

Final report

Summary of the project:

Molecular and Cellular Foundations of Medicine is a 5-week module designed to integrate aspects of biochemistry, molecular biology, genetics, genomics, cell biology, embryology, and pharmacology as a basis for understanding the human body at the biomolecular level. This course also integrated aspects of behavioral and social sciences through the delivery of aspects of: health disparities, research design, wellness and taking a family history. For the Academic Year 2016-2017 an iBook resource was utilized as a unified course recourse to help streamline content delivery and enable students to prepare efficiently for the course.

The proposed project allowed for 4 critical stages of iBook development: Review of content, Professional development, iBook development and launch. Below each stage will be reflected on as each posed both anticipated and unanticipated changelings to the project.

The end of course evaluations, when compared to the two previous years, showed striking improvement in all course metrics and student satisfaction ratings also increased. Overall students were very satisfied with this course addition with an increase in overall satisfaction in the course (4.18 AY 2015-2016 vs. 4.32 AY 2016-2017) and provide resources (4.35 AY 2015-2016 vs. 4.46 AY 2016-2017)(Figure 1). Students were also surveyed to determine the percentage of individuals using the course generated material; nearly 90% of students reported using university generated resources (the iBook) for delivery of course content (Figure 2). The implementation of the iBook was not the only significant change in course from AYs 2013 to 2016, however it was a significant change from AY 2015-2016 and these ratings are consistent with the positive reception the students had to this project.

Goal: Develop a single iBOOK resources for the Molecular and Cellular Foundations of Medicine

The identification of appropriate resources in integrated curricular structures has proven difficult. A student can easily become overwhelmed by various textbook readings and even these may not be sufficient to fully prepare a student for weekly assessments/assignments. Development of a tailored iBook for use in this course will alleviate organizational constraints while allowing me to track student preparation and enhance formative and summative assessments.

Strategy and Philosophy of the project

1) Review of course content:

Before development of the resource, content for the course was reviewed strategically. This included review of program level objectives through content objectives. This part of the project was time consuming, much longer than anticipated, and required coordination with many other faculty members. At this point in generating any integrated resource, faculty delivering content must have a generalized consensus of both teaching philosophies and utility of the resource. For several disciplines, lack of faculty engagement in the unified resource made it challenging to complete parts of the project due to lack of content expertise. The final product would have benefited from content experts in each discipline reviewing sections for consistency with in class delivery.

2) Professional development:

During this phase, faculty went through several stages of professional development. One key aspect of the project which should be considered is the inclusion of IT in the project design and development. Having a strong IT staff able to help with both software and hardware challenges on campus is key to a successful project. The IT department on campus at USCSOMG was ideal for this project, on board and well connected to the Apple experts making sure the project went smoothly. For this project, there were two informational sessions for USCSOMG faculty at the Apple store with experts in iBook development. This session helped us identify how best to organize our content and take advantage of the technology inherent to an iBook.

3) IBook Development:

This phase was intended to be the longest, however, after good planning in the first two phases, this was a very smooth process. Content for this book was generally not developed de novo, rather it sourced other well used

published materials to generate short ‘white paper’ with lots of helpful figures. The book organized content with one chapter covering one week’s worth of material- divided into several sub sections. The final section of each chapter was a “Clinical Correlates” section which linked the case from Integrated Practice of Medicine to the basic science content delivered that week. Also included was a references section which directed students to full length chapters of textbooks (Lippincott’s Illustrated and Mark’s Medical Biochemistry) for more expansive conversations about a specific topic. Students found this most valuable. The book was extensively indexed with a glossary which students could then use as flash cards to study by.

Although lots of technology was available to integrate into the book, this first iteration was rather ‘low’ tech compared to the options I first intended to use. In summary, the resource was ‘all-inclusive’ for the course-specific content and was designed for student weekly preparation.

4) Launch of the iBook for use in the academic year 2016

The iBook, following the above stages of development, was launched to students in the AY 2016 academic year. The text was pushed electronically to their iPads (which are distributed by the University) and IT managed this aspect of the project. One challenge here was that although updates to the text were possible that did pose challenging and were not as available as we had hoped. The idea was that this would be a ‘living’ resource during the course but this did not work as planned. Additionally, despite Millennial students liking technology, many (!!!) requested PDF versions of the text and this negated any technology that was integrated into the book in the form of videos or links.

Summary:

Based on course metrics (Figures 1 and 2), the book enhanced the course in all areas and was largely a success.

Challenges to the project were most inherent in faculty engagement in the process and student understanding of the utility of the resource itself. For this course, the concept was to develop a concise text to allow for manageable student preparation. This was not a ‘fully inclusive’ text where students could read and receive all needed information on a specific content area. Some students became frustrated by the brevity of the text and were directed to outside resources (which were all listed in the iBook). Overall the technology remains very useful for many different courses and could have many different roles within a course structure. This project will be presented at the Association of Biochemistry Course Directors as an example of an integrated resource and the use of technology in the classroom. Additionally, the work will be presented at the Center for Instructional Development and Educational Research (CIDER) meeting at Virginia Tech in conjunction with an iBook developed by Dr. Andrew Binks.

Overall, this was a great experience and first foray into writing an integrated technology intense course resource. Faculty should be aware of the technology challenges they may face for delivery, content organization of utility within the classroom/course setting before tackling this project. If done properly, it can streamline in class delivery and enhance the quality of in class time spent for non-didactic delivery and integrated teaching.

Figure 1. Student evaluation of module. (Completed by Administrative Coordinator of Assessment)

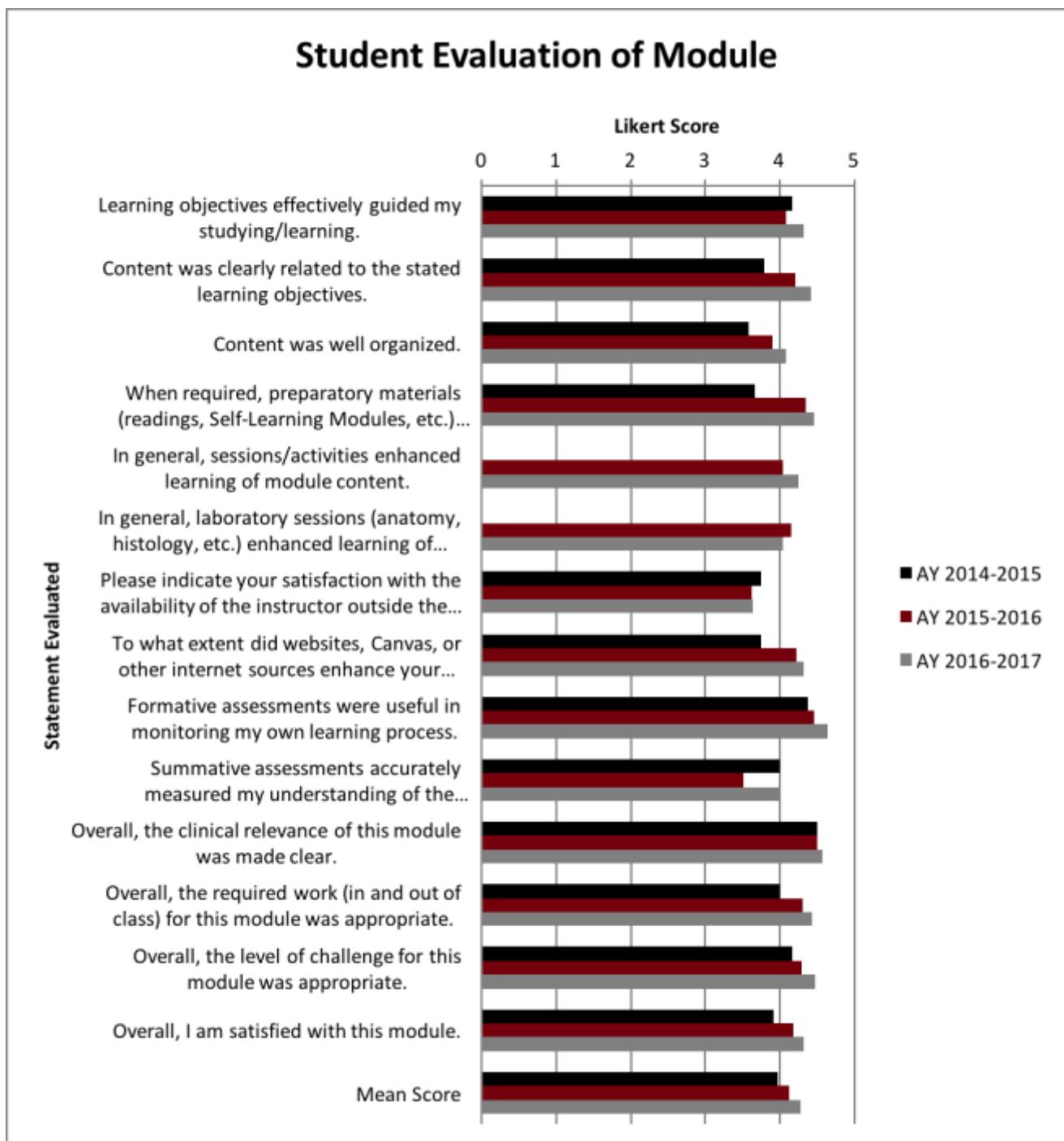


Figure 2: Survey of percentage of students using University generated resources.

