

## Module Information

2022.01, Approved

### Summary Information

Module Code	3502YAUBIO
Formal Module Title	General and Quantitative Analytical Chemistry
Owning School	Pharmacy & Biomolecular Sciences
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 3
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

### Partner Teaching Institution

Institution Name
Yunnan Agricultural University

### Learning Methods

Learning Method Type	Hours
Lecture	95
Practical	25

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-PAR	PAR	September	12 Weeks

## Aims and Outcomes

Aims	The module aims to provide students with an understanding of the basic principles of the macroscopic existence of matter, chemical kinetics, chemical thermodynamics, and chemical equilibrium, in order to improve students' ability to use the above principles. Students are required to master basic knowledge about elements and compounds in chemistry. The module will also enable students to systematically, comprehensively and deeply understand the basic principles, basic concepts and basic theories of quantitative analytical chemistry, and on this basis to master the methods and principles of determining the content of related components. Through practical classes, students are guided to observe experimental phenomena carefully, and directly gain a perceptual knowledge of chemistry, consolidating and deepening their understanding of the learned theoretical knowledge. The module will allow students to master the basic methods and skills of chemical experiments.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Describe the composition of macro and micro materials, and master the general laws of their existence and movement.
MLO2	2	Define the status and role of chemistry in the knowledge systems of various disciplines such as agricultural sciences and life sciences.
MLO3	3	Apply the basic principles of chemical thermodynamics and chemical kinetics in order to perform theoretical analysis and calculation on general chemical problems.
MLO4	4	Describe the basic principles, basic concepts and basic theories of quantitative analytical chemistry.
MLO5	5	Demonstrate the various methods for determining the content of ingredients and explain the principles of the methods.
MLO6	6	Demonstrate the skill of titration operation of classical chemical analysis methods.
MLO7	7	Record and process experimental data, and combine theoretical and practical basic experimental qualities.

## Module Content

Outline Syllabus	The module content includes study of gases, solutions and colloids, chemical reaction rate, thermal effects of chemical reactions, Gibbs free energy and chemical equilibrium, acid-base balance, precipitation and dissolution equilibrium, redox reaction, classification, purpose, role, and method of analytical chemistry, errors and data processing in quantitative analysis, and absorptiometry.
Module Overview	
Additional Information	The module will enable students to have ability to theoretically analyse and calculate general chemical problems, whilst developing students' scientific thinking ability. The module will lay the necessary chemical foundation for future learning of follow-up courses and new theories and new experimental techniques, and improve students' professional knowledge.

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
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Exam	Exam GC	15	2	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6, MLO7
Exam	MT Exam GC	5	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Test	Test	5	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Practice	Pre-lab GC	3	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6, MLO7
Practice	Practice GC	10	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6
Report	Report GC	10	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Test	Test GC	2	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6
Exam	Exam QAC	15	2	MLO1, MLO2, MLO3, MLO4, MLO5, MLO6, MLO7
Exam	MT Exam QAC	5	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6
Test	Test QAC	5	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Report	Report QAC	15	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Practice	Practice QAC	8	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7
Test	Test QAC	2	0	MLO1, MLO2, MLO3, MLO4, MLO5, MLO7, MLO6, MLO7

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Katie Evans	Yes	N/A

### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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