

## 植被生態學遙測技術

### Remote Sensing in Vegetation Ecology

開設年級：大碩合開(英語授課)

開課教師：Teng-Chiu Lin

上課地點：C302

學分數：2 學分

人數限制：限 16 名生科系與相關系所選課學生

教學目標：讓學生了解生物多樣性，並學習對不同生物類群進行野外研究調查的方法、原理及分析

限修人數說明：課程包含一個簡短的野外測量環節，以及數個以英文進行的電腦實作練習。因此，較小的班級規模可能更為合適，使講師能與每位學生交流，並在實作練習中提供協助。

實際上課時間：密集連續 5 天，8 月 3 日(一)開課至 8 月 7 日(五)，為簽案之密集課程

教學內容：Presentations, practical case studies, small 野外調查

時間/ 日數	1	2	3	4	5
09:00   12:00	Introduction to remote sensing with case studies in relation to vegetation ecology	Presentation: What is forest structure?	Presentation: Forest dynamics and disturbances (focused on typhoons)	Presentation: Introduction to Google Earth Engine (GEE)	Practice and presentation around case studies: time series, land cover classification, data extraction from GEE to R
13:00   17:00	Practice: Using spatial data rasters&vectors (characteristics, access, visualization in QGIS)	Practice: Processing UAV data into large maps and model 3D canopy height with Pix4D and R; Comparing LiDAR acquired DBH estimates with tape-based measurements with R	Practice: Processing satellite imagery to assess forest change in R and QGIS	Practice: Interface, catalogue, Javascript functions and programming, first GEE case study to learn about important functions (filtering, reducing, custom functions, ...)	Practice (end). Recommendations, discussions, and conclusions

評量方式：課堂討論參與，出席，專題

備註：Each students will have to bring their computer with R and QGIS installed.

Instructions to create a Google Earth Engine account will be communicated later.