

國立清華大學 112 學年第 2 學期新開課程課程大綱

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| 科號 Course Number | 11220LSC 274200 | 學分 Credit | 0.5 | 人數限制 Class Size | 30 |
| 中文名稱 Course Title | 如何商業化生物醫學技術？你做得到！ | | | | |
| 英文名稱 Course English Title | How to commercialize biomedical technology? Yes you can! | | | | |
| 任課教師 Instructor | 高為元 (W. John Kao) | | | | |
| 上課時間 Time | W3 | 上課教室 Room | LS II 生二 213 | | |

課程簡述(必填) (最多 500 個中文字) 本欄位資料會上傳教育部課程網
Brief Course Description (required) (50-200 words if possible, up to 1000 letters)

Biomedical technology covers a wide range of products including therapeutics, devices, and diagnostics to improve human health and the quality of life. It's a fast-growing sector with a global market size of \$503,205 million USD with a CAGR of 4.4%. It's also a strategic area of development for Taiwan and many countries/regions around the world. In this course, we will cover several key concepts including "value chain", "patient journey", and "innovation ecosystem" with specific case studies to illustrate technology translation from basic research, through development, to market adoption. "Lean Startup" as a methodology for business model and product development will be discussed. To apply their learning, students will work in teams to develop their own "lean startup canvas". A major learning outcome is to have sufficient understanding to enable students to take on their own entrepreneurial journey in any technology domain (not just limited to biomedical).

請輸入課程內容「中文暨英文關鍵字」至少 5 個, 每個關鍵字至多 20 個中文, 以半形逗點分隔 (必填)

Please fill in at least 5 course keywords (up to 40 letters for each keyword) and use commas to separate them.(required)

Biomedical technology, translational research, lean startup, entrepreneur, value chain

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| <p>一、課程說明</p> | <p>Biomedical technology covers a wide range of products including therapeutics, devices, and diagnostics to improve human health and the quality of life. It's a fast-growing sector with a global market size of \$503,205 million USD with a CAGR of 4.4%. It's also a strategic area of development for Taiwan and many countries/regions around the world. In this course, we will cover several key concepts including “value chain”, “patient journey”, and “innovation ecosystem” with specific case studies to illustrate technology translation from basic research, through development, to market adoption. “Lean Startup” as a methodology for business model and product development will be discussed. To apply their learning, students will work in teams to develop their own “lean startup canvas”. A major learning outcome is to have sufficient understanding to enable students to take on their own entrepreneurial journey in any technology domain (not just limited to biomedical).</p> <p>Open to Year 2 students and above. Class date : 2/21、3/6、3/20、4/10、4/24、5/8、5/22、5/29、6/5</p> |
| <p>二、指定用書</p> | <p>Kleinbeck K, Anderson E, Ogle M, Burmania J, Kao WJ. The new (challenging) role of academia in biomaterial translational research and medical device development. <i>Biointerphases</i>. 2012; 7: 12. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3746065/</p> <p>Blank S. Why the lean startup changes everything, <i>Harvard Business Review</i>, May 2013. https://hbr.org/2013/05/why-the-lean-start-up-changes-everything</p> |
| <p>三、參考書籍</p> | |

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| 四、教學方式 | Lectures, peer-learning, group presentation |
| 五、教學進度 | <p>wk 1 introduction, patient journey, value chain</p> <p>wk 2 no class</p> <p>wk 3 translational research, case study 1</p> <p>wk 4 no class</p> <p>wk 5 translational research, case study 2</p> <p>wk 6 no class</p> <p>wk 7 no class</p> <p>wk 8 innovation ecosystem</p> <p>wk 9 no class</p> <p>wk 10 lean startup</p> <p>wk 11 no class</p> <p>wk 12 lean startup canvas, assign student group projects</p> <p>wk13 no class</p> <p>wk 14 student group presentations</p> <p>wk 15 student group presentations</p> <p>wk 16 student group presentations</p> |
| 六、成績考核 | <p>Class participation (20%)</p> <p>Group presentation (written report) 40%</p> <p>Group presentation (oral presentation) 40%</p> <ul style="list-style-type: none"> ● Policy on the use of AI: Conditionally open; please specify how generative AI will be used in course output |
| 七、可連結之網頁 位址(相關網頁) | <p>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3746065/</p> <p>https://hbr.org/2013/05/why-the-lean-start-up-changes-everything</p> <p>https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action?language=en</p> <p>https://www.youtube.com/watch?v=bNpx7gpSqBY</p> |