

Liverpool John Moores University

Title: Analytical Techniques in Natural Products
Status: Definitive
Code: **7124PHASCI** (128066)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Pharmacy & Biomolecular Sciences

Team	Leader
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Academic Level: FHEQ7 **Credit Value:** 20 **Total Delivered Hours:** 42
Total Learning Hours: 200 **Private Study:** 158

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	22
Practical	10
Workshop	8

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	The exam will cover the key skills.	60	2
Report	Report	The coursework will be based on the lab practical classes.	40	1

Aims

The course aims to extend students' comprehension and experience in the application of analytical methods for the isolation and identification of lead compounds from a complex mixture of natural products. This will involve the application of advanced chromatography, spectroscopy and spectrometry.

Learning Outcomes

After completing the module the student should be able to:

- 1 Independently acquire advanced chemical knowledge and apply specialised methods necessary for the extraction, purification and identification of natural products.
- 2 Independently acquire advanced chemical knowledge and apply specialised methods necessary for the qualitative and quantitative instrumental analysis of natural products.
- 3 Safely solve -alone or as part of a team- multidisciplinary challenges in the field of analysis of natural products even in the absence of complete information.
- 4 Ethically source, systematically locate, critically evaluate, objectively assess, and make appropriate use of information from scientific literature and relevant electronic resources in the field of analysis of natural products.
- 5 Demonstrate the necessary skills to plan, perform, report and interpret the results of laboratory experiments and analyses applied to natural products.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Exam	1	2		
Report	3	4	5	

Outline Syllabus

Techniques used for the extraction of natural products, chromatographic techniques for the isolation and purification of compounds and spectroscopic techniques for the identification of compounds.

Extraction: Liquid extraction, fractional distillation

Chromatography: Flash Chromatography, Column Chromatography, TLC, Analytical and preparative HPLC, GC, GC-MS, LC-MS.

Spectroscopy/Spectrometry/Other: UV, IR, NMR (1D and 2D) spectroscopy, mass spectrometry and X-ray crystallography.

Learning Activities

Lectures. Deliver the fundamental principles behind the analytical techniques.

Laboratory Practical Sessions: Demonstrate direct principles of the analytical techniques.

Workshops: Provide formative exercises (analyses and discussion of data generated by practical classes).

Notes

This module builds on fundamental analytical chemistry learned by the candidate during undergraduate and/or postgraduate science, chemistry, healthcare and/or pharmaceutical science degree courses.