

## SUBJECT OUTLINE DETAILS

### 1. Subject: General Virology Practical

- Code: MM414 C
- Credits: 01
- Hours: 30 practical hours, 30 self-study hours.

### 2. Management Unit:

- Department: Molecular Biotechnology
- Institute: Biotechnology Research and Development Institute

**3. Prerequisites:** CS302 Basic Biotechnology, CS102 Molecular biology, CS112 Introductory microbiology.

**4. Subject objectives:** guide students how to apply molecular biology techniques (DNA extraction and purification, PCR (Polymerase chain reaction), DNA Analysis, in virus study and virus control (virus detection).

#### 4.1. Knowledge:

- 4.1.1. Introduction the rule to work safely in molecular biology lab.
- 4.1.2. Introduction working principle of basic tool and equipments in molecular biology lab.
- 4.1.3. Principles of DNA extraction and purification, PCR (Polymerase chain reaction)
- 4.1.4. Processes for DNA extraction from shrimp (*Penaeus monodon*) infected by White spot syndrome virus.
- 4.1.5. PCR for amplification a fragment of gene coding for VP26 and VP28 to detect WSSV (White Spot Syndrome Virus).

#### 4.2. Skills:

- 4.2.1. Training voluntarily and self-study ability.
- 4.2.2. Improving the skills of teamwork, practicing of Molecular biology techniques.
- 4.2.3. Training skills in result analyzing, discussion and presentation.

#### 4.3. Attitude:

- 4.3.1. Participate fully in the lab, on time provisions.
- 4.3.2. Having self-discipline in learning.
- 4.3.3. Active in discussions, practicing and comments.
- 4.3.4. Honesty in examination.

### 5. Brief description of subject content:

Introducing the rule to work safely in molecular biology lab; working principle of basic tool and equipments in molecular biology lab. Lecturing in principles of DNA extraction and purification, PCR (Polymerase chain reaction). Practicing by DNA extraction of shrimp (*Penaeus monodon*), which infected by WSSV. Amplification of a gene fragment coding for VP26 and VP28 by PCR to detect WSSV (White Spot Syndrome Virus).

#### 6. Subject content structure:

	Content	Hours	Objectives
Chapter 1	Introduction the rule to work safely in molecular biology lab; working principle and practicing in basic tool and equipments in the lab	4	4.1.1, 4.1.2
Chapter 2	DNA extraction and purification, PCR principle and procedure	2	4.1.1, 4.1.2, 4.1.3
Chapter 3	Processes for extraction DNA of White spot syndrome virus.	12	4.1.1, 4.1.2, 4.1.3
Chapter 4	Amplification VP26 region of virus to detect WSSV disease (White Spot Syndrome Virus)	12	4.1.1, 4.1.2, 4.1.3, 4.1.5

#### 7. Teaching Method:

- Communicate through lecture files, supplemented with many images, video, .. help students more receptive.
- Ask questions related to practice result and lectures
- Consolidate knowledge for students after the end of each lecture, explained soon questions in class.
- Dividing student into working groups for practicing and reports, promote teamwork, improve document searching and result analyzing – explaining skills.
- Test and examination as prescribed.

#### 8. Duties of student:

Students must perform the following tasks:

- Attend 100% of practical classes, on time provisions.
- Perform a full range of group exercise, the thematic reports are delivered.
- Attend final exam
- Proactively in result analyzing – discussion and explaining.
- Seriously and honestly in the learning process, testing and implementation

#### 9. Assessment of student learning outcomes:

## 9.1. Assessment

Students are assessed as follows:

	<b>Point components</b>	<b>Rules and Requirement</b>	<b>Weights</b>	<b>Objectives</b>
1	Overall attendance	Details of attendance number / total number of classes	10%	4.3
2	Group practical work scores	- Report - Grouped confirmed participation	70%	4.2.1 to 4.1.3; 4.3.2, 4.3.4
3	End module	- Quizzes (30 minutes)	20%	4.1 to 4.3

## 9.2. Grading

- Scores of formative assessment and final exam scores are evaluated on a scale of 10 (0 to 10), rounded to one decimal place.
- Scores is the sum of all the components of the evaluation scores multiplied by the corresponding percentage points. Scores rounded to a decimal and then converted to point font (ABCDF scale) and score (scale of 4) under the provisions of the academic work of the University.

## 10. Materials

<b>Material information</b>	<b>Code number</b>
(1) Virology: Principles and applications / John B. Carter and Venetia A. Saunders. - Chichester, England, Hoboken, NJ : John Wiley & Sons, 2007	DIG.003293
(2) Advances in animal virology / Advances in animal virology; Edited: Luis Villarreal, Shahid Jameel. Enfield, New Hampshire : Science, 1998	NN.000305
(3) Basic laboratory method for Biotechnology Textbook and laboratory reference / LISA A SEIDMAN, Cynthia J. Moore. - Upperr Saddle River, New Jersey : Prentice-Hall, 1999, 660.6078/ S458	NN000285

## 11. Self-study Guide:

<b>Week</b>	<b>Content</b>	<b>Theory (hours)</b>	<b>Practice (hours)</b>	<b>Students' duties</b>

<b>Chapter 1</b>	<b>Introduction the lab rule; working principle and practicing in basic tool and equipments</b>		<b>6</b>	- Prepare: + Document [1]: item content from 1.1 to 1.3, Chapter 1
<b>Chapter 2</b>	<b>DNA extraction and purification, PCR principle and procedure</b>		<b>4</b>	- Prepare: Document [1]: item content from 1.1 to 1.3, Chapter 2
<b>Chapter 3</b>	<b>Processes for extraction DNA of White spot syndrome virus.</b>		<b>10</b>	Prepare : + Document [1]: the content from section 2.1 to 2.3, Chapter 2. + extraction shrimp DNA containing of WSSV DNA +measuring DNA concentrate
<b>Chapter 4</b>	<b>Amplification VP26 region of virus to detect WSSV disease (White Spot Syndrome Virus)</b>		<b>10</b>	- Prepare: + Document [1]: the content from section 3.1 to 3.7, Chapter 3 + amplify VP26 fragment of WSSV by PCR. + making gel electrophoresis and analyze the PCR product.

**ON BEHALF OF RECTOR  
DIRECTOR**

Can Tho, 28<sup>th</sup> May 2014  
**HEAD OF DEPARTMENT**