5. (a) Proposal Title, course number and title

Improvement of Curriculum Materials for Teaching Biol 2141, Human Anatomy and Physiology Lab I.

Abstract

The teaching of multi-section lab-based classes has presented challenges in aiming to uniformly provide high quality instruction for each laboratory section. The purpose of the proposed project is to increase the educational effectiveness of graduate teaching assistants (TA's) by developing a power-point-based curriculum for teaching Human Anatomy and Physiology to undergraduates in 15 lab sections with a combined enrollment 400 students per semester.

The creation of this curriculum will serve three principle objectives:

- to provide each graduate teaching assistant with a standardized and fully developed teaching syllabus and lecture materials;
- to ameliorate inter-instructor differences in presenting content, which is a significant problem given the number of teaching assistants and their turnover from year to year;
- to provide uniform high standards of content quality to ensure all the students will have the opportunity for an enhanced learning experience.

5. (b) Proposal Outline

1. Purpose/Objective

The purpose of this proposal is to develop a power-point-based curriculum for use by Biology graduate student teaching assistants (TA's) in smart classroom laboratory instruction. The curriculum for laboratory instruction will parallel the course lecture material with a specific focus on reinforcing central concepts in anatomy and physiology.

The objectives of the program are to:

a. **Provide each graduate teaching assistant will a fully developed teaching curriculum**.

The creation of a professionally developed instructional materials replete with engaging multimedia elements will ensure high quality instruction across the all the laboratory sections.

b. **Decrease variation in instructional content across laboratory sections.**

Even though TA's are presently counseled on the lecture material to prepare for each lab session, it is clear, based on student feedback, that TA's tend to deviate from the prescribed syllabus and that the quality of instruction varies. Some of the variability in quality is the result of stylistic and personality differences as well as preparation. The net effect is a considerable inter-instructor variation in quality, ranging from very good to substandard. The students will benefit from a comprehensive package of power-point presentations that blend seamlessly with the concepts and content taught in the lectures. The proposed instructional materials will include engaging video clips and high resolution images to enhance student learning and diminish the inherent problems when individual TA's develop instructional material independently.

2. <u>Project description</u>.

Traditionally, TA's are responsible for the primary aspects of instruction in the laboratories beginning with 30-45 minute presentations and followed by independent, lab manual-guided learning exercises. It is imperative, therefore, that the TA's provide a thorough and engaging introduction to stimulate the students and create a framework for their subsequent laboratory learning. The proposed project seeks to create the curriculum material that is presented by TA's during these 30-45 minute introductory 'lectures'. The proposed material will be provided in power-point format (for use on the Smart board computer-based system) including video animations and high resolution images. Since I am the faculty member who teaches the lecture potion of the course and coordinates the lab sections, I have a comprehensive understanding of the key concepts and related material that is presented in this course. I can therefore create a laboratory curriculum that will integrate seamlessly with the lecture material to improve student learning.

In summary, this proposed effort will create lab presentations for each of the exercises presented during the semester. The presentations will include;

- A 30-45 minute introduction to the exercise, including narrated video animation and high resolution annotated images of the anatomy being studied.
- Supportive figures and explanations for reference during the lab period.
- Sample exam questions and a mock lab practical.
- A summarized study guide for students to access via Blackboard.

3. <u>Need and Impact</u>

Human anatomy and physiology is a prerequisite course for students majoring in exercise physiology and for students applying for admission to the allied health programs; namely, nursing, occupational therapy, physical therapy and physicians assistant program. Human A&P is a 2 semester course that is taught in the fall, spring and summer sessions with a class enrollment of approximately 580 students per semester. Student enrollment for the first semester lab, Biol 2141, which will be impacted by the proposed work, is approximately 400 in the fall semester and 180 in the spring and 150 in the first summer session.

Teaching human anatomy labs is a daunting task to anyone who first enters the teaching arena. To a graduate student the task can be overwhelming. Even though all the commercially-produced lab manuals provide instructions and figures, these manuals are inevitably so in-depth they must be trimmed down to the appropriate level for undergraduate students. Additionally, the lab manuals impose limitations in how the material can be presented to the students. For example, when a student is holding a cow heart in their hands, it is often difficult to imagine the connectivity between the cardiac chambers based on a two-dimensional printed figure. A power point presentation that includes an animation of the unidirectional flow through the heart chambers can help the TA clarify the point.

During the weekly TA meetings, I have discussed the idea of standardized lab based power point presentations for Biol 2141 and this has been enthusiastically supported by the TA's.

4. <u>Schedule of activities and their proposal deadlines for SS1</u>.

I plan to develop the all the power point presentations during the summer of 2009. Therefore the first use of the curriculum will be in the fall of 2009 during which time any necessary changes can be made. From then on I plan to revise on an as needed basis.

5. <u>Evaluation Plan.</u>

I will conduct Teaching Assistant surveys to determine whether they believe the power point presentations have helped them improve their pedagogical skills. I will specifically ask them to comment on the features they believe are most useful for conveying the information in a clear and understandable format. I will also ask the students whether they believe the presentations have improved their learning and understanding of human anatomy.

- Do you believe the material presented at the beginning of each lab session improved your learning?
- Do you think the instructional material presented at the beginning of the lab session was clear and professional?
- What do you think are the strengths/ weaknesses of the presentations?
- How would you improve the instruction presented at the beginning of class?

I will compare the level of inter-section grade variation and overall performance on standardized laboratory exams to determine whether instruction has improved and is more constant across lab sections.

East Carolina University

TEACHING GRANTS COMMITTEE

Budget for a 2008/2009 Teaching Grant (Complete if applicable)

Item	Funding Requested	*Funds from Other Sources
a) Honoraria Banner Account #: _____	$___0_____	$_____
b) Educational/Research Supplies Banner Account #: _____	$___0_____	$_____
c) Travel Expenses - Registration fees Banner Account #: _____	$___0_____	$_____
Travel Expenses - other Banner Account #: _____	$___0_____	$_____
d) Communication - Telephone Banner Account #: _____	$___0_____	$_____
Communication - Postage/mail Banner Account #: _____	$___0_____	$_____
e) Printing Banner Account #: _____	$___0_____	$_____
f) Other Services (engraving, ads, food, services) Banner Account #: _____	$___0_____	$_____
g) Equipment - under $500.00 Banner Account #: _____	$___0_____	$_____
Equipment - over $500.00 Banner Account #: _____	$___0_____	$_____
TOTAL	$__0_____	$_____

Student wages are not an allowable expense. Projects expenses are subject to funding availability.

*Identify Other Funding Sources:

East Carolina University

TEACHING GRANTS COMMITTEE

Budget Justification for a 2008/2009 Teaching Grant (Complete if applicable)

(Please refer to Item 6 of the Information sheet for further information.)

Item	Funding Requested	*Funds from Other Sources
a) Honoraria Justification:	$___0_____	$_____
b) Educational/Research Supplies Justification:	$___0_____	$_____
c) Travel Expenses - Registration fees Justification:	$___0_____	$_____
Travel Expenses - other Justification:	$___0_____	$_____
d) Communication - Telephone Justification:	$___0_____	$_____
Communication - Postage/mail Justification:	$___0_____	$_____
e) Printing Justification:	$___0_____	$_____
f) Other Services (engraving, ads, food, services) Justification:	$___0_____	$_____
g) Equipment - under $500.00 Justification:	$___0_____	$_____
Equipment - over $500.00 Justification:	$___0_____	$_____

7. Appendices

7a. Courses taught.

Human Anatomy and Physiology Biol 2140 and 2150 each semester.

Coordinate Human Anatomy and Physiology labs Biol 2141 and 2151.

Cell Physiology Labs Biol 3311

Animal Physiology Biol 3320

7b. Grants previously funded.

None.

7c. Consultants.

None

7d. Work shop or seminar announcements

None.

7e. IRB approval.

Not required.