Computer software for physiology education

The computer programs listed below are presented to help physiologists locate appropriate software for use in their curricula. These programs have not been reviewed by Advances in Physiology Education, and inclusion in the listing does not constitute endorsement of the software. If you use or are aware of software that may be useful in teaching physiology, please share this information with us, so that it can be included in future listings. Send pertinent information to Harold Modell, Editor, Advances in Physiology Education, Department of Radiology RC-70, University of Washington, Seattle, WA 98195.

AneSoft Corporation
13061 SE 47th Place
Bellevue, WA 98006
(206) 644-7488

Artwave: the Radial Artery Pressure Waveform. Simulation dealing with factors influencing the shape of the radial arterial pressure waveform. Available for IBM-PC-compatible equipment.


BIOSOFT
92 Hills Road
Cambridge CB2 1JP, UK;
P.O. Box 580
Milltown, NJ 08850

Neurosim. Package of four simulations dealing with passive conduction in along length of axon, the Hodgkin-Huxley equation, postsynaptic potentials, and rhythmic properties of a simple neural network. Available for Apple II and IBM-PC-compatible equipment.

Biosource Software
2105 S. Franklin, Suite B
Kirksville, MO 63501
(816) 665-3678

Concepts in Thermography. Tutorial covering basic DC concepts, peripheral vascular physiology, detecting skin temperature, amplifiers, and processing DC signals. Program for Apple II equipment.

Skeletal Muscle Anatomy/Physiology. Tutorial covering three muscle categories, skeletal muscle microstructure, sliding filament theory, motor units, and lever systems. Program for Apple II equipment.

Command Applied Technology
West 400 Main Street
Pullman, WA 99163-0511
(509) 334-6145

Cardiovascular Systems and Dynamics. Simulation of aspects of cardiovascular physiology. Includes an isolated heart laboratory, heart-lung laboratory, systemic circulation laboratory, and a full circulatory system. Available for IBM-PC-compatible equipment.


COMpress
P.O. Box 102
Wentworth, NH 03282
(603) 764-5831

Cardiac Muscle Mechanics. Simulation of heart muscle behavior in response to changes in length, load, and contractility. Available for IBM-PC-compatible equipment.


Educational Materials and Equipment Co.
P.O. Box 9805
Danbury, CT 06813-2805
(203) 798-2050

Human Circulatory System. High-resolution pictorial simulation. Available for Apple IIe (enhanced) and IBM-PC-compatible equipment.

HRM Software
175 Tompkins Avenue
Pleasantville, NY 10570
(914) 789-7496; (800) 431-2050

Cardiovascular Fitness Lab. Provides students with everything they need to use the microcomputer to monitor cardiovascular activity. Program available for Apple II and Commodore 64/128 equipment.

Exercise Experiments. Part of 10-program package Experiments in Human Physiology. The effect of exercise and physical condition on heart rate, breathing rate, and skin temperature is investigated. Program available for Apple II equipment.

Heart Rate. Part of 10-program package Experiments in Human Physiology. Light and light sensor for measuring and recording heart rate. Program available for Apple II equipment.

Homeostasis-Thermoregulation. Part of 10-program package Experiments in Human Physiology. Students investigate the body’s ability to maintain a constant internal temperature by subjecting a volunteer to mild temperature excursion while recording and displaying skin and body temperature. Program available for Apple II equipment.

Respiration Rate. Part of 10-program package Experiments in Human Physiology. A napping subject is monitored for heart and breathing rate. Results are compared with the data acquired when the subject is awake. Program available for Apple II equipment.

Response-Time. Part of 10-program package Experiments in Human Physiology. Users measure finger reaction times with a bright light stimulus (sensor included). Program available for Apple II equipment.

Response-Time Investigations. Part of a 10 program package Experiments in Human Physiology. The effects of reaction times of stimulus type and response location are studied. Program available for Apple II equipment.

Skin Temperature. Part of a 10-program package Experiments in Human Physiology. Temperature probe (included) senses body and skin temperatures. Program available for Apple II equipment.

Indiana University School of Medicine
Dept. of Physiology and Biophysics
635 Barnhill Drive
Indianapolis, IN 46293
Acid-Base Physiology Simulation. Simulation of acid-base disturbances based on Davenport Diagram. Program available for IBM-PC-compatible equipment.

Cardiovascular Interactions. Cardiovascular physiology simulation. Program available for IBM-PC compatible equipment.

Gas Diffusion in the Lung. Simulation of oxygen and CO2 transfer between alveolar air and blood. Program available for IBM-PC compatible equipment.


I R L Press
P.O. Box 1
Eynsham, Oxford OX8 1JJ, UK


MACPUR. Simulation of cardiopulmonary physiology. Available for IBM-PC compatible equipment.

J 1 J & S Software
14 Vanderventer Avenue
Port Washington, NY 11050
(516) 941-9904

Digestion. Tutorial covering digestion in simple organisms and humans. Program available for Apple II and TRS 80 Model III equipment.

Endocrine System. Tutorial covering hormones, their effects and problems. Program available for Apple II and TRS 80 Model III equipment.


Nervous System. Tutorial covering nerves, reflexes, and chemical transfer of impulses. Program available for Apple II and TRS-80 Model III equipment.

Kinko's Service Corporation
4141 State Street
Santa Barbara, CA 93110
(800) 235-6919; in CA (800) 292-6640; outside USA (800) 967-0192

Model Neuron. Simulation of the behavior of an isolated neuron. Program available for Macintosh equipment.

TECHNOLOGY-BASED RESOURCES

National Resource for Computers in Life Science Education
Mail Stop RC-70
University of Washington
Seattle, WA 98195
(206) 685-6244


Neosoft, Inc.
CBS Interactive Learning
One Fawcett Place
Greenwich, CT 06836
(800) 227-2574

The Body in Focus. Tutorial for investigating body systems including skeletal, muscular, respiratory, cardiovascular, gastrointestinal, endocrine, and integumentary. Available for Apple II and IBM-PC compatible equipment.

New Jersey Medical School
Joseph Boyle, MD
100 Bergen Street
Newark, NJ 07103
(201) 456-4464

Abgame. Tutorial and game providing practice in acid-base principles. Program available for IBM-PC-compatible equipment.

Capexch. Simulation dealing with exchange at the capillary level. Available for IBM-PC-compatible equipment.


EUC Tutor. Tutorial presenting basic cardiac electrophysiology. Available for IBM-PC-compatible equipment.


Oakleaf Systems
P.O. Box 47
Decatur, IL 62510
(319) 382-4320

Physiological Data Simulation. Twenty-five simulations covering aspects of physiology. Program available for Apple II and IBM-PC-compatible equipment.

Randall, Dr. James
Department of Physiology, Myers Hall
Indiana University
Bloomington, IN 47405
(812) 335-1574


Rush Medical College
Drs. Joel Michael and Alan Rovick
Department of Physiology
1750 West Harrison Street
Chicago, IL 60612
(312) 942-6426, (312) 942-0567

Cardiovascular Physiology Part I: Pressure/Flow Relations. Tutorial dealing with a variety of calculations in the area of hemodynamics. Program available for IBM PC-compatible equipment.

Cardiovascular Physiology Part II: Reflex. Tutorial dealing with carotid sinus regulation of blood pressure and reflex responses in hemorrhage and exercise. Program available for IBM-PC-compatible equipment.

Muscle Mechanics, a Computer-Simulated Experiment. Simulated experiment that permits the user to determine either the length-tension or the force-velocity relationship of a skeletal muscle. Program available for IBM-PC-compatible equipment.


Problems in Fluid Compartment Re-Distribution. Tutorial covering solution of simple problems of fluid compartment changes in the face of perturbations. Program available for IBM-PC-compatible equipment.

Siegman, Dr. Marion J.
Department of Physiology
Jefferson Medical College
1020 Locust Street
Philadelphia, PA 19107


Walker, Dr. J. R.
University of Texas Medical Branch
Galveston, TX 77550
(409) 761-2966

Physiological Data Simulation. Twenty-five simulations covering aspects of physiology. Program available for Apple II and IBM-PC-compatible equipment.


Oakleaf Systems
P.O. Box 47
Decatur, IL 62510
(319) 382-4320

Physiological Data Simulation. Twenty-five simulations covering aspects of physiology. Program available for Apple II and IBM-PC-compatible equipment.