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②图玄東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	生物資訊分析				學年/學期 Academic Year/Semester		112/1	
課程名稱(英文) Course Name in English	Bioinformatics	s analysis		·				
科目代碼 Course Code	LF33470	系級 Department & Year	學三		開課單位 Course-Offering Department	生命科學系		
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)		•	3.0/3.0			
授課教師 Instructor	/傅詩宸							
先修課程 Prerequisite								

課程描述 Course Description

and genomic research. Through a combination of theoretical lectures, hands-on practical exercises, and discussions, students will delve into the core concepts of bioinformatics, the central dogma of molecular biology, Polymerase Chain Reaction (PCR), next-generation sequencing (NGS), basic Linux commands for data analysis, and key considerations in human genome and microbiome research. By the end of this course, students will have the knowledge and skills necessary to explore the vast potential of genomic data in various research applications.

Course Objectives:

- 1. Define bioinformatics and its relevance in contemporary biological research.
- 2. Explain the central dogma of molecular biology and its role in genetic information flow.
- 3. Comprehend the principles and applications of PCR in molecular biology.
- 4. Understand the fundamentals of next-generation sequencing technologies and their applications.
- 5. Understand basic Linux commands for bioinformatics analysis.
- 6 Gain insights into human genome research microhiome research and associated challenges

課程目標 Course Objectives

This course covers the computational analysis of several important forms of genomic data. Topics include reproducible research principles, genomics workflows, sequence alignment, genome annotation, parallel computing, and metagenomics. Participants will be familiar with the up-to-date analyses of data extracted from both human and bacteria at the end of the semester.

	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	具備生命科學相關學科之基礎知識Having the basic knowledge of life science.	•
В	具備邏輯分析與解決問題的能力Having the capabilities of logical analysis and problem solving	•
С	具備資料整合、數據分析與書面及口頭報告之能力Having the capabilities of data integration and analysis, and the skills of written and poster presentation.	•
D	具備終生學習的能力Having the capability of lifelong learning.	0
同一		1 , 1

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 to the course	
2	Lecture 1	
3	Lecture 2, review + Quiz 1	
4	Lecture 3	
5	Lecture 4, review + Quiz 2	
6	Lecture 5	
7	Lecture 6, review + Quiz 3	
8	Lecture 7	
9	Class cancelled	
10	Midterm exam	
11	TA hour	
12	Proposal writing	
13	Turn in proposal/ Proposal presentation	
14	TA hour	
15	Turn in final report/ Final presentation I	
16	Final presentation II	
17	Closing remarks	
18		
	教學策略 Teaching Strategies	
	授 Lecture	Field Trip
N1 3-2 1-1 653 /	教學創新自評 Teaching Self-Evaluation	
	Innovative Teaching)	3 aa (ODI)
	向學習(PBL) ■ ■ 團體合作學習(TBL) 解決導向導	を智(SBL)
	室 Flipped Classroom	
	Social Responsibility)	
	産學合作 Industy-Academia Cooperati	on
	Transdisciplinary Projects)	
跨乔教	學Transdisciplinary Teaching跨院系教學Inter-collegiate Teaching	5
業師合	授 Courses Co-taught with Industry Practitioners	
其它 othe	r:	

	學期成績計算	草及多元	、評量方式	犬 Gradi	ng & As	sessmen	ts		
配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		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 General Performance									
期中考成績 Midterm Exam									
期末考成績 Final Exam									
作業成績 Homework and/or Assignments									
其他 Miscellaneous ()									
	Grading & A		量方式和 ents Sup			ruction	ıs		
Textbook & Ot	教科書與參考 her References					-		ks, etc.)	
	教材網址(含線 ids & Teacher'								

其他補充說明(Supplemental instructions)