbooks & Other Materials) | （填写语言对英）1 Principles of Development. Second edition. Lewis Wolpert. Oxford University Press  2 Developmental Biology. The 9th Edition. Scott F Gilbert. Sinauer Associates, INC., Publishers  3发育生物学原理，樊启昶、白书农编著，高等教育出版社 | | | | | | |
| 其它  （More） | 无 | | | | | | |
| 备注  （Notes） | 无 | | | | | | |

备注说明：

1．带\*内容为必填项。

2．课程简介字数为300-500字；课程大纲以表述清楚教学安排为宜，字数不限。