

**THE CHINESE UNIVERSITY OF HONG KONG**

**Micro-Module Courseware Development Grant**

**Interim Report (March 2015)**

Report due 31 March 2015.

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**PART I**

Project title: Teaching Astronomy with interactive micro-modules

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Department / Unit: Department of Physics

Project duration: From January 2015 to August 2015

Date report submitted: April 1, 2015

**1. Project objectives**

The project is on track to meet its objectives, namely, to produce 32 micro-modules for the teaching of University General Education (UGE) astronomy and related astronomy courses, and to evaluate its effectiveness in learning. We will fine-tune these modules based on the evaluation results and produce the rest of the modules that better suits the needs of our students.

**2. Progress on process, outcomes or deliverables**

- ◆ Six pilot micro-modules on celestial spheres and common astronomical phenomena, each lasting for about 4-9 minutes, have been produced. The modules are closely related to the UGE curriculum and involve 3D geometry concepts that the students usually find it difficult to understand.
- ◆ The existing modules have been distributed to 4 UGE astronomy classes ( 3 classes of UGEB 2401 Astronomy and 1 class of UGEB 2510 The stars and our lives) in the second semester for students to review the astronomy concepts.
- ◆ We will invite 10-20 of UGEB 2401 and UGEB 2510 students (divided into two or more groups) to attend an evaluation session on March 10. Students will be asked to view and evaluate the pilot modules based on (a) the instructor's presentation style and clarity, (b) ease of understanding (c) enhancing understanding on difficult and abstract concepts, (d) length, appropriate and helpful use of (e) graphics illustrations and (f) animations. Students will be asked fill a questionnaire and engage in a discussion with the modulator. A report on students' opinions will be compiled. The results will be used to fine-tune the

existing modules and serve as a guidance for the development of the rest of the modules.

- ◆ A trial-run for flip-classroom discussion on “Astrology: Does it make sense or not?” will be conducted in May for UGEB 2510 students. Students will be asked to watch several micro-modules about astrology and astronomy first.
- ◆ The micro-modules will also be used in other astronomy activities either for university students and high school students where deemed appropriate.
- ◆ We will invite CLEAR or teaching staff in the office of General Education to evaluate the micro-modules.

The production of the micro-modules is slightly behind schedule due to the difficulties in making videos and animations and merging them into the micro-modules. The problems have been solved and we will catch up the production schedule in the summer of 2015. We expect the whole project will be completed on time in late August, 2015.

### **3. Evaluation Plan**

- ◆ Evaluation for UGE Astronomy students: See “Progress on process, outcomes or deliverables” above.
- ◆ Evaluation for non-UGE Astronomy students: Another series of evaluation for students who have not taken UGE Astronomy and have no previous background in astronomy. Student
- ◆ Evaluation will be conducted for UGE Astronomy teachers using a questionnaire.
- ◆ We will invite teaching staff in the office of General Education, who have previous experience in teaching physics general education courses, to evaluate our modules. A separated evaluation will also be done by CLEAR.

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

A website which hosts the micro-modules has been produced:

[www.phy.cuhk.edu.hk/elearning/astronomy/](http://www.phy.cuhk.edu.hk/elearning/astronomy/)

Six pilot micro-modules on the topic “Sky and common astronomical phenomena” have been produced (can now be accessed from the above website):

1. 天球的概念
2. 從地球上不同的地方看周日運動
3. 太陽周年運動、黃道與黃道星座
4. 四季的成因
5. 行星的視運動
6. 地球自轉軸的歲差