

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Interim Report (2017-18)

Report due 31 May 2018.

Please return by email to mmcd@cuhk.edu.hk

PART I

Project title: Flipped classroom teaching: molecular biology laboratory techniques

Principal supervisor: Dr. Lam SIOW

Department / Unit: School of Life Sciences

Project duration: From December 2017 to October 2018

Date report submitted: 31 May 2018

1. Project objectives

The project objectives have not been changed. It aims to facilitate students in learning basic concepts and laboratory techniques of molecular biotechnology by flipped teaching. A series of micro-modules will be developed and it will include videos of short lectures and experimental techniques. They are to 1) introduce theories and principles addressed in the lab procedure; 2) demonstrate equipment or experimental techniques. With this flipped classroom approach, students could be well-prepared before the lab sessions. It can also reduce the time of the pre-lab lecture in the laboratory, so the students can complete the lab within the time allotted.

2. Progress on process, outcomes or deliverables

Progress on Objective 1) introduce theories and principles addressed in the lab procedure:

Powerpoint slides of the following micro-modules were produced: 1) Primer design; 2) Polymerase chain reaction; 3) Purification of PCR product; 4) Restriction enzyme digestion; 5) DNA extraction from agarose gel; 6) Ligation; 7) Competent *E. coli* preparation and transformation; 8) Plasmid DNA preparation; 9) Protein gel electrophoresis & protein transfer; 10) Western blotting; 11) DNA sequence alignment. We are now constructing the subtitle of the slides. When it is done, videos of the micro-modules will be generated using Camtasia.

Progress on Objective 2) Three new video clips showing demonstrations of different molecular biotechnology laboratory techniques will be produced. Service from CUAV was sought. Script will be prepared and the videos will be produced in Oct, hopefully they could be finished by the end of the project deadline.

3. Evaluation Plan

A short quiz including short answer and multiple choice questions will be held in each lab session before doing experiment to assess the understanding of the students.

4. Dissemination Activities (reports, websites, video links, products, etc.)

The micro-modules will be disseminated to Panopto Video Platform in Blackboard of MBTE4033 “Molecular Biotechnology Laboratory I”. Statistics on the students’ usage on the micro-modules can be accessed.