Project Team

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Project Title

Introduction to Human Anatomy

Audience

Students in the undergraduate human anatomy course

Pedagogical Issue

Johns Hopkins University has a prestigious history of medical and pre-medical education. However, there has not been a regular anatomy course offered to undergraduates for a number of years, even though these students have expressed interest in the subject. This past fall, Professor Mark Teaford offered a human anatomy course to undergraduates at Homewood, posting lecture outlines, slides, and handouts to the course website in WebCT. However, the course was strictly a lecture course. The main criticism was that students had no opportunity to maneuver anatomical structures in 3D.

Solution

Rather than develop a lab section involving TAs, models, etc., we propose creating computer exercises that will be accessible through the course website in WebCT. The software that will be used, "VH Dissector", is based on the Visible Human Database of CT scans and will allow users to highlight structures, systems, and regions, and rotate them in 3D.

Technologies Used

Courseware (WebCT development), "VH Dissector" from Touch of Life Technologies

Project Abstract

Johns Hopkins University has a prestigious history of medical and pre-medical education. However, there has not been a regular anatomy course offered to undergraduates for a number of years, even though these students have expressed interest in the subject. This past fall (2006), Professor Mark Teaford offered a human anatomy course to undergraduates at Homewood. He used a regional (rather than systemic) approach to human anatomy, focused solely on human gross anatomy rather than histology or physiology. The regional approach gives the students the best chance to learn and remember material in 3D. It is also the way in which virtually all dissection-based courses are taught in medical schools. Thus, the main sections of the course covered thorax, abdomen and pelvis, back and limbs, and head and neck. Lecture outlines, slides, and handouts were posted to the course website in WebCT. However, the course was strictly a lecture course. The main criticism was that students had no opportunity to maneuver anatomical structures in 3D.

Rather than develop a lab section with TAs, models, etc., we propose to create computer exercises that will be accessible through the course website in WebCT. The software that will be used, "VH Dissector", is based on the Visible Human Database of CT scans and will allow users to highlight structures, systems, and regions, and rotate them in 3D.

The main tasks of the fellow will include capturing, marking and labeling groups of structures in images from the software package, organizing pages of individual exercises or quizzes, and posting them to the course website in WebCT.

As the students in the class will be purchasing a version of the software themselves, they will have access to cross-sections and 3D reconstructions “24-7”, and the University will not have to purchase a site license for the software. The combination of the software’s capabilities and the new exercises would give the students a better “feel” for 3D relationships of anatomical structures in the human body. It would also allow for a useful assessment of the effects of the software on student performance. We will be able to compare class performance with the computer package with class performance last year without it.

The exercises will be treated as quizzes in WebCT, allowing results to be instantly analyzed by computer. Results will either be returned to the students as “formative” assessments or treated as graded “summative” assessments with scores shunted into a grade-book accessible only to the instructor. Students will benefit from constant feedback as they learn the material, and the summative assessments that test their knowledge and their ability to use it. Summative assessments will be given under strict time constraints, using WebCT’s option to show students the questions they’ve gotten wrong with brief explanations. The work done by the fellow will lay the groundwork for subsequent classes, as many of the exercises could be re-used or modified slightly from year-to-year. The net effect will be to increase student’s knowledge of, and comfort-levels in dealing with, cross-sectional images of human anatomy – something they will have to master if they intend to pursue a career in medicine.