

課程流水號 Serial Number	24041
課號 Course Number	LS6100
班次 Class	*
科目名稱(中文) Course Title(in Chinese)	專題研究：蛋白質之純化與性質分析
科目名稱(外文) Course Title(In English or other languages)	Special Topics in Protein purification and analysis
授課老師(中文) Instructor(in Chinese)	陳青諭
授課老師(外文) Instructor(In English or other languages)	Chin-Yu Chen
辦公時間(中文) Office Hour(in Chinese)	Wed PM 10:00~12:00
辦公時間(外文) Office Hour(In English or other languages)	Wed PM 10:00~12:00
課程目標(中文) Course Objective(in Chinese)	Protein purification is vital for the characterization of the function, structure and interactions of the target protein. Here is a practical guide to the general methods used for protein research. Basic methods for extracting, handling, storing, purifying and measuring the concentration of proteins are presented. Various approaches to the study of proteins, using gel electrophoresis and spectroscopic methods, are also covered.
課程目標(外文) Course Objective(In English or other languages)	Protein purification is vital for the characterization of the function, structure and interactions of the target protein. Here is a practical guide to the general methods used for protein research. Basic methods for extracting, handling, storing, purifying and measuring the concentration of proteins are presented. Various approaches to the study of proteins,

	using gel electrophoresis and spectroscopic methods, are also covered.
授課內容(中文) Course Description(in Chinese)	<ol style="list-style-type: none"> <li>1. Introduction of protein purified strategies</li> <li>2. Affinity chromatography</li> <li>3. Ion exchange chromatography</li> <li>4. Size exclusion chromatography</li> <li>5. Hydrophobic interaction chromatography</li> <li>6. Precipitation and differential solubilization (Ammonium sulfate precipitation)</li> <li>7. Ultracentrifugation</li> <li>8. Concentration and dialysis of purified protein</li> <li>9. Mid-term examination</li> <li>10. Gel electrophoresis ( SDS-PAGE and native gel)</li> <li>11. UV-visible spectroscopy</li> <li>12. Fluorescence spectroscopy</li> <li>13. CD-ORD</li> <li>14. Light scattering measurement</li> <li>15. Over-expression and purification of membrane protein</li> <li>16. Journal meeting</li> <li>17. Journal meeting</li> <li>18. Final examination</li> </ol>
授課內容(外文) Course Description(In English or other languages)	<ol style="list-style-type: none"> <li>1. Introduction of protein purified strategies</li> <li>2. Affinity chromatography</li> <li>3. Ion exchange chromatography</li> <li>4. Size exclusion chromatography</li> <li>5. Hydrophobic interaction chromatography</li> <li>6. Precipitation and differential solubilization (Ammonium sulfate precipitation)</li> <li>7. Ultracentrifugation</li> <li>8. Concentration and dialysis of purified protein</li> <li>9. Mid-term examination</li> <li>10. Gel electrophoresis ( SDS-PAGE and native gel)</li> <li>11. UV-visible spectroscopy</li> <li>12. Fluorescence spectroscopy</li> <li>13. CD-ORD</li> <li>14. Light scattering measurement</li> <li>15. Over-expression and purification of membrane protein</li> <li>16. Journal meeting</li> </ol>

	17. Journal meeting 18. Final examination
教科書/參考書(中文) Textbook/References(in Chinese)	Protein Purification: Principles and Practice Robert K. Scopes Protein methods Daniel M. Bollag/ Michael D. Rozycki /Stuart J. Edelstein
教科書/參考書(外文) Textbook/References(In English or other languages)	Protein Purification: Principles and Practice Robert K. Scopes Protein methods Daniel M. Bollag/ Michael D. Rozycki /Stuart J. Edelstein
自編教材比例 Self-compiled Textbook/References Proportion	
授課方式 Requirements	講授Lecture 研討Seminar 實習/實驗 Internship/Experiment
評量配分比重(中文) Grading(in Chinese)	期中報告50%，期末報告50%
評量配分比重(外文) Grading(In English or other languages)	期中報告50%，期末報告50%
課程所屬學制 Educational System	博士班(Doctoral Programme)
課程領域 Course Domain	基礎學科
跨系課程領域 Cross Department Course Domain	

強度指數 Overall Rating  系所核心能力 Core Competencies of Department	0	1	2	3	4	5	評量方式 Corresponding Assessments
	不具備 Zero	非常低 Very Low	低 Low	普通 Medium	高 High	非常高 Very High	

系所核心能力 Core Competencies of Department	0	1	2	3	4	5	評量方式 Corresponding Assessments
	不具備 Zero	非常低 Very Low	低 Low	普通 Medium	高 High	非常高 Very High	
強度指數 Overall Rating  高等生物專業知識 Advanced Biological Sciences	●	●	●	●	●	●	<input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input checked="" type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)

<div>強度指數</div> <div>Overall Rating</div> <div>系所核心能力</div> <div>Core Competencies of Department</div>	0	1	2	3	4	5	評量方式 Corresponding Assessments
	不具備	非常低	低	普通	高	非常高	
	Zero	Very Low	Low	Medium	High	Very High	
創新及整合研究 Innovative and integrative research	●	●	●	●	●	●	<input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input checked="" type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)

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	不具備 Zero	非常低 Very Low	低 Low	普通 Medium	高 High	非常高 Very High	
專業寫作與表達 Professional writing and presentation	●	●	●	●	●	●	<input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)

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	不具備 Zero	非常低 Very Low	低 Low	普通 Medium	高 High	非常高 Very High	
國際觀 International vision	●	●	●	●	●	●	<input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment)