

課程代號：SS393 運動科學實務與應用(1) Sports Science in Practice and Application (1)

開課班別：B

開課年級：1

教師名稱：許美智

上課時間：407

上課教室：2606

教學目標 (Objective)：

使學生熟識運動營養生化之運科實務，瞭解細胞、動物實驗、至人體實驗相關指標/功效/模式；及儀器之使用，校正與維護，著重於實際之實驗操作。The subject is to provide students the practical sport nutrition, biochemistry. The students will learn how to perform and design the cell, animal, human experiments as well as the instrumental usage, calibration, and maintenance.

先修科目 (Pre-course):

無 None

教材內容 (Capability indicator):

具備運用運動科學實務與應用的能力 Able to perform sports science through practice and application

具備分析與解決運動科學相關問題的能力 Able to find, locate, and solve problems

具備運動科學專業文獻（含外語）之閱讀、寫作及發表（含外語）的能力 Able to read and write English articles

具備國際運動科學概念與學術發表的能力 Sound international scope of view in sports science

教學方式 (Teaching approach)：

實際實驗操作(operation)、小組討論(group discussion)、企業參訪(firm visiting)、研究群學術交流(research group communication)

參考書目(Reference book)：

Sci 文獻(research articles)，實驗操作光碟(operation manual)、手冊(handout)

教學進度 (Course design) :

週(week) 標題(Course Objective and Content)

- 1 課程導論 (Introduction)
- 2 人體試驗於運動科學之應用與操作 (Sports science in practice and application -human testing)
- 3 動物試驗於運動科學之應用與操作 (Sports science in practice and application-animal testing)
- 4 牛樟芝子實體機能性飲料之抗疲勞功能評估 (Anti-fatigue effects of an ethanolic extract from *Antrodia Camphorata* in exercise mice)
- 5 游泳運動對於自然老化大鼠抗衰老功效之評估(Protective effects of swimming exercise against D-galactose induced hepatic senescence in rats.)
TLR-2 基因於運動表現所扮演之角色(The role of TLR-2 gene for exercise performance)
- 6 補充相思樹抽出物對小鼠單次力竭運動後氧化壓力及其蛋白表現之影響 (The effects of Acacia extract supplement on exhaustive exercise-induced oxidative stress and protein expression in mice)
- 7 專題報告、實驗進度操作與討論一 (oral report for experiment progress and discussion-1)
- 8 專題報告、實驗進度操作與討論二 (oral report for experiment progress and discussion-2)
- 9 專題報告、實驗進度操作與討論三 (oral report for experiment progress and discussion-3)
- 10 以大鼠模式探討運動對西洋參藥物動力學之影響 (The exercise effect of American Ginseng in pharmacokinetics - by SD model)
- 11 白藜蘆醇增補對耐力運動表現、氧化壓力與發炎反應之影響 (The effects of Resveratrol supplement on endurance performance, oxidative stress, and inflammatory)
- 12 代謝體學於運動科學研究之應用 (Application of metabolomic in sport sciences)
- 13 以同位素比值質譜儀測定補充 Chrysin 對人體尿液中睪固酮及 $\delta^{13}\text{C}\%$ 之影響 (Effect of testosterone analogues and chicken testis ingestion on the $\delta^{13}\text{C}\%$ by IRMS)
- 14 檢測 Chrysin 於運動增補劑之含量 (Determinatio of chrysin in chrysin preparation)

- 15 專題報告、實驗進度操作與討論四 (oral report for experiment progress and discussion-4)
- 16 專題報告、實驗進度操作與討論五 (oral report for experiment progress and discussion-5)
- 17 專題報告、實驗進度操作與討論六 (oral report for experiment progress and discussion-6)
- 18 繳交期末報告/應用 PI3K/Akt/mTOR 路徑探討中藥對骨骼肌肉肥大功效之研究 (Turn in assignment/ The application of PI3K/Akt/mTOR pathway to investigate the hypertrophy of skeletal muscle induced by Chinese medicine)

評量方式 (Assessment) :

- 1. 作業成績(書面報告) (assignments): 20%。
- 2. 專題口頭報告(oral report): 30%。
- 3. 實際操作(perform the experiment) : 40%。
- 4. 學習態度(learning attitude): 10%。