

# Analytical Geochemistry & Data Sciences 分析地球化學與資料科學



Introduction & Principles of inductively coupled plasma (ICP) based instruments / Principles of ICP-Optical Emission Spectrometry / Principles of ICP-Quadrupole Mass Spectrometry / Principles of ICP-Mass Spectrometry / Principles of Ion Chromatography / Principles of quantification methods / Principles of sampling & pretreatment methods / Principles: Experimental design strategy / Practices: Sample pretreatment and standard preparation / Data analysis & statistical analysis using R language: Introduction R / Data analysis & statistical analysis using R language: Descriptive analysis / Data analysis & statistical analysis using R language: Bivariate analysis

Analytical chemistry provides the methods and tools needed for insight into our material world...  
for answering four basic question about a material sample:

**What? How much? Where? When? What arrangement, structure or form?**

~by The federation of European Chemical Societies (1992)



國立成功大學  
地球科學系  
**劉厚均**

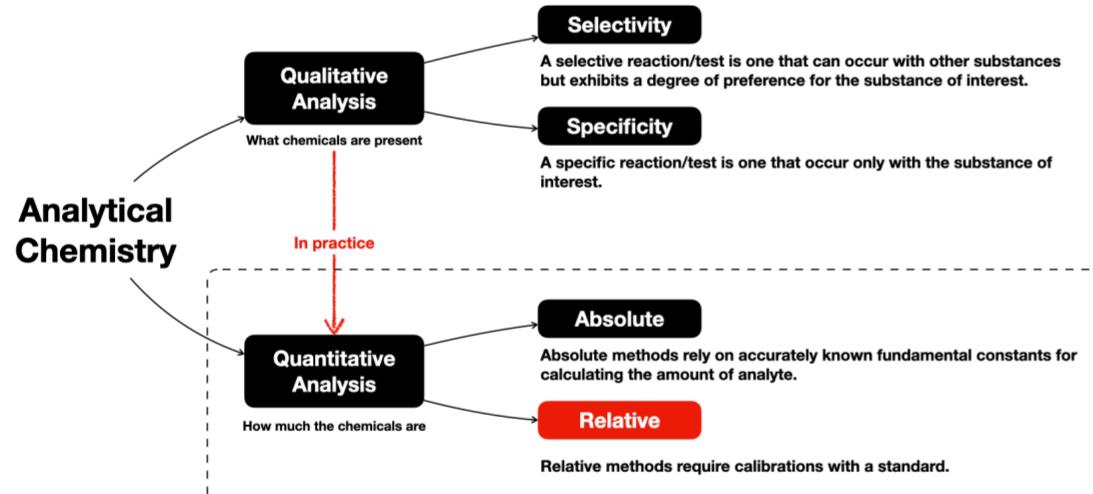


國立中正大學  
資訊管理系  
**林育秀**

15週 專業化學分析理論實務

3週 R語言視覺化資料科學實戰

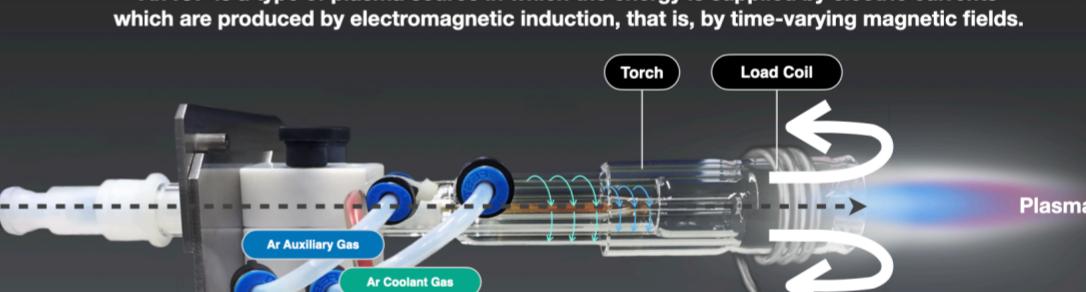
分析化學基礎理論：定性與定量



ICP感應耦合電漿原理

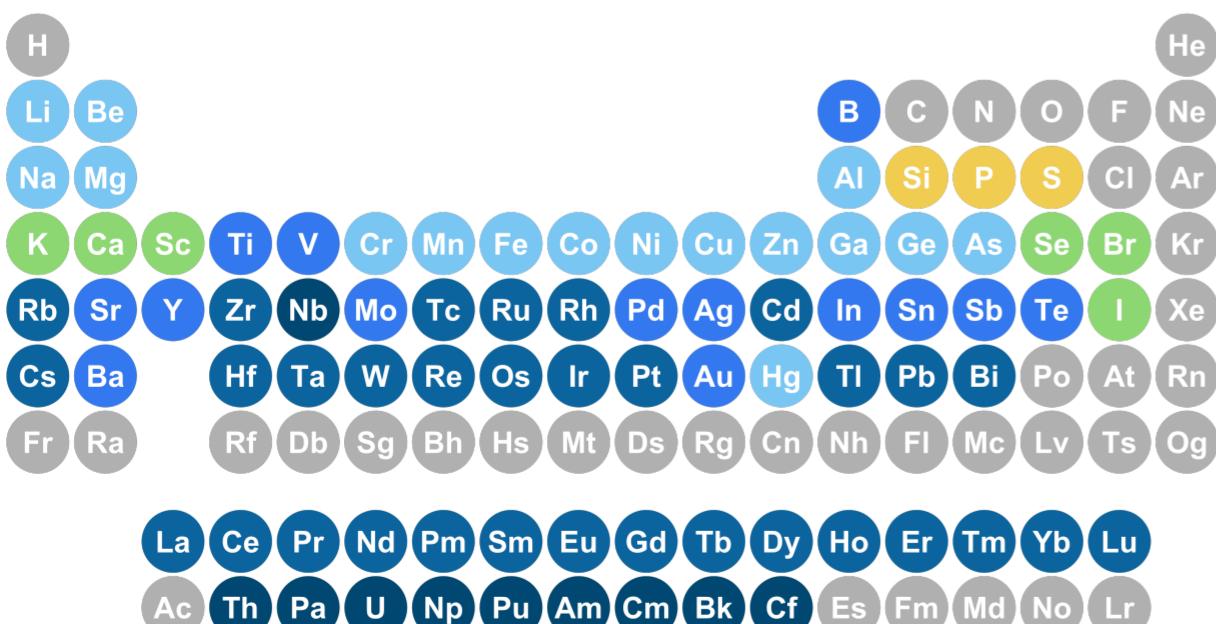
Formation of Inductively Coupled Plasma

An ICP is a type of plasma source in which the energy is supplied by electric currents which are produced by electromagnetic induction, that is, by time-varying magnetic fields.



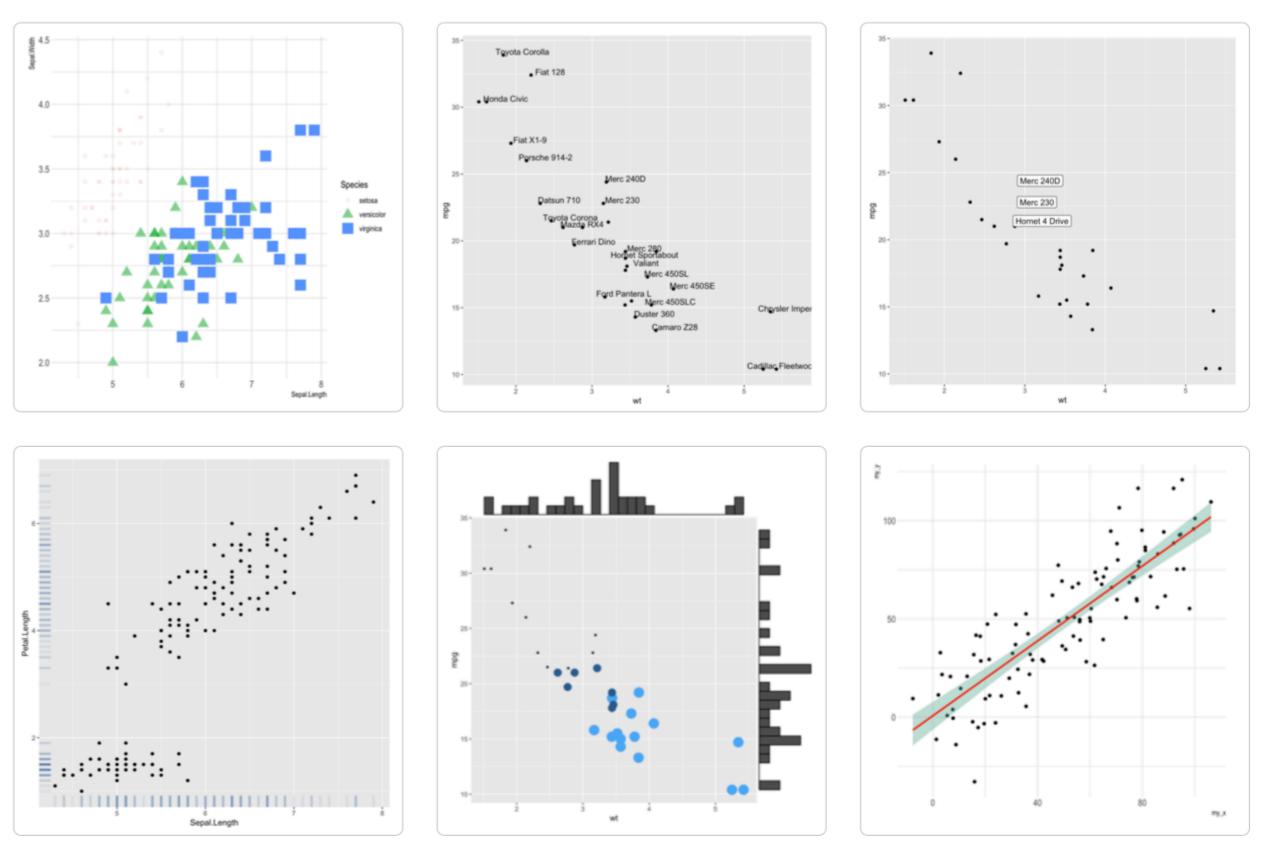
ICP質譜儀/光譜儀分析原理

ICP-OES/ICP-QMS/ICP-MS



化學實驗室分析實作

化學分析理論與基本統計概念



R語言數據資料回歸統計與視覺化