

Liverpool John Moores University

Title: Soil and Fertiliser Science
Status: Definitive
Code: **3504YAUBIO** (127881)
Version Start Date: 01-08-2021

Owning School/Faculty: Biological and Environmental Sciences
Teaching School/Faculty: Yunnan Agricultural University

| Team | Leader |
|-------------|--------|
| Katie Evans | Y |

Academic Level: FHEQ3 **Credit Value:** 20 **Total Delivered Hours:** 90
Total Learning Hours: 200 **Private Study:** 110

Delivery Options

Course typically offered: Semester 2

| Component | Contact Hours |
|-----------|---------------|
| Lecture | 54 |
| Practical | 34 |

Grading Basis: 40 %

Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|----------|-------------------|---|---------------|---------------|
| Exam | AS1 | Exam | 35 | 2 |
| Practice | AS4 | Operation and proficiency of experiments | 10 | |
| Exam | AS2 | Test | 10 | |
| Exam | AS3 | Mid-term exam | 5 | |
| Practice | AS5 | Completion of the experimental teaching contents stipulated in the syllabus | 10 | |
| Report | AS4 | Report | 25 | |
| Test | AS6 | Experimental conclusion analysis | 5 | |

Aims

The module is a professional basic course of agronomy and horticulture. It is a comprehensive course of soil science, plant nutrition and fertiliser science. The aim of the module is for students to study the basic theories and properties of soil and fertiliser, and reveal the nutrition relationship among soil, plant and fertiliser. The module also provides an opportunity for students to develop practical skills in determination methods, operation steps and laboratory condition control skills, related to soil fertility index and fertiliser variety identification and analysis.

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate knowledge of science of soil and fertiliser principles.
- 2 Describe the application of science of soil and fertiliser to the research and development of food science.
- 3 Demonstrate basic practical skills in science of soil and fertiliser.

Learning Outcomes of Assessments

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

| | | | |
|----------|---|---|---|
| Exam | 1 | 2 | 3 |
| Practice | 1 | 2 | 3 |
| Exam | 1 | 2 | 3 |
| Exam | 1 | 2 | 3 |
| Practice | 1 | 2 | 3 |
| Report | 1 | 2 | 3 |
| Test | 1 | 2 | 3 |

Outline Syllabus

The module provides an overview of soil and fertiliser science, including basic material composition of soil, basic properties of soil, formation, classification and distribution of soil, principles of plant nutrition and fertilisation, nitrogen nutrition and nitrogen fertiliser of soil and plant, phosphorus nutrition and phosphorus fertiliser of soil and plant, potassium nutrition and potassium fertiliser of soil and plant, medium and micro element nutrition of soil and plant, medium and micro element waste and compound fertiliser material, and organic fertiliser. Practical experiments include recognising of main soil-forming rocks and minerals, soil mechanical composition analysis by hydrometer method, determination of soil organic matter, determination of soil available phosphorus content, determination of available potassium content in soil and qualitative identification of common mineral fertilisers.

Learning Activities

The module content will be delivered through lectures and practical activities. Theoretical lectures will provide appropriate subject knowledge to support practical application. The module adopts a variety of experimental teaching forms, including the traditional experimental teaching model and experimental process group discussion, experimental conclusion analysis and evaluation.

Notes

This module is for students to develop an understanding of the science of soil and fertiliser developments, including principles and application in soil and fertiliser. Students will also develop basic practical skills in the science of soil and fertiliser.