# 朝陽科技大學 097學年度第2學期教學大綱
# General Biology（Ⅱ ）普通生物學(二)

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| 當期課號 | 1735 | Course Number | 1735 |
| 授課教師 | 賴龍山 | Instructor | LAI,LONG SHAN |
| 中文課名 | 普通生物學(二) | Course Name | General Biology (Ⅱ ) |
| 開課單位 | 應用化學系(四日)一B | Department | |
| 修習別 | 必修 | Required/Elective | Required |
| 學分數 | 2 | Credits | 2 |
| 課程目標 | 正統的生物學教育包括國小、國中、高中以及大學之教學，主要涵蓋兩大部份：傳統生物學與分析生物學；前者包括人類感官所認知的動物、植物等(例如動物會動、植物會開花)，它是一種認知的生物學，而後者則是利用已知的物理、化學原理來探求生命現象的表徵，它用到電子顯微鏡、電泳儀、超高速離心機等作爲生物及其代謝物質的分析，主要依賴包括細胞學、生化學與遺傳學。近年來生命科學由於一些貴重儀器與技術的進步，才得以蓬勃發展，其中最令人興奮的莫過於與生物技術的進展(此技術整合與生物有關的各種知識)；您若對這些報導有興趣，就非得從基礎的生物學開始。 基本上，本學期上課內容是銜接上學期普通生物學(一)的教學內容，其主旨是儘可能地提供給同學生物科技的基本知識與全貌。 | Objectives | Biology is generally devided as traditional and analytical biology in the education of elementary schools to universities. The former part covers the principles of animals and plants through our observation and recognization, whereas the latter one describes the operational logics of life science through the development of microscopy, electrophoresis...etc. By the aid of cell biology, biochemistry and genetics the analysis of cell metabolism becomes possible and feasible. Meanwhile, the development in biotechnology, the practical application that integrates the knowledge of biology, astonishes us most. If you are interested in this field, then why not prepare yourself from the knowledge of General Biology? Overall, we will continue to introduce the basically important idea of Analytical Biology in this semester. In this way, we aim to give an overall view to biotechnology. |
| 教材 | 1.Essential Biology by Campbell, Reece and Simon (滄海書局)<br>2.自編講義<br>3.上一屆考古試題(讓同學瞭解出題方式) | Teaching Materials | 1.Essential Biology by Campbell, Reece and Simon<br>2.Notes<br>3.Examnation used last year |
| 成績評量方式 | 四次考試(含期中考,期末考與兩次考試),每次考試各占學期成績之20%,專題報告也占20%<br>課堂參與(以15%爲限,此部份成將視上課情形而調整爲隨堂小考)亦列入學期成績評量<br>特別說明:期末結算總成績時,將不再作分數調整. | Grading | 20% will be given for each of totally four examinations; meanwhile, special report also deserve 20% of the course evaluation. Moreover, an additional bonus (15% in maximum) will be provided based on the class attendance and, mostly important, course discussion. |
| 教師網頁 | | | |
| | 依據以「化學專業與其技術應用」的教學理念，本課程之規劃宗旨乃在於向同學介紹生物體運作之相關化學知識，而與本課程相關的系列課程包括微生物學，生物化學乃至於酵素學、醱酵化學、分子生物學、生物技術。我們可以這樣說，化學反應不僅發生在藥物設計的有機化學裡，也發生在生物體錯綜複雜的代謝反應中，更具體地說，有機化合物中之碳原子鍵結就是生物體最重要的碳骨架，它再配合著不同的官能基，遂在發生各式各樣的反應，舉例而言，經由生物代謝所生產的絕大部份重要物質就是透過氧化還原反應所產生的；要瞭若指掌鉛千奇百怪的大自然或開發相關的生化科技，若從「生物體之生命運作原理」之認識開始相信是必要的。 | | According to the teaching-guideline of Applied Chemistry, this course is designed to mainly introduce the knowledge of living organisms and the related disciplines, such as Biochemistry and Enzymology. As you may know, the chemical reactions not only occur in the transformation of chemicals that is described by Organic Chemistry, but also happen in sophisticated metaboism of organisms. More specifically, the carbon-linkage in organic compounds is the most imortant skelton in organisms; meanwhile, the metabolic pathways leading to the production of important compounds involve oxidation and reduction. To understand the biodiversity or to |

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| **教學內容** | 正統的生物學教育包括國小、國中、高中以及大學之教學，主要涵蓋兩大部份：傳統生物學與分析生物學；前者包括人類感官所認知的動物、植物等(例如動物會動、植物會開花)，它是一種認知的生物學，而後者則是利用已知的物理、化學原理來探求生命現象的表徵，它用到電子顯微鏡、電泳儀、超高速離心機等作爲生物及其代謝物質的分析，主要依賴包括細胞學、生化學與遺傳學。近年來生命科學由於一些貴重儀器與技術的進步，才得以蓬勃發展，其中最令人興奮的莫過於與生物技術的進展(此技術整合與生物有關的各種知識。舉例而，爲甚麼樹葉是綠色的；您若對這些報導有興趣，就非得從基礎的生物學開始。 | **Syllabus** | develop the associated bio-chemical technology, we personally think that it is inevitably necessary to start with the knowledge about "why, how and what the cells work".<br><br>Basically, biology is devided as two parts: traditional and analytical biology in the education of elementary schools to universities. The former part covers the principles of animals and plants through our observation and recognization, whereas the latter one describes the operational logics of life science through the development of microscopy, electrophoresis...etc. By the aid of cell biology, biochemistry and genetics the analysis of cell metabolism becomes possible and feasible. Meanwhile, the development in biotechnology, the practical application that integrates the knowledge of biology, astonishes us most. If you are interested in this field, then why not prepare yourself from the knowledge of General Biology? |

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