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②國玄東華大學

教學計劃表 Syllabus

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課程名稱(中文) Course Name in Chinese	統計專論(一)			學年/學期 Academic Year/Semester		113/2	
課程名稱(英文) Course Name in English	Topics in Statistics (I)						
科目代碼 Course Code	AM70100	系級 Department & Year	博士	開課單位 Course-Offering Department	應用數學系		
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)		3.0/3.0			
授課教師 Instructor	/簡立欣						
先修課程 Prerequisite							
was bush of Bridge							

課程描述 Course Description

本課程主要介紹利用群體資料進行基因體研究相關的統計方法,包含方法背後的問題背景,以及相關統計概念。 This course primarily introduces statistical methods for genomic research using population data, including the background of the problems behind these methods and relevant statistical concepts.

課程目標 Course Objectives

由任課教師專長區分,設定個別目標。

Course objectives are subject to the expertise of the instructor.

	系專業能力 Basic Learning Outcomes	課程目標與系專業能 力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	具備專業知識及邏輯推理能力。Have well-founded expertise and be capable of logical reasoning.	•
A	具備專業知識及邏輯推理能力。Have well-founded expertise and be capable of logical reasoning.	•
В	具備學習其它學科的能力,以期能邁向跨領域研究。 Be able to study other fields of science so as to conduct interdisciplinary research in the future.	•
В	具備學習其它學科的能力,以期能邁向跨領域研究。 Be able to study other fields of science so as to conduct interdisciplinary research in the future.	•
С	具備獨立思考與解決問題的能力。 Be capable of independent thinking and have the problem-solving skills.	•
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圖示說明Illustration : ● 高度相關 Highly correlated ○中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	Introduction	
2	Fundamental Concepts and the Human Genome	
3	Hardy-Weinberg Equilibrium/Linkage Disequilibrium	
4	Population Structure and Stratification	

5	Genome-Wide Association Studies (GWAS)						
6	Statistical Models for Genetic Data Analysis						
7	Statistical Models for Genetic Data Analysis						
8	Statistical Models for Genetic Data Analysis						
9	期中考試週 Midterm Exam						
10	Heritability						
11	Heritability / Genotype Imputation						
12	Genotype Imputation						
13	Meta-analysis						
14	Meta-analysis						
15	Mendelian Randomization and Instrumental Variables						
16	Mendelian Randomization and Instrumental Variables						
17	Final Report						
18	期末考試週 Final Exam						
	教 學 策 略 Teaching Strategies						
✓ 課堂講授 Lecture							
其他Miscellaneous:							
教 學 創 新 自 評 Teaching Self-Evaluation							
創新教學(Innovative Teaching)							
✓ 問題導向學習(PBL) ■ 團體合作學習(TBL) ■ 解決導向學習(SBL)							
翻轉教室 Flipped Classroom							
社會責任(Social Responsibility)							
■ 在地實踐Community Practice ■ 産學合作 Industy-Academia Cooperation							
跨域合作(Transdisciplinary Projects)							
□ 跨界教學Transdisciplinary Teaching □ 跨院系教學Inter-collegiate Teaching							
□ 業師合授 Courses Co-taught with Industry Practitioners							
其它 other:							

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	目 配分比例 多元評量方式 Assessments								
Items	Percentage	測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績(含出缺席) General Performance (Attendance Record)	10%		~						
期中考成績 Midterm Exam	30%	>							
期末考成績 Final Exam	30%			~	~				
作業成績 Homework and/or Assignments	30%		~						
其他 Miscellaneous	0%								

評量方式補充說明

Grading & Assessments Supplemental instructions

評量方式補充說明

Grading & Assessments Supplemental instructions

教科書與參考書目(書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

- 1. Mills, Melinda, Nicola Barban, and Felix C Tropf. An Introduction to Statistical Genetic Data Analysis / Melinda C. Mills, Nicola Barban, and Felix C. Tropf. Cambridge, Massachusetts: The MIT Press, 2020. Print.
- 2. https://genome.sph.umich.edu/wiki/Biostatistics_666:_Main_Page
- 3. Ziegler, Andreas; König, Inke R. (2010) A Statistical Approach to Genetic Epidemiology: With Access to E-Learning Platform by Friedrich Pahlke, Second Edition.

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課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.

Personal website can be listed here.)

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

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其他補充說明(Supplemental instructions)

其他補充說明 (Supplemental	l instructions)	