

Liverpool John Moores University

Title: General Chemistry
Status: Definitive
Code: **3504YAUZOO** (127946)
Version Start Date: 01-08-2021

Owning School/Faculty: Pharmacy & Biomolecular Sciences
Teaching School/Faculty: Yunnan Agricultural University

Team	Leader
Rachael Symonds	Y

Academic Level: FHEQ3 **Credit Value:** 20 **Total Delivered Hours:** 94
Total Learning Hours: 200 **Private Study:** 106

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	40
Practical	48

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Written exam covering all lecture material in analytical chemistry	16.2	2
Test	Test	Test covering material in analytical chemistry	20	
Exam	Exam	Written exam covering all material in organic chemistry	16.2	2
Exam	Exam	Exam covering all lecture material inorganic chemistry experiments	27.6	2
Test	Exam	Test covering all material in organic chemistry	20	

Aims

The focus of this course is to enable students to systematically describe the basic principles, basic concepts and basic theories of quantitative analytical and organic chemistry, and on this basis to explain the methods and principles of determining the content of related components. Students will learn basic analytical methods, understand the development process, characteristics of quantitative analytical chemistry, and their connections with other disciplines. In addition, theoretical knowledge and practice will be closely linked to the skills and techniques for scientific experiments. Students will learn to identify the composition, structure, properties, synthesis, mutual transformation methods and related theoretical knowledge of organic compounds. Through the study of this course, students should master the basic knowledge and basic theory of organic chemistry, understand the latest achievements and development trends of the subject, and lay a solid foundation for studying follow-up professional courses, continuing education and engaging in related teaching, scientific research, and production in the future. Students will also master the basic operation skills of organic chemistry experiments.

Learning Outcomes

After completing the module the student should be able to:

- 1 To enable students to describe the basic principles, basic concepts and basic theories of quantitative analytical chemistry.
- 2 Demonstrate the ability to safely carry out basic experimental techniques including glass instrument cleaning and drying, glass instrument installation and disassembly, heating and cooling, reflux, distillation, steam distillation, paper chromatography, recrystallization, Soxhlet extraction, drying of solid organic compounds, boiling point and measurement of melting point.
- 3 Summarise the physical and chemical properties of various organic compounds, write various types of organic chemical reaction equations correctly, comprehensively apply basic organic reactions to identify organic compounds, infer the structure of organic compounds, design reasonable organic synthesis routes and analysis, and solve complex Organic chemistry problems.
- 4 Recall the naming rules for organic compounds and the different representation methods of organic molecular structures, adopt the system of nomenclature to name various organic compounds, and be able to write the organic molecular structural formula correctly as required.

Learning Outcomes of Assessments

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

Written exam	1	2	3	4
Test	1	2	3	4
Written exam	1	2	3	4
Exam	1	2	3	4
Test	1	2	3	4

Outline Syllabus

Students will learn to identify and describe the main organic chemistry structures (including alkanes, alcohols, phenols ketones, carbohydrates and fats), and experimental practice will include; recrystallization of acetanilide, determination of melting point and boiling point, ordinary distillation, paper chromatography, synthesis of ethyl acetate, extraction of crude oil, steam distillation and extraction of caffeine from tea. Quantitative analysis will include error sources and classification, the importance of accuracy and precision, measures to improve measurement accuracy, overview of titration and acid-base titration analysis and absorptiometry.

Learning Activities

This course advocates the modern teaching concept of "student-centered and teacher-led" and construct compound teaching mode of "independent learning + lecture + experimental practical + discussion + cooperative learning", adopt flexible and diverse teaching methods, focus on the cultivation of students' autonomous learning ability, improve ability of knowledge application and cultivate students' creative thinking. Establish an evaluation system that can stimulate students' interest in learning and the development of autonomous learning capabilities. Ultimately, it promotes the development of students' ability in autonomous learning, knowledge application and innovative thinking, and it also continuously improves teacher's teaching level.

Notes

Students will learn to identify and describe major organic compounds and analytical methods using a combination of theory and experimental sessions.