Teaching Syllabus of Biochemistry Experiments

For MBBS Students

Course Code: 233213512

Learning Hours: 12 hrs

LEARNING RESOURCES

1. 国家级实验教学示范中心基础医学实验教学系列教材——医学细胞分子生物学实验，苑辉卿主编，科学出版社，2018年6月（第3版）

2. PowerPoint images are available through the class blackboard site

3. Individual meetings with the instructor are encouraged.

MARKS of DISTRIBUTION

EXPERIMENTS Total mark: 15 points

DISTRIBUTION: classroom performance 5%, experimental reports 10%

Syllabus in Biochemistry Experiments

COURSE OVERVIEW

Experiment of Biochemistry is a fundamental course designed for a better understanding of the theoretical knowledge of Biochemistry. This course are mostly in synchronization with theoretical curriculum. The contents include the basic principle of biochemistry techniques, such as spectrophotometry, electrophoresis and so on, as well as the application of such methods into biochemical assay of protein, blood sample, etc. The purpose of this course are to understand and verify biochemical theories, to train and cultivate the students'operation ability, theory-to-practice-linking capability, independent thinking, problem-solving capacity and innovative thoughts.

OBJECTIVES

Skills

At the end of the course, the students should be able to

1. Make use of conventional techniques/ instruments to perform biochemical analysis

2. Analyze and interpret investigative data

COURSE CONTENT AND HOURS

Practical	Lessons	Teaching Hours (12hrs)
1	Unit 1: Quantitative analysis of proteins 1. Spectrophotometry 2. Experiments involving qualitative analysis by spectrophotometric method (1) Estimation of total protein by Biuret method. (2)Estimation of total protein by Coomassie brilliant Blue binding method. (3)Estimation of total protein by Ultraviolet absorption method.	4
2	Unit 2: Separation and purification of serum γ-globulin 1. Chromatography 2. Separation and purification of serum γ-globulin by salt precipitation, gel chromatography and ion-exchange chromatography	4
3	Unit 3: Electrophoresis, centrifugation and metabolic experiments 1. Electrophoresis 2. Centrifugation 3. Cellulose acetate membrane electrophoresis of γ-globulin and serum proteins 4. Estimation of serum cholesterol 5. Identification of glycolysis intermediate products	4

EXPERIMENTS

Basic Knowledge and Skills

1. Introductionof biochemistry lab and the safety aspects

2. Laboratory Instrumentation

3. Use of instruments and pipettes

Unit 1: Quantitative analysis of proteins

1. Spectrophotometry

(1) Lambert-Beer’ s law

(2) principle, working methods and applications of spectrophotometers

(3) measurement of absorption spectra and calculation

2. Experiments involving qualitative analysis by spectrophotometric method

(1) Estimation of total protein by Biuret method

(2) Estimation of total protein by Coomassie brilliant Blue binding method

(3) Estimation of total protein by Ultraviolet absorption method

Unit 2: Separation and purification of serumγ-globulin

1. Chromatography: principle,category, applications and technique of gel chromatography and ion-exchange chromatography

2. Experiment: separation and purification of serumγ-globulin by salt precipitation, gel chromatography and ion-exchange chromatography

Unit 3: Centrifugation, electrophoresis and metabolic experiments

1. Electrophoresis: principle, working methods and applications, and the main point is agarose gel electrophoresis

2. Centrifugation: principle, working methods and applications

3. Experiments

(1) Cellulose acetate membrane electrophoresis of γ-globulin and serum proteins.

(2) Estimation of serum cholesterol

(3) Identification of glycolysis intermediate product

Syllabus of Molarculogy (Experiment)
Shandong University School of _Medicine_

Writers: All Teachers in the department of histology and Embryology

Time: 2019.7.10

1. Basic information of the course

Course Name	Experiment of Histology and Embryology				
Course Code	sd02323170 sd02323181				
Teaching Department	Department of histology and Embryology				
Experiment Type	√Professional basic experiment □Professional experiment □Comprehensive experiment □Innovative experiment □Open experiment				
Course Type	√Compulsory □Elective				
Experimental Type	□Independent course √Non-independent course				
For Which Major	Foreign students				
Credits		Lecture Hours	96	Experiment Hours	24
Prerequisite course	Human Anatomy				
Website of the	http://course.sdu.edu.cn/G2S/Template/View.aspx?action=vie				

course	w&courseType=1&courseId=157&ZZWLOOKINGFOR=G