

課程流水號 Serial Number	24020
課號 Course Number	LS5024
班次 Class	*
科目名稱(中文) Course Title(in Chinese)	發育生物學
科目名稱(外文) Course Title(In English or other languages)	Developmental Biology
授課老師(中文) Instructor(in Chinese)	陳盛良
授課老師(外文) Instructor(In English or other languages)	Shen-Liang Chen
辦公時間(中文) Office Hour(in Chinese)	week days 0800-1800
辦公時間(外文) Office Hour(In English or other languages)	week days 0800-1800
課程目標(中文) Course Objective(in Chinese)	介紹學生認識模式生物的發育過程
課程目標(外文) Course Objective(In English or other languages)	This subject is designed for undergraduate and postgraduate students who have no previous training in embryology and developmental biology related fields. This subject is a one year course with two credits for each semester. Interested students should have basic knowledge in Cell Biology, Biochemistry, and Molecular Biology, before they take this subject. Students taking this subject will be introduced with the early development of four model animals, including fruit fly, zebra fish, nematode, and mouse/human. The creation of organisms by the fertilization of sperms and eggs will also be discussed.
授課內容(中文) Course Description(in Chinese)	Developmental Biology

This subject is designed for undergraduate and postgraduate students who have no previous training in embryology and developmental biology related fields. This subject is a one year course with two credits for each semester. Interested students should have basic knowledge in Cell Biology, Biochemistry, and Molecular Biology, before they take this subject. Students taking this subject will be introduced with the early development of four model animals, including fruit fly, zebra fish, nematode, and mouse/human. The creation of organisms by the fertilization of sperms and eggs will also be discussed.

Text book: Developmental Biology, 8th edition 2006, by Scott F. Gilbert

The application of these knowledge in biomedical research and clinical therapy will be discussed at the end of each chapter.

The following is the syllabus for each semester:

#### Scheduals of Developmental Biology(I)

Introduction

Experimental Embryology

Fertilization

Sex-determination

The saga of the germ line

Early development in invertebrates-Sea Urchin

Early development in invertebrates-C. elegans

The genetics of axis specification in

Drosophila

#### Scheduals of Developmental Biology(II)

Early development in amphibians

The early development of vertebrates: Fish

The early development of vertebrates: Birds

The early development of vertebrates:

Mammals

The emergence of the ectoderm-CNS, EYE.  
and neural crest cells

Paraxial mesoderm: the derivatives of somites

	<p>Intermediate mesoderm: the urogenital system  Lateral plate mesoderm: the vascular system/blood  The development of endoderm derivatives  Metamorphosis  Regeneration and aging</p>
<p>授課內容(外文)  Course Description(In English or other languages)</p>	<p>Introduction  Experimental Embryology  Fertilization  Sex-determination  The saga of the germ line  Early development in invertebrates-Sea Urchin  Early development in invertebrates-C. elegans  The genetics of axis specification in Drosophila</p> <p>Schedules of Developmental Biology(II)  Early development in amphibians  The early development of vertebrates: Fish  The early development of vertebrates: Birds  The early development of vertebrates: Mammals  The emergence of the ectoderm-CNS, EYE. and neural crest cells  Paraxial mesoderm: the derivatives of somites  Intermediate mesoderm: the urogenital system  Lateral plate mesoderm: the vascular system/blood  The development of endoderm derivatives  Metamorphosis  Regeneration and aging</p>
<p>教科書/參考書(中文)  Textbook/References(in Chinese)</p>	<p>Developmental Biology, 8th edition 2006, by Scott F. Gilbert</p> <p>And</p> <p>Principles of Development: Lewis Wolpert</p> <p>Principles of Developmental Biology: F. H. Wilt &amp; S. C.Hake</p>
<p>教科書/參考書(外文)  Textbook/References(In English or other languages)</p>	<p>Developmental Biology, 8th edition 2006, by Scott F. Gilbert</p>

	And Principles of Development: Lewis Wolpert
自編教材比例 Self-compiled Textbook/References Proportion	
授課方式 Requirements	講授Lecture
評量配分比重(中文) Grading(in Chinese)	Written tests including mid-term (50%) and final(50%) tests.
評量配分比重(外文) Grading(In English or other languages)	Written tests including mid-term (50%) and final(50%) tests.
課程所屬學制 Educational System	博士班(Doctoral Programme)
課程領域 Course Domain	醫藥
跨系課程領域 Cross Department Course Domain	

強度指數 Overall Rating  系所核心能力 Core Competencies of Department	0	1				5	評量方式 Corresponding Assessments
	不 具 備 Zero	非 常 低 Very Low	2 低 Low	3 普通 Medium	4 高 High	非常 高 Very High	

強度指數 Overall Rating  系所核心能力 Core Competencies of Department	0 不 具 備  Zero	1 非 常 低  Very Low	2 低  Low	3 普通  Medium	4 高  High	5 非 常 高  Very High	評量方式 Corresponding Assessments
高等生物專業知識 Advanced Biological Sciences	●	●	●	●	●	●	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 紙筆測驗/會考 (Test/Exam)</li> <li><input type="checkbox"/> 作業練習 (Assignments)</li> <li><input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam)</li> <li><input type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper))</li> <li><input type="checkbox"/> 實作/實驗 (Practices/Experiments)</li> <li><input type="checkbox"/> 出席/課堂表現 (Attendance/Performance)</li> <li><input type="checkbox"/> 學習檔案評量 (Portfolios Assessment)</li> <li><input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment)</li> <li><input type="checkbox"/> 作品/創作展演 (Products/Creative Performance)</li> <li><input type="checkbox"/> 其他(Others)</li> <li><input type="checkbox"/> 無(No assessment)</li> </ul>

<p>強度指數 Overall Rating</p> <p>系所核心能力 Core Competencies of Department</p>	<p>0 不 具 備 Zero</p>	<p>1 非 常 低 Very Low</p>	<p>2 低 Low</p>	<p>3 普通 Medium</p>	<p>4 高 High</p>	<p>5 非 常 高 Very High</p>	<p>評量方式 Corresponding Assessments</p>
<p>創新及整合研究 Innovative and integrative research</p>	<p>○</p>	<p>○</p>	<p>○</p>	<p>○</p>	<p>○</p>	<p>○</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 紙筆測驗/會考 (Test/Exam)</li> <li><input type="checkbox"/> 作業練習 (Assignments)</li> <li><input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam)</li> <li><input type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper))</li> <li><input type="checkbox"/> 實作/實驗 (Practices/Experiments)</li> <li><input type="checkbox"/> 出席/課堂表現 (Attendance/Performance)</li> <li><input type="checkbox"/> 學習檔案評量 (Portfolios Assessment)</li> <li><input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment)</li> <li><input type="checkbox"/> 作品/創作展演 (Products/Creative Performance)</li> <li><input type="checkbox"/> 其他(Others)</li> <li><input type="checkbox"/> 無(No assessment)</li> </ul>

強度指數 Overall Rating  系所核心能力 Core Competencies of Department	0 不 具 備  Zero	1 非 常 低  Very Low	2 低  Low	3 普通  Medium	4 高  High	5 非 常 高  Very High	評量方式 Corresponding Assessments
專業寫作與表達 Professional writing and presentation	○	○	○	○	○	○	<input checked="" type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)

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國際觀 International vision	●	●	●	●	●	●	<input checked="" type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)