

Special Topics on Pathogen Evolution (I)

<p>一、課程說明 Course Description</p>	<p>This advanced course aims to provide students with a comprehensive understanding of the concepts and methods in pathogen population genetics, a field that is currently undergoing rapid growth. Through reading of primary literature, class participation, oral presentations, and group discussions, students will explore the fundamental population-level processes that shape genetic variation in pathogen populations, as well as the latest statistical methods for analyzing pathogen genetic data.</p>
<p>二、指定用書 Text books</p>	<p>Selected papers</p>
<p>三、參考書籍 References</p>	<ul style="list-style-type: none"> • Bacterial Population Genetics in Infectious Disease ISBN:9780470424742 • Additional resources (額外學習資源之內容): Molecular Evolution online course from NTU (http://ocw.aca.ntu.edu.tw/ntu-ocw/ocw/cou/100S225)
<p>四、教學方式 Teaching Method</p>	<p>All students are required to present and participate in classroom discussion.</p>
<p>五、教學進度 Syllabus</p>	<p>This course encourages students to share important new research in the field of pathogen evolution as well as their own research findings, explore areas where current research is lacking, refine their own research projects, identify possible future research directions, and develop skills in oral presentations and Q&A. Each week, students will deeply examine and analyze academic papers and experimental data.</p> <p>This course will focus on the following research topics that are currently ongoing in Dr. Chang's lab.</p> <ol style="list-style-type: none"> 1. Statistical methods for detecting the presence of Natural Selection 2. Methods for studying migration and population structure of pathogens 3. Sequence simulations 4. Genetic diversity in pathogen populations 5. Modeling immune selection in pathogens
<p>六、成績考核 Evaluation</p>	<p>Class discussion: 30%. Assigned presentation: 50%. Attendance: 20%.</p> <p>Course policy for AI usage: Conditionally open; please specify how to utilize generative AI in course output.</p> <p>Grounded in the principles of transparency and responsibility, this course encourages students to leverage AI for collaboration and mutual learning to enhance the quality of course outputs. In accordance with the published Guidelines for Collaboration, Co-learning, and Cultivation of Artificial Intelligence Competencies</p>

	<p>in University Education, this course adopts the following policy:</p> <ul style="list-style-type: none">• Conditionally open Students must briefly explain how generative AI was used for topic ideation, sentence refinement, or structural reference in the footnotes of the title page or after the reference in their assignments or reports. If usage is discovered without proper disclosure, instructors, the institution, or relevant units have the right to reevaluate the assignment or report or withhold scores.• If the course materials or learning resources have been derived from generative AI, the instructor will also indicate this in the slides or orally.• Students enrolled in this course agree to the above ethics statement if registering for the class.
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