

## 【專題講座】

# Recent Advances at the Cross-Section of Evolutionary Biology and Public Health

### 一、演講摘要：

Evolutionary Biology is the study of genetic relationships between different species. In this seminar, I will start by describing the deep connection between this field and the study of disease transmission and progression, to motivate the importance of some of my own research. I will then discuss the results from two of my ongoing lines of research in this area. First, we have developed a method for distinguishing between two distinct evolutionary processes, known as “horizontal gene transfer” and “convergent evolution.” Both of these processes leave a mark on DNA sequences that can look similar by the usual metrics. Our method relies on a novel counting technique which I will describe at a basic level, demonstrate how it accomplishes our goal of distinguishing between these two processes, and discuss why this distinction is important to further our understanding of particular disease processes. Second, we introduce a new model to describe the process of evolution, which will enable improved inference of the true phylogenetic tree. Current state-of-the-art models of DNA evolution assume that each site on a DNA sequence are independent from each other, due to the mathematical elegance that results from making this assumption. However, independence is known to be untrue for a variety of biological reasons, and yet no attempt to remedy this shortcoming of current models has yet become widely used. Our model describes a high level of biological realism by accounting for biophysical interactions between individual amino acids that make up DNA. I will conclude by describing how the improved phylogenetic inference from this model may enable a better understanding of particular diseases.

二、演講者：Peter Chi, Ph.D. Assistant Professor of Statistics Department of Mathematics and Computer Science Ursinus College

三、時間：107年5月30日（星期三）15：10-17：00

四、地點：中國醫藥大學立夫教學大樓13樓階梯教室

五、參加對象：本校教職員生、附醫人員

六、報名時間：即日起至5月29日（星期二）止。

七、名額：線上報名60名，額滿為止，15：40後恕不受理簽到與現場報名。

八、報名網址：<http://webap.cmu.edu.tw/cfd/Apply.asp>

### 九、議程

時間	主題	主講人	主持人
14:50~15:10	報到		
15:10~15:20	開幕致詞	教師發展中心 梁文敏 主任	
15:20~16:40	Recent Advances at the Cross-Section of Evolutionary Biology and Public Health	Peter Chi, Ph.D.	
16:40~17:00	Q&A 時間	Peter Chi, Ph.D.	梁文敏 主任
17:00~	賦歸		

### 十、備註：

1.時數(研習)認證：

(學校)教師：登錄教師研習積分1分。

(附醫)醫療人員：認列一般醫學能力2小時。

全程參與者，確實完成簽到退及課後問卷，將於會後核給研習積分或時數，活動開始30分鐘後，恕不受理簽到，未全程參與者，恕不給予積分/時數認證。

2.因名額有限，如報名後不克前往參加，請透過線上報名系統或電話取消報名，避免造成他人權益受損。

### 十一、聯絡人：

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