

ADEducation



Data acquisition and analysis
for life science education


ADINSTRUMENTS
making science easier

What educators are saying about ADInstruments, PowerLab® data acquisition systems, and Chart™ software:

"It's very easy to get started. Students can learn to use it very quickly... It has tons of features for data analysis... The other systems came with gigantic manuals that would consume lots of my time. I had my PowerLab system running and acquiring data from real experiments within a day."

Dr. Karie Scrogin, Loyola University Medical Center, USA

"The software and tech support is excellent. The teaching experiments from the website have setting files for all the experiments. Students do not have to set all the channel variables when prepping for their experiment. This was an immeasurable improvement over our previous set-up. The teaching experiments also have student protocols, instructor guides, sample data files, and formatted laboratory reports. I modify the student protocols for specific exercises and analyses that I want the students to conduct and post them on BlackBoard. The protocols and reports are in MS Word format and are fully modifiable. In class the students are able to copy and paste portions of their data files and analyses directly into their lab reports." Carol Britson, University of Mississippi, USA

"Our students find that they're a useful way of recording. They certainly seem to enjoy using them (PowerLab systems) more than they did when we were using polygraphs. They're not being plagued by technical problems, so it makes the whole thing much more meaningful for them and more enjoyable, and therefore I think they learn more." Dr Margot Story, Monash University, Australia

"The hardware sets up with a minimum of cabling, and the connectors seem to be impossible to misconnect; the simplicity of the hardware allows me to have students set up on their own rather than having to do it for them... The software interface is also very simple and easy to use, and because it uses standard terminology for the physiological variables there is no translation needed. From a teaching point of view, this is ideal... The PowerLab system has served us so well that we have never regretted the decision to buy." Dr. Lunday Pentz, Mary Baldwin College, USA

"The equipment works and the students can spend that time learning, not being frustrated. Data in a computer file instead of on paper is a huge advantage for the student." Dr. Brian Bagatto, University of Akron, USA

"The PowerLab systems are excellent for our needs. They are versatile, user friendly and reliable. They make my job much easier and the students think the equipment is great." Bruce Arppe, University of Western Ontario, USA

"Our Department has made extensive use of the PowerLab system since the earliest days of MacLab. We have approximately 70 units in use on a daily basis during the teaching year. We have found the PowerLab to be robust, versatile and simple enough for student teaching, and precise and reliable enough for research applications. The software interface is intuitive and data acquisition and analysis functions are powerful. We have found the hardware and software support we receive from ADInstruments to be first-rate, with well-informed and courteous staff always ready, willing and able to solve whatever issues we present to them. We will certainly continue to use the PowerLab system." Dr. Phil Sheard, Otago School of Medical Sciences, New Zealand

"The software is pretty darned good... It's pretty easy for students to learn and use... I did some looking around and PowerLab seemed to be the best balance of power and ease-of-use for learning." Dr. Charles Baube, Oglethorpe University, USA

"In the past we've had simulations in our labs. Students would just see a mock set-up on screen. With PowerLab they can hook up partners, put electrodes on them, and see data in real time that's occurring in their subjects. They like it and it catches their imagination, so it does what you want to do for a student, and that is, give them interest in actually doing real research."

Dr. Russell Conduit, La Trobe University, Australia

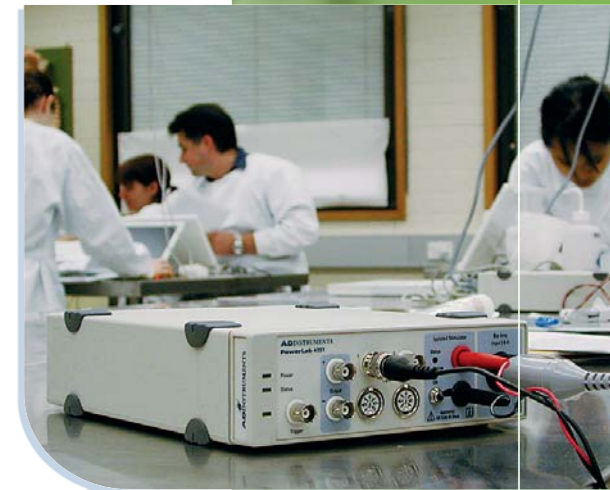
"We have been pleased with the reliability and performance of the PowerLab units. Students have little difficulty mastering Chart software. Generally, those lab exercises which have involved PowerLabs have been worthwhile learning experiences." Professors Salvatore Drogo and William Perrotti, Mohawk Valley Community College, USA

About ADInstruments

ADInstruments provides complete data acquisition and analysis solutions for both the community college and higher education institutions. Since its inception in 1988, the company's proactive product development and focus on customer needs have made ADInstruments a leader in its market.

At the core of the ADInstruments product line is our world-renowned PowerLab® data acquisition system with Chart™, Scope™ and LabTutor® software. PowerLab offers the most versatile and comprehensive data recording, display and analysis features for life science education.

Combined with our range of teaching resources, you have an education tool that is second-to-none. Safe, reliable and easy to use, PowerLab systems are the first choice for thousands of life science educators around the world.



The ADInstruments Advantage:

- ⦿ **Proven track record:** Over 23 000 installations in colleges, universities, medical schools and teaching hospitals around the world.
- ⦿ **Teach life science, not computer science:** ADInstruments systems allow students to focus on conducting experiments and investigating scientific principles rather than configuring equipment or programming software.
- ⦿ **Suitable for a wide range of life science disciplines:** Our systems are used in human and animal physiology, pharmacology, psychophysiology, biomedical engineering, sports science, neurobiology, biology, zoology, biochemistry, nursing and health science laboratory practicals.
- ⦿ **Teaching systems for all levels:** From introductory courses to graduate studies, there is an ADInstruments system to suit your curriculum requirements.
- ⦿ **Extensive teaching resources:** PowerLab users have free access to a wide range of teaching experiments and resources.
- ⦿ **Approved for human connection:** Our human-use biopotential signal conditioners are approved to the IEC60601-1 patient safety standard and other international standards. You can be certain that an ADInstruments system is safe for your students to use.
- ⦿ **High-quality equipment:** Exceptional design, quality components and manufacturing under the ISO9001:2000 Quality System ensure delivery of a precise and reliable product, backed by a three-year warranty.
- ⦿ **Time and cost savings:** In addition to eliminating maintenance and spare part costs, our teaching systems will save you time by reducing equipment setup and providing complete teaching materials.

ADInstruments provides teaching laboratories with data acquisition systems that are user friendly, accurate and help students to learn and understand scientific principles.

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With cutting-edge hardware, software and resources, our teaching tools will inspire your students to learn.

Teaching Applications

ADInstruments teaching systems provide the versatility and ease of use needed for life science education. The following list is a small selection of their extensive applications in teaching.

Human Physiology

- Cardiovascular Function
- Cardiovascular Effects of Exercise
- Evoked Potentials
- Biofeedback
- Sensory & Motor Nerve Responses
- Galvanic Skin Response
- Respiratory Studies
- Metabolic Studies
- ECG (EKG)
- EEG
- EOG
- EMG
- Blood Pressure
- CO₂ & O₂ Measurements
- Postural Stability

Psychophysiology

- EEG
- EEG Evoked Potentials
- Biofeedback
- Galvanic Skin Response
- EOG
- Postural Stability
- Human ECG (EKG)

Animal Physiology

- Compound Action Potentials
- Intracellular Recordings
- Muscle Contraction and EMG
- Sensory & Motor Nerve Responses
- Respiratory Studies
- ECG (EKG)
- EEG/ECOG
- Cardiovascular Functions
- Pharmacology
- Blood Pressure
- Gastrointestinal Pharmacology
- CO₂ & O₂ Measurements

Sports Science

- Biofeedback
- EMG in Humans
- Sensory & Motor Nerve Responses
- Respiratory Studies
- Metabolic Studies
- Human ECG (EKG)
- Cardiovascular Effects of Exercise
- Cardiovascular Function
- Blood Pressure
- CO₂ & O₂ Measurements

Pharmacology

- Gastrointestinal Pharmacology
- Cardiovascular Pharmacology
- Isolated Tissue Studies
- Isolated Heart Studies

Biochemistry

- CO₂ & O₂ Measurements
- Acid/Base Studies
- Cellular Respiration
- Conductivity Experiments

Bioengineering

- Instrumentation
- Electronics Development
- Fluid Dynamics

Neurobiology

- EEG in Humans
- EEG/ECOG in Animals
- EEG Evoked Potentials
- Extracellular Recordings
- EMG in Humans
- Muscle Responses and EMG
- Sensory & Motor Nerve Responses
- EOG

Intended Use

ADInstruments products have been designed for use in teaching applications. They are not intended for clinical or critical life care use and should never be used for these purposes, or for the prevention, diagnosis, curing, treatment or alleviation of disease, injury or handicap.

We've done all the hard work.

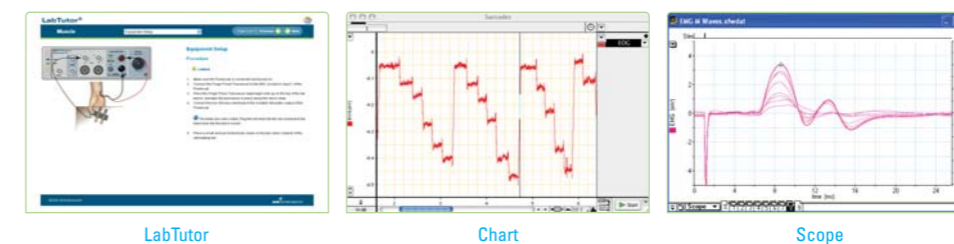
We understand that not all life science courses are the same. Some educators prefer an 'out-of-the-box' solution, while others prefer to customize teaching materials or create their own experiments. That's why our range of teaching systems and resources caters to the diverse requirements of today's student laboratory, providing educators with tools for a vast range of applications and course levels.

Choice in Equipment

Customize your classroom by choosing from the full line of individual products or select from the tried and tested range of ADInstruments Teaching Systems. Our teaching systems are supplied with everything required to perform sets of specific life science experiments and include a PowerLab unit, software, signal conditioners, transducers and accessories.

Choice in Software

ADInstruments Teaching Systems are supplied with LabTutor[®], Chart[™] and Scope[™] software, allowing greater flexibility in the way you choose to teach.

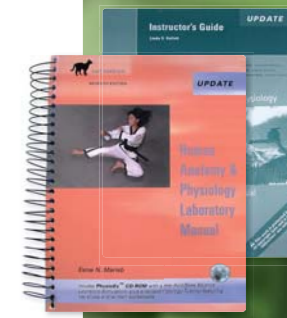


LabTutor is ideal for introductory human physiology courses. Through a student-friendly software interface, LabTutor simplifies the experimental setup and data acquisition process. It also provides simple to use analysis and reporting tools.

The advanced acquisition and analysis features of Chart and Scope are ideal for use in undergraduate and post-graduate courses, as well as advanced research projects.

Choice in Teaching Resources

To save you time, we have developed a number of free teaching resources available from our website. Resources include Teaching Experiments with instructor notes, student protocols, lab reports, settings and sample data files. In addition, several published textbooks and manuals feature PowerLab systems in their experiments.



ADInstruments Hardware

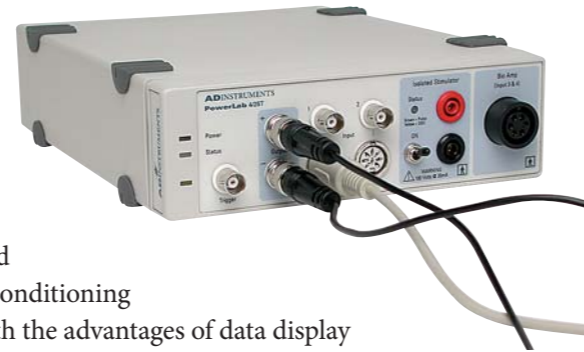
- Data Acquisition Systems
- Bridge Amplifiers
- Biological Amplifiers
- GSR Amplifiers
- Isolated Stimulators
- Temperature Amplifiers
- Respiratory Amplifiers
- Neurobiology Amplifiers
- pH Amplifiers
- Organ & Nerve Baths
- O₂ & CO₂ Gas Analyzers
- Sphygmomanometers
- Cardio Microphones
- BP Transducers
- Pulse Transducers
- Plethysmographs
- Pulse Oximeters
- Force Transducers
- Displacement Transducers
- Biopotential Electrodes
- Respiratory Flow Heads
- Temperature Probes
- Event Markers

PowerLab Data Acquisition Systems

At the heart of each ADInstruments Teaching System is the PowerLab data acquisition system with Chart, Scope and LabTutor software. PowerLab systems are popular with educators and students alike, as the units have no dials, no moving parts and do not require any programming.

PowerLab systems offer the functionality of a chart recorder, XYT plotter, digital voltmeter and storage oscilloscope in one compact unit. With the supplied software, PowerLab combines software-controlled setting of parameters, extensive signal conditioning options and real-time computations with the advantages of data display and analysis on Windows® and Macintosh® computers.

PowerLab systems connect to computers quickly and easily via high-speed USB. They also integrate easily with existing laboratory equipment. Most third-party equipment with an analog output, including amplifiers, instruments and transducers, can be connected to a PowerLab or one of our signal conditioners.



Signal Conditioners

ADInstruments manufactures a wide range of software-controlled preamplifiers for use with PowerLab systems. Once connected, the Amps and Pods are automatically identified and configured by the PowerLab system with all settings stored when the data file is saved. The signal conditioners cover a diverse range of applications and many are multifunctional.

ADInstruments human-use biopotential amplifiers are approved to a number of international safety standards by independent accreditation bodies.



Instruments, Transducers & Accessories

An extensive selection of instruments, transducers and accessories is available for a wide range of life science teaching applications. Please visit the education section of our website for details on our complete product range.

ADInstruments Teaching Systems

ADInstruments make the selection of equipment easy. Our teaching systems include everything your students will need to perform sets of life science experiments. Just list the experiments in your curriculum and we will have a teaching system to match.

An example of a complete system is the Advanced Teaching System. Ideal for introductory as well as advanced human physiology courses, this system features a PowerLab unit with a built-in stimulator and bioamplifier approved for human use. Transducers and accessories, as well as the Human Respiratory Kit, are also included.

The Advanced Teaching System allows students to perform over 40 complete experiment exercises in cardiovascular, biopotential, respiratory, neurophysiology and muscle applications.



Advanced Teaching System



Supplied with all teaching systems:



ADInstruments Teaching Systems offer complete education solutions and unbeatable value-for-money. In addition to hardware, they are supplied with LabTutor Software, Chart and Scope Software, Teaching Experiments and manuals.

ADInstruments Teaching Kits

By adding a Teaching Kit you can easily extend the range of experiments your students can perform. Examples of teaching kits include the Nerve and Muscle Kit and the Exercise Physiology Kit.

PTK11 Nerve and Muscle Kit



PTK14 Exercise Physiology Kit



Ask us about the Teaching Systems Brochure and the Teaching Experiments List. For a full education product list please contact your nearest ADInstruments representative or visit our website: www.ADInstruments.com.

Safety Approvals



Approved for all non-direct cardiac connection (BF rated).



Approved for direct cardiac connection (CF rated).



Satisfies the EMC and low-voltage directive



Meets the CSA C22.2 No. 601.1-M90 and UL No. 2601-1 standards

ADInstruments Software

LabTutor

LabTutor integrates background scientific information and experimental protocols with real-time data acquisition using the familiar web browser interface. The functions of a chart recorder, spreadsheet, graph generator and other presentation tools are combined into one seamless laboratory experience. Within this one program, students follow protocols, record data, analyze recordings and complete laboratory reports.

Below: Easy to follow introduction pages take students through experimental aims and illustrate how to connect the equipment.



Left: Data recording windows allow students to control PowerLab and display data in real time.

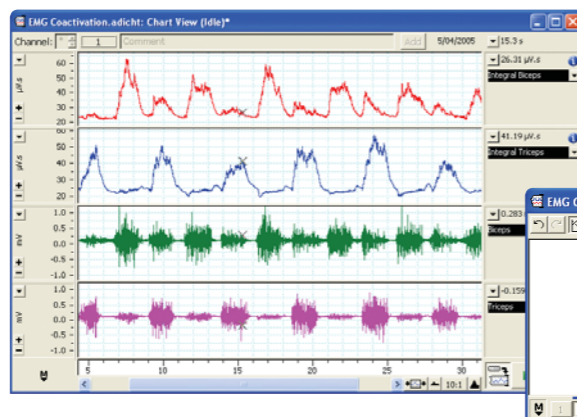


Right: Analysis and report panels allow students to make measurements from the recorded data, produce tables and graphs, and answer questions designed to test their understanding of the concepts.

For educators, LabTutor minimizes the time required to prepare laboratory classes by eliminating the need to create experiment notes and reports. For students, LabTutor makes learning easier by simplifying data acquisition and allowing them to concentrate on the experimental protocol and scientific principles.

Chart

Chart software turns a computer into a real-time, multichannel chart recorder that can acquire, display and analyze up to 16 channels of data. The software provides students with a simple to use interface, software control of equipment and the computer-based data acquisition and analysis. The many features of Chart software allows it to grow with your students' progress and capabilities.



Left: EMG recording (channels 3 and 4) with integrals computed in real time (channels 1 and 2).

Below: Zoom View showing overlay of an EMG signal with its integral.

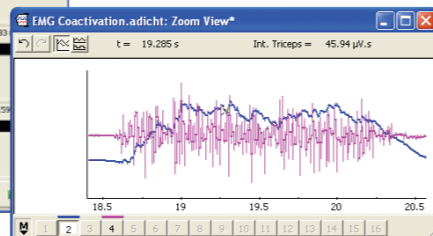
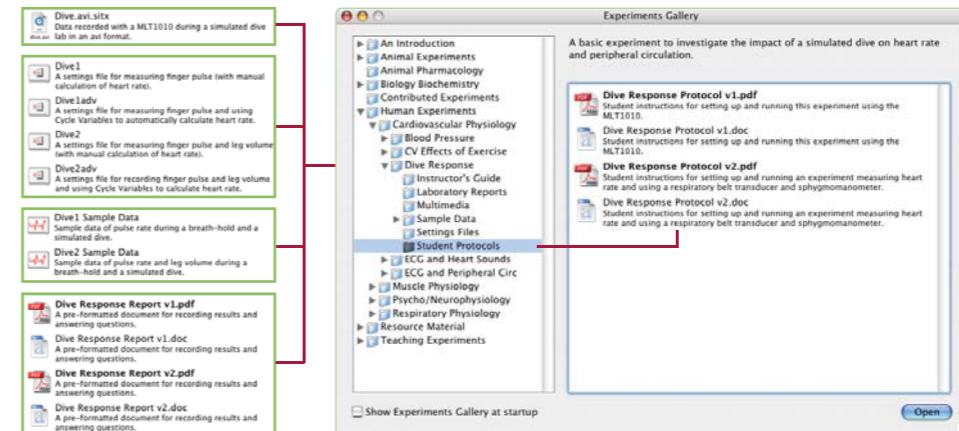


Chart Experiments Gallery

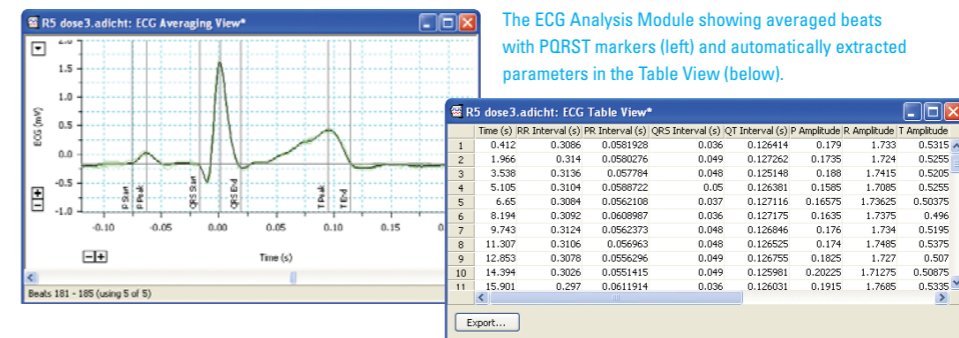
The Experiments Gallery feature in Chart provides a simple way to manage files for use in a curriculum. With the supplied Teaching Experiments educators can quickly create a complete database of laboratory exercises that students open from within Chart. The feature supports any files that can be opened with programs on your computer, including word processors, spreadsheets and multimedia files.



The example above shows a number of experiments within the gallery and highlights materials contained within the Dive Response teaching experiment.

Chart Modules

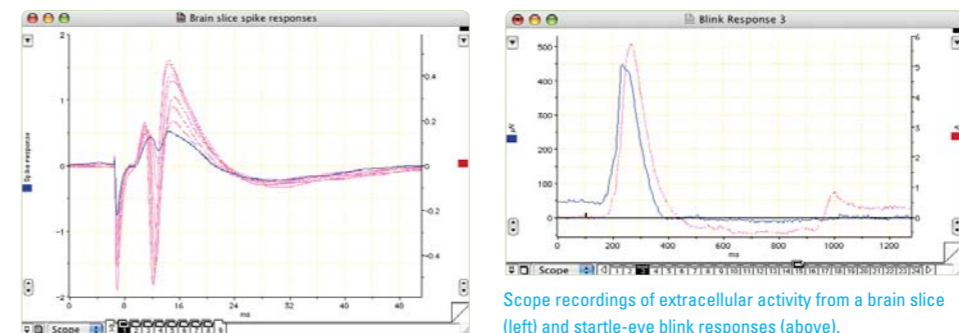
Chart modules are software add-ons that provide specialized acquisition and analysis features. Examples include Heart Rate Variability, ECG Analysis, Blood Pressure, Metabolic, Cardiac Output, Spike Histogram and QuickTime Capture.



The ECG Analysis Module showing averaged beats with PQRST markers (left) and automatically extracted parameters in the Table View (below).

Scope

Scope provides the functionality of a two-channel oscilloscope and is ideal for recording, displaying and analyzing high-frequency signals that are time locked to a stimulus and require signal averaging.



Scope recordings of extracellular activity from a brain slice (left) and startle-eye blink responses (above).

ADInstruments Training & Support

Our commitment to customer support is second to none. In addition to our wide range of web-based resources, we provide a number of training and support services.

Hardware Installation & Software Training

To ensure correct installation and use of your newly acquired products, onsite system installation and training is available from our experienced ADInstruments staff and representatives.

Customer Workshops & Training Seminars

Regional Workshops and Training Seminars, run by highly experienced instructors, are held around the world for new and current PowerLab and Chart users. Visit our website for more details on workshops in your area.

Technical Support

Free web, email and telephone technical support is available to registered users for inquiries directly related to our hardware and software products.

Warranty Services

ADInstruments manufactured products are covered by a three (3) year warranty with any repairs and parts free of charge during this period. See website for details.

Extended Warranty and Support Agreement

Ask your local representative about the extended warranty and support agreement. It includes a number of benefits not included in the standard hardware warranty. These include free software upgrades, free repairs and servicing for five years.

Software Updates & Upgrades

Free software updates are available from our website and software upgrades may be purchased online or through your local ADInstruments representative.

Website Resources

The ADInstruments website is regularly updated to provide you with the latest information for educational applications, ADInstruments hardware and software, and numerous resources available as free downloads.

Worldwide Support Network

The most valuable resource of ADInstruments is our people. To ensure that customer support is efficient and readily accessible, experts in life science teaching are available across a global support network of 11 offices and over 40 authorized distributors.

Contact Us

For more information on any of the above Training, Support or Services offered by ADInstruments please visit the ADInstruments website or contact your nearest ADInstruments office or representative.

Trademark Information

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ADInstruments Teaching Systems are used in colleges, universities and teaching hospitals around the world.

Abilene Christian University, Albany Medical College, Albert Einstein College of Medicine, Albion College, Alverno College, Andrews University, Antelope Valley College, Archer School for Girls, Arizona State University, Assumption College, Auburn University, Augsburg College, Azusa Pacific University, Ball State University, Belmont University, Beloit College, Berea College, Bethel University, Blue Mountain Community College, Bob Jones University, Boston College, Boston University, Bowdoin College, Bowling Green State University, Brigham Young University, Bryn Mawr College, Buena Vista University, Butler University, California Institute of Technology, California Lutheran University, California State University, Cardinal Stittch University, Carleton University, Carnegie Mellon University, Carroll College, Case Western Reserve University, Centenary College, Central Lakes College, Central Michigan University, Central Missouri State University, Chesapeake Biological Lab University of Maryland, Chestnut Hill College, Christian Bates College, Brothers University, Christopher Newport University, City College of New York, Cloud County Community College, Colby College, Colgate University, College Misericordia, College of Marin, College of Mount St. Joseph, College of New Jersey, College of Southern Maryland, College of St. Catherine, College of William and Mary, Collin County Community College, Colorado College, Colorado State University, Columbia University, Cornell College, Coronado High School Colorado Springs, County College of Morris, Creighton University, Dalhousie University, Davidson College, Denison University, Douglas College, Drake University, Duke University, Duquesne University, Durham Technical Community College, Earlham College, East Stroudsburg University, Eastern Connecticut State University, Eastern Illinois University, Eastern Washington University, Elmira College, Elon University, Emory University, Equine Medical Center Virginia Technological Institute, Fernbank Science Center, Ferris State University, Finch University of Health Sciences Chicago Medical School, Fordham University, Fort Belknap College, Fremont-Newark Community College District, Front Range Community College, Furman University, Gannon University, George Washington University, Georgetown College, Georgetown University, Georgia Southern University, Gettysburg College, Gonzaga University, Gordon College, Goucher College, Grand Canyon University, Grinnell College, Grossmont College, Hamline University, Hartwick College, Harvard University, Hendrix College, High Point University, High Tech High San Diego, Hillsdale College, Hobart and William Smith Colleges, Hope College, Houston Community College, Illinois Institute of Technology, Illinois Wesleyan University, Indiana State University, Indiana University, Indiana University of Pennsylvania, Indiana University-Purdue University, Indiana Wesleyan University, Instituto Tecnológico y de Estudios, Iowa State University, Irvine Valley College, Johns Hopkins Asthma & Allergy Center, Johns Hopkins Medical School, Johns Hopkins University, Joliet Junior College, Kalamazoo Valley Community College, Kansas City Kansas Community College, Kean University, Kennesaw State University, Kent State, King's College, La Sierra University, Lafayette College, Lake Erie College of Osteopathic Medicine, Lake Forest University, Las Positas Community College, LaSalle University, Lehigh University, Lehman College, Lewis and Clark College, Lincoln Land Community College, Lincoln University, Loma Linda University, Los Rios Community College District, Louisiana State University, Loyola University, Loyola College, Lyon College, Macomb Community College, Malaspina University-College, Mariano Galvez University Medical School, Marin Community College District, Marlboro College, Marquette University, Mary Baldwin College, Massachusetts Institute of Technology, McDaniel College, McGill University, McKendree College, McMaster University, Medical College of Wisconsin, Merrimack College, Messiah College, Metropolitan Community College, Miami University, Michigan State University, Mid-Plains Community College, Midwestern University, Millersville University, Millikin University, Missouri Southern State College, Missouri Southern State University, Missouri Valley Community College, Monmouth College, Morningside College, National University of Health Science, Nazareth College, Nebraska Wesleyan University, NEUJCOM, New College of Florida, New England College of Optometry, New York Medical College, Nipissing University, North Carolina State University, North Georgia College & State University, North Platte Community College, Northeastern Illinois University, Northeastern University, Northern Arizona University, Northern Kentucky University, Northwest Missouri State University, Northwestern College, Norwich University, Notre Dame de Namur University, Oberlin College, Oglethorpe University, Ohio State University, Ohio Wesleyan University, Ohlone College, Oklahoma School of Math and Science, Oklahoma State University, Olivet Nazarene University, Oral Roberts University, Order of St. Benedict, Oregon State University, Palomar College, Park University, Penn State Abington, Pennsylvania State University, Plattsburgh State University, Plymouth State College, Pomona College, Presbyterian College, Price Lab School University of Northern Iowa, Purdue University, Queen's University, Rancho Santiago College, Randolph Macon College, Rensselaer Polytechnic Institute, Robert Wood Johnson Medical School, Roger Williams University, Rose-Hulman Institute of Technology, Rush Medical College, Rutgers University, Saginaw Valley State University, Salem State College, Salisbury State University, San Diego Community College District, San Diego Mesa College, San Diego Miramar College, San Diego State University, San Jose State University, Santa Ana College, Savannah State University, Scottsdale Community College, Seattle Institute for Biomedical & Clinical Research, Seattle Pacific University, Seton Hall University, Shelton State University, Shippensburg University, Siena College, Skidmore College, Slippery Rock University, Snow College, Sonoma State University, Southern Arkansas University, Southwest Baptist University, Southwestern College, Southwestern University, St. Cloud State University, St. John's University, St. Lawrence University, St. Louis University, St. Mary's University, St. Vincent College, Stanford University, State University of Georgia, Stevens Institute of Technology, SUNY, SUNY Upstate Medical Center, Swarthmore College, Syracuse University, Tarleton State University, Temple University, Texas A&M University, Texas Woman's University, The Archer School for Girls, Thomas Jefferson University, Trinity College, Tufts University, Uniformed Services University of Health Sciences, Union College, Universidad Francisco Marroquin, Universidad Nacional Autonoma de Mexico, Universidad de Guanajuato, Universidad de Puerto Rico en Bayamon, Universidad Mariano Galvez de Guatemala, Université de Laval, Université de Sherbrooke, University of Akron, University of Alberta, University of Arkansas, University of British Columbia, University of Buffalo, University of Calgary, University of California, University of Central Arkansas, University of Chicago, University of Cincinnati, University of Colorado, University of Connecticut, University of Dayton, University of Delaware, University of Florida, University of Georgia, University of Hawaii, University of Health Sciences Kansas City, University of Houston, Humboldt State University, University of Idaho, University of Illinois, University of Kansas, University of Kentucky, University of Louisville, University of Maine, University of Maryland, University of Massachusetts, University of Miami, University of Michigan, University of Minnesota, University of Mississippi, University of Missouri Columbia, University of Nebraska Lincoln, University of Nebraska Medical Center, University of Nevada Las Vegas, University of New England, University of New Hampshire, University of New Mexico, University of New Orleans, University of North Carolina, University of North Carolina Chapel Hill, University of North Carolina Greensboro, University of North Dakota, University of North Florida, University of North Texas, University of Oklahoma, University of Oregon, University of Pennsylvania, University of Pittsburgh, University of Portland, Universidad de Puerto Rico, University of Puget Sound, University of Rhode Island, University of Rochester, University of Saskatchewan, University of Scranton, Smith College, University of South Florida, University of Southern California, University of Southern Maine, University of St. Francis, University of St. Thomas, University of Tampa, University of Tennessee, University of Texas, University of Texas San Antonio, University of Texas Tyler, University of the Ozarks, University of the Pacific, University of the Virgin Islands, University of the West Indies, University of Toledo, University of Toronto, University of Utah, University of Vermont, University of Victoria, University of Virginia, University of Washington, University of Western Ontario, University of Westminster, University of Winnipeg, University of Wisconsin, University of Wyoming, Ursinus College, Ursuline College, Utah State University, Valencia Community College, Vassar College, Villanova University, Virginia Commonwealth University, Virginia Union University, Viterbo University, Washburn College, Wake Forest University, Wartburg College, Washburn University, Washington & Jefferson College, Wayne Community College, Wayne State College, Wayne State University, Wellesley College, Wesleyan College, West Chester University, West Georgia College, West Valley College, West Valley-Mission Community College, Western Kentucky University, Western Maryland University, Western Michigan University, Western New England College, Western State University, Westminster College, Westminster College, Wheaton College, Whitman College, Wilfred Laurier University, Wilkes University, Willamette University, William Rainey Harper College, Wilson College, Windward Community College, Winona State University, Wofford College, Woods Hole Marine Biological Laboratory, Xavier University, Yakima Valley Community College, Yale University, York University, Youngstown State University, Abo Akademi University, Akademia Medyczna Gdansk, Albert Szent-Gyorgyi Medical University, Alcalá University, Athlone Regional Technical College, Bangor University, Bath University, Bolton Institute, Cardiff School of Biosciences, Cardiff University, Charles University, Comenius University, Copenhagen Institute of Life Sciences, De Montfort University, Dublin City University, ECSS Trinity College, Erasmus University Rotterdam, Erciyes University, Extremadura University, Federico II University, Gaziantep University, Glasgow Caledonian University, Heriot Watt University, Humanbiologisches Institut der TU München, Institut für Physiologie der Universität Düsseldorf, Institut für Physiologie der Universität Giessen, Institut für Tierphysiologie der Universität Leipzig, Institut für Veterinärmedizin der FU Berlin, Istanbul University, Jagiellonian University Kraków, Jaume I University, Kadir Has University, Kraków Medical College, Leeds Metropolitan University, Limburgs University Centre, LSB College, Lund University, Manchester Metropolitan University, Medical Academy Białystok, Moscow State University, National University of Ireland, Norwegian University of Science & Technology, Odense University, Open University, Oxford University, Pamukkale University, Pharmakologisches Institut der Universität Bonn, Pharmakologisches Institut der Universität Kiel, Pharmakologisches Institut der Humboldt Universität Berlin, Physiologisches Institut der Universität Bern, Physiologisches Institut der 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