國立清華大學 108 學年第 1 學期新開課程課程大綱

科號	LSMC5154	組別	00	學分	2	人數限制	0
修課年級	■ 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	WbWc			教室	LS I 生一 213		
科目中文名稱	演化遺傳學特論						
科目英文名稱	Special Topics on Evolutionary Genetics						
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※

一、課程說明	Evolutionary genetics is the study of how genetic variation leads to evolutionary change. It includes topics such as the evolution of genome structure, the genetic basis of speciation and adaptation, and genetic change in response to selection within populations. The fundamentals of evolutionary genetics will be introduced. We will also discuss articles from the original scientific literature at class.
二、指定用書	*Homology, Genes, and Evolutionary Innovation* by Günter P. Wagner, Princeton University Press (2014)
三、參考書籍	Selected papers from high profile journals such as *Cell, Science, Nature, Nature Genetics, PNAS, PLOS Biology, PLOS Genetics, MBE, GBE*, etc.
四、教學方式	All students are required to read all assigned chapters and papers and then participate in classroom discussion.
五、教學進度	**Topics** ● GENOME EVOLUTION ■ Origins of New Genes and Pseudogenes ● PHYLOGENY ■ Reading a Phylogenetic Tree: The Meaning of Monophyletic Groups ■ Trait Evolution on a Phylogenetic Tree: Relatedness, Similarity, and the Myth of Evolutionary Advancement ● MACROEVOLUTION ■ The Molecular Clock and Estimating Species Divergence ● SPECIATION

	■ Haldane's Rule: the Heterogametic Sex ■ Hybrid Incompatibility and Speciation ■ Hybridization and Gene Flow ■ Why Should We Care about Species? ● MICROEVOLUTION ■ Evolutionary Adaptation in the Human Lineage ■ Genetic Mutation ■ Natural Selection: Uncovering Mechanisms of Evolutionary Adaptation to Infectious Disease ■ Negative Selection ■ Neutral Theory: The Null Hypothesis of Molecular Evolution ■ Sexual Reproduction and the Evolution of Sex **Schedule:** Week 1~4: Genome Evolution Week 5~6: Phylogeny Week 7~10: Macroevolution Week 11~13: Speciation Week 14~18: Microevolution
六、成績考核	Class performance: 35%. Assigned presentation: 45%. Attendance: 20%.
七、講義位址 http://	iLMS