

# Using Computer Based Instruction: A.D.A.M., a Computer Based Program in Human Anatomy, Pam Rhyne, Professor of Biology, Kennesaw State University

Many students at Kennesaw State University are majoring in programs that require some basic knowledge of human anatomy. For example, in addition to biology majors, students majoring in art, anthropology, health and physical education, nursing, or middle grades education require knowledge of human systems and their structures. Students involved in physical fitness are often interested in knowing and understanding how our bodies are structured. The learning of human anatomy is ideal for self-paced and individualized instruction where students can be provided with structures to learn and the means to learn them.

A computer based program called A.D.A.M. (Animated Dissection of Human Anatomy for Medicine) was selected in order to offer courses and experiences that meet the needs of such a diverse group of students. This unique program allows us to design courses and instruction for a variety of students and to develop courses and visuals at different levels of complexity and difficulty. Using the A.D.A.M. software allows students to work at their own paces and review material as needed, thus increasing student success.

We plan to use the A.D.A.M. software in three different ways. First, A.D.A.M. will be used to develop courses for biology as well as non-biology majors. These courses will be unique in that students would work independently in the computer laboratory, coming together as a class a few times during the quarter for question/answer sessions or to take examinations. Secondly, A.D.A.M. will be used in existing courses to introduce human anatomy in the lecture by the faculty member. In the laboratory A.D.A.M. will be used to supplement models and other materials. Thirdly, A.D.A.M. will be used by a great variety of students for review or to prepare for graduate or professional school entrance examinations.

We initially developed two one hour courses for biology majors using the A.D.A.M. program. Biology majors were targeted first because a course in human anatomy was not available to them. Courses now offered by the Department of Biological and Physical Sciences that teach human anatomy also include physiology and were developed to meet the needs of nursing and health and physical education majors. These two new courses now complement the biology course in human homeostatic physiology.

I am one of the faculty members who first proposed using the A.D.A.M. program and received a Faculty Development Grant for this purpose. The following describes how the two courses for majors have been designed and implemented. The first course, offered fall of 1996 as Biology 490, includes the skeletal, muscular, nervous, and endocrine systems. The second course, which includes the rest of the systems, will be offered as Biology 490 winter quarter 1997. Until we convert to the semester system these courses will be offered as Biology 490.

I was assigned to work with students registered for the course. Students initially met with me to go over the syllabus that provided detailed descriptions of the role of the faculty member as well as the role of the students, course objectives and the grading policy. Examination dates and times were established based on

student schedules. All students in the course were required to obtain a Pigseye account (student e-mail account) so that we will be able to communicate with each other. After the initial meeting, students will work on their own and at their own paces in the computer laboratory to learn the structures for which they are responsible. The computer laboratory is in the Science Building and available to students during a variety of days and times. I am available to help students during the quarter. Students can reach me during office hours, by voice mail, or by e-mail using their Pigseye account. If a student is having difficulty using A.D.A.M. the student and I can arrange to meet and work together in the computer laboratory. In addition, human anatomy references are available on reserve in the library for use when the computer laboratory is not open.

The A.D.A.M. program is fun, creative, and interesting to use. Students can select the race and gender of the human they wish to study. Another early decision students must make is whether to keep or remove the fig leaf!! Once the animated person is displayed on the screen, students can select the anatomical view (front, side, back) they wish to study. Many different Tools come with A.D.A.M. and it is not possible to describe them all. However, a brief description of a few will enable you to see the wide variety of learning possibilities. By using a Structures List Tool, students can select and view a particular body part. Then, after starting at the skin level, different depths of that structure can be observed. If a student does not know the name of a particular structure, the Identify Tool displays the name and the Pronounce Tool allows the name to be heard. Students can use other tools to show one structure in relationship to other structures in the system. Students can explore a structure from a microscopic prospective, or box in a particular section of anatomy and cut away layers to view internal organs. In this manner, students can see relationships of various structures from different systems. Students can look more closely at a section using a Magnifying Glass Tool. A small magnifying glass actually appears that students can then move to the structure being examined. If students are having difficulty locating a particular structure, a "Search For" feature is available. Text material is also available and provides students with information about each system. For students who are really into medical concepts, there is even an Operating Room in which students use a Cleanse Tool in preparation for surgery, a Syringe Tool to apply local anesthetic, and a Scalpel Tool to make incisions. Also available in the Operating Room are Laser, Cauterize, and Suture Tools.

We are very excited about using the A.D.A.M. program. The software provides faculty members with many teaching options. Students can be introduced to human anatomy in the lecture or the laboratory, as part of a special course or an existing course, or an independent study course. A.D.A.M. also provides departments across campus a chance to introduce students to human anatomy using computer technology. •

*Dr. Rhyne was awarded a 1995-96 Faculty Development Stipend.*