

國立清華大學 108 學年第 2 學期新開課程課程大綱

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| 科號 | LSMC515x | 組別 | 00 | 學分 | 2 | 人數限制 | 0 |
| 修課年級 | <ul style="list-style-type: none"> ■ 大學部 二 年級以上 ■ 碩士班一年級以上(含博士班) ■ 碩士班二年級以上(含博士班) | | | | | | |
| 上課時間 | RaRb | | | 教室 | LS II 生二 213 | | |
| 科目中文名稱 | 演化發育生物學特論 | | | | | | |
| 科目英文名稱 | Special Topics on Evolutionary Developmental Biology | | | | | | |
| 任課教師 | 黃貞祥 | | | | | | |
| 擋修科目 | 無 | | | 擋修分數 | 無 | | |

※下列各欄由任課教師提供※

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| 一、課程說明 | Evolutionary developmental biology (informally, evo-devo) is a field of biological research that compares the developmental processes of different organisms to infer the ancestral relationships between them and how developmental processes evolved. There is a particular focus on the genetic basis of phenotypic structures, how they change during evolution, and how novel structures arise. The fundamentals of evo-devo will be introduced. We will also discuss articles from the original scientific literature at class. |
| 二、指定用書 | <ol style="list-style-type: none"> 1. Arthur W 1997. <i>The Origin of Animal Body Plans</i> . Cambridge (UK): Cambridge University Press. 2. Gerhart J Kirschner M 1997. <i>Cells, Embryos, and Evolution</i> . Malden (MA): Blackwell Science. 3. Hall BK 2012. <i>Evolutionary Developmental Biology</i> 2nd ed. Springe. 4. Raff RA 1996. <i>The Shape of Life</i> . Chicago: University of Chicago Press. |
| 三、參考書籍 | Selected papers from high profile journals such as <i>Cell</i> , <i>Science</i> , <i>Nature</i> , <i>Nature Genetics</i> , <i>PNAS</i> , <i>PLOS Biology</i> , <i>PLOS Genetics</i> , <i>MBE</i> , <i>GBE</i> , etc. |
| 四、教學方式 | All students are required to read all assigned chapters and papers and then participate in classroom discussion. |

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| 五、教學進度 | Topics 1. Introduction to Evolutionary Developmental Biology (EvoDevo) 2. The modern synthesis of the early 20th century 3. The birth of evo-devo and a second synthesis 4. Fertilization and Cortical Rotation 5. Cleavage and Gastrulation 6. Genetic Toolkit 7. Regionalization and Organizers 8. Genetic Basis of Complexity 9. Patterning 10. Novelty 11. Evolvability and Plasticity 12. Recapitulation 13. Evolutionary morphology 14. Deep homology 15. Evo-Devo and Phylogenetics 16. Eco-evo-devo 17. Convergence |
| 六、成績考核 | Class performance: 35%. Assigned presentation: 45%. Attendance: 20%. |
| 七、講義位址 http:// | iLMS |