MINISTRY OF EDUCATION AND TRAINING
CAN THO UNIVERSITY

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

SUBJECT OUTLINE DETAILS

1. Subject: Biochemistry Laboratory I

- **Code:** BC471C
- **Credits:** 01
- **Hours:** 30 practice hours

2. Management Unit:

- **Department:** Molecular Biotechnology
- **Faculty/School/Institute/Center/Department:** Biotechnology Research and Development Institute

3. Prerequisites: BT109 (General Chemistry Lab. I), BT111 (General & Inorganic Chemistry Lab. II), BT114 (Organic Chemistry Lab.).

4. Subject objectives:

4.1. Knowledge:

4.1.1. Definitions about concentration of solution will be applied to make chemical and buffer solutions.

4.1.2. A number of components, structures about chemicals in samples of plant and animal etc.

4.2. Skill:

4.2.1. Principles about using of consumables, instruments related to a course of biochemistry lab. I.

4.2.2. Methods about qualitative and quantitative of chemicals in samples of plant and animal etc. known as background for units of graduate thesis (BT418).

4.3. Attitude:

4.3.1. Self-awareness, laborious, favorite with biochemistry.

5. Brief description of subject content:

Definitions about concentration of solution and methods for making chemicals and buffer solution will be applied correctly.

6. Subject content structure:

6.1. Practice

	Content	Hours	Objectives
Unit 1.	**Introduction to the Biochemistry laboratory** 1.1. Function of the biochemistry laboratory 1.2. Using equipments 1.3. Using of consumables, instruments	5	4.2.1, 4.2.3, 4.3.1
Unit 2.	**Chemicals, pH and buffer solutions**	5	4.1.1, 4.2.3,

	2.1. Making chemicals		4.3.1
	2.2. Making buffer solutions		
Unit 3.	**Dry matter (DM)**	5	4.2.1, 4.2.2,
	3.1. Preparation of powder samples		4.2.3, 4.3.1
	3.2. Preparation of chambers and silicagels		
	3.3. Drying sample for calculating amount of DM		
Unit 4.	**Carbohydrate: Analysis of cude fiber (CF) amount**	5	4.2.1, 4.2.2,
	4.1. Treatment of plant samples		4.2.3, 4.3.1
	4.2. Filtrating, drying for calculating amount of CF		
Bài 5.	**Lipids: Analysis of lipids amount and components**	5	4.2.1, 4.2.2,
	5.1. Extraction and quantitatiion of lipids amount Trích ly và định lượng lipids		4.2.3, 4.3.1
	5.2. Xác định lipids no và chưa no		
Unit 6.	**Nitrogen: Analysis of total nitrogen and ammoniac**	5	4.2.1, 4.2.2,
	6.1. Making inorganic product, distillation and delimination of total nitrogen		4.2.3, 4.3.1
	6.2. Distillation and delimination of ammoniac		

7. Teaching method:

- Design and steps for conducting an experiment.
- Question – Answer (oral).

8. Duties of student:

Students have to do the following duties:

- Following full (100%) time for a practical course at a lab and report results of the experiment.
- Attending a final examination.

9. Assessment of student learning outcomes:

9.1. Assessment

No.	Point components	Rules and Requirement	Weights	Objectives
1.	Laborious mark	Lab. hours/total hours of a course	10%	4.3
2.	Mark of a writing report	Writing a report about result of each unit (group: 3-4 students)	40%	4.1.2., 4.2.1., 4.2.2., 4.2.3., 4.3
3.	Mark of a final examination	- Multiple choice & oral - Obligatory	50%	4.2.2., 4.2.3

9.2. Grading

- Grading components and final test scores will be marked on a scale of 10 (0 to 10), rounded to one decimal place.
- Subject score is the sum of all the components of the evaluation multiplied by the corresponding weight. The subject score is marked on a scale of 10 and rounded to one decimal place, then is converted to A-B-C-D score and score on a scale of 4 under the academic provisions of the University.

10. Materials:

Materials information	Code number

[1] Timberlake Karen C. 2002. General, Organic, & Biological Chemistry. *Benjamin Cummings*. Canada. Biochemistry lab.

[2] Horwitz W. 2000. Offical Methods of Analysis 17th. *AOAC International*, USA. Biochemistry lab.

[3] Tryer, L. 1997. Biochemistry. Biochemistry lab.

[4] Boyer R. 2000. Modern Expermental Biochemistry 3rd. *Benjamin Cummings.* Canada. Biochemistry lab.

11. Self-study Guide:

	Content	Theory (hours)	Practice (hours)	Students' duties
1	**Unit 1: Introduction to the Biochemistry laboratory** 1.1. Function of the biochemistry laboratory 1.2. Using equipments 1.3. Using of consumables, instruments	0	5	- Group working (following a list of students) with the unit 1 (*from p1 to p10)* guided in the reference [4]. - Writing the report 1 - Self-studying methods and steps of an experiment in the unit 2.
2	**Unit 2: Chemicals, pH and buffer solutions** 2.1. Making chemicals 2.2. Making buffer solutions	0	5	- Group working (following a list of students) with the unit 2 *(from p11 to p14)* guided in the reference [4. - Writing the report 2 - Self-studying methods and steps of an experiment in the unit 3.
3	**Unit 3: Dry matter (DM)** 3.1. Preparation of powder samples 3.2. Preparation of chambers and silicagels 3.3. Drying sample for calculating amount of DM	0	5	- Group working (following a list of students) with the unit 3 *(from p15 to p16)* guided in the reference [2], [1], [3]. - Writing the report 3 - Self-studying methods and steps of an experiment in the unit 4.
4	**Unit 4: Carbohydrate: Analysis of cude fiber (CF) amount** 4.1. Treatment of plant samples 4.2. Filtrating, drying for calculating amount of CF	0	5	- Group working (following a list of students) with the unit 3 *(from p17 to p18)* guided in the reference [2], [1], [3]. - Writing the report 4 - Self-studying methods and steps of an experiment in the unit 5.
5	**Unit 5: Lipids: Analysis of lipids amount and components** 5.1. Making inorganic product, distillation and	0	5	- Group working (following a list of students) with the unit 4 *(from p19 to p22)* guided in the reference [2], [1], [3]. - Writing the report 5 - Self-studying methods and steps of

	delimination of total nitrogen 5.2. Distillation and delimination of ammoniac			an experiment in the unit 6.
6	**Unit 6: Nitrogen: Analysis of total nitrogen and ammoniac** 6.1. Making inorganic product, distillation and delimination of total nitrogen 6.2. Distillation and delimination of ammoniac	0	5	- Group working (following a list of students) with the unit 5 *(from p12 to p14)* guided in the reference [2], [1], [3]. - Writing the report 6 - Taking the final examination after the last unit about 7-15 days.

Can Tho, 28 / 5 /2014

ON BEHALF OF RECTOR
DEAN/ DIRECTOR

HEAD OF DEPARTMENT