Our Human Physiology Collection includes customizable lessons, which can include a combination of a tutorial, a pre-lab prep, and a lab. Combine lessons with our hardware teaching systems and kits to provide a true-to-life, practical learning experience for your students.

**Professionally developed lessons**

Lessons in our Human Physiology Collection reinforce introductory and advanced concepts in cardiovascular physiology, respiratory physiology, neurophysiology, muscle physiology, digestion, and kidney and water balance.

Each media-rich lesson is designed to maximize engagement and suit diverse learning styles, with a strong focus on student outcomes.

Use our lessons off the shelf or tailor any lesson to suit your curriculum and your teaching preferences. Lessons can be grouped, and ordered per your course needs.

“I have 500 students each semester, but my labs run smoother with Lt.”

- **Aura Grandidge**, Manager Biology Labs, Anatomy and Physiology, University of Rhode Island
**Airflow**
Record spirometry signals to examine FEV1 in normal and simulated airway restriction. Perform peak flow tests.

**Autonomic Nervous System**
Examine skin potential changes, heart rate variability, the Valsalva maneuver, rapid postural change and pupillary exercises.

**Blood Pressure**
Measure blood pressure in the arm and assess the effect of cuff location, cuff size, and arm position. Examine how leg position affects leg blood pressure.

**Body Temperature**
Measure body temperature and explore the differences between conductive and convective heat loss.

**Brain Structure and Reflexes**
The Spinal Reflexes lab investigates simple and complex reflexes used clinically in neurological examination.

**Breathing**
Use a respiratory belt to investigate the ability to hold the breath and the relationship between breathing and heart rate.

**Cardiorespiratory Effects of Exercise**
Record and compare ECG, blood pressure, and respiratory movements at rest, during exercise, and immediately after exercise.

**Cardiovascular Effects of Exercise**
Record and compare ECG and the finger pulse at rest and immediately after exercise.

**Diving Response**
Investigate the effects of simulated dives and breath holding on heart rate and peripheral circulation.

**Electro-oculography (EOG)**
Record EOGs to examine angular displacement, saccades, smooth tracking, gaze-holding, gaze-shifting, and nystagmus.

**Electroencephalography (EEG)**
Record EEGs to examine interfering signals, changes with eyes open and shut, and the effects of mental and auditory activity.

**Energy Expenditure and Exercise**
Measure the FEO\(_2\), FECO\(_2\), and RER during steady-state exercise, as well as ventilatory changes and changes in mechanical efficiency.

**Getting Started with Lt**
An introduction to data sampling in Lt where students practice recording and analyzing some finger pulse data, and becoming familiar with features of Lt.

**Glucose Absorption**
Measure blood glucose using a glucolet and glucometer and compare results from five protocols. Take urine samples to measure glucose levels.

**Heart and ECG**
Measure the ECG and pulse, compare variations between the different leads of a 12-lead ECG and perform an Einthoven triangle analysis.

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Sign up for a free trial to experience Lt
adinstruments.com/try-lt
Heart and Peripheral Circulation
Practice palpation techniques on arm and leg arterial pulses, record the radial pulse and examine arterial anastomoses in the hand.

Heart Sounds
Listen to heart sounds via a stethoscope and phonocardiogram (PCG), record an ECG and pulse to investigate the relationship of ECG events and heart sounds.

Kidney and Urine
Estimate bladder capacity, view an abdominal CT scan, and perform urine testing and observation on “patient” urine samples.

Lung Volumes
Record and analyze spirometry signals to perform basic tests of pulmonary function and stimulate breathing with hyperinflated lungs.

Mechanics of Ventilation
Measure pressures generated passively and by contraction of expiratory and inspiratory muscles. Use spirometry to determine lung volume.

Muscle and EMG
Record EMG during voluntary muscle contractions to investigate coactivation, muscle fatigue, and how visual and verbal feedback impact the ability to sustain muscle contractions.

Peripheral Nerve Function
Record an evoked EMG, then calculate latency and nerve conduction velocity.

Reflexes and Reaction Times
Examine simple reflexes, and then explore reaction times to stimuli under different conditions.

Sensory Illusions
Investigate mechanisms of sensory perception and discover techniques that send conflicting information to the central nervous system.

Sensory Physiology
Familiarizes students with their senses as they observe a range of sensory illusions.

Skeletal Muscle Function
Record and measure muscular twitch responses, observe recruitment as stimulus strength increases, and explore muscle twitch summation and tetanus.

Stroop Test
Investigate the interference of conflicting messages, and examine the effects of the Stroop test as an experimental stressor.

Water Balance
Learners drink a variety of solutions, then collect and measure the volume and specific gravity of their urine over 2 hours.

“lt allows me and my colleagues to collaborate on lesson plans in real time.”
- Dr James Clark,
  Senior Lecturer, Human & Applied Physiology,
  King’s College, London
Educators

**Easy lesson authoring**
Building media-rich lessons is simple. Drag-and-drop a range of content types to create interactive exercises, including multiple choice questions, short form written answers and image annotation.

**Collaborative**
Share content and workload with your fellow educators and teaching assistants. Set varying levels of access to allow others to review content, add content, or publish revisions online.

**Flexible grading**
Automatically grade quizzes while keeping the flexibility to add feedback and positive reinforcement, and manually grade written assessments.

**Onboarding**
Our Instructional Design team can convert and edit your existing content and lessons to make them even better in Lt.

Students

**Learn anywhere**
Lt’s cloud-based platform means students can learn on almost any device that connects to the internet. Whether they use iOS or android, tablet, mobile or laptop, lessons will be resized and optimized to look great.

**PowerLab integration**
In the lab, students can record and view their own physiological signals live on screen with PowerLab and sampling panels in Lt that can record Pulse, Spirometry, ECG, Blood Pressure and more.

**Learn from real patients**
For future health professionals, our patient cases allow students to follow a real patient from initial presentation to diagnosis and management. Expert healthcare professionals provide their views throughout the journey and students can practice note-taking and reflection.

Administration

**Simple setup**
Lt needs only an internet browser to allow course administration, authoring and publishing. Our data acquisition app, used for sampling, installs in 30 seconds.

**Analytics**
Our analytics allow you to view class progress in each lesson and across your course, and provide valuable insights about where and how students are interacting with course material.

**Secure and scalable**
Totally secure, Lt is hosted on Amazon Web Service’s encrypted servers with guaranteed 99% uptime and the ability to maintain speed as more students login to Lt.

**Future proof**
Lt is automatically updated with new features by our team of engineers, developers, and education specialists.

**Getting started with Lt**
*Custom training and specialist support*
Whether you need help with Lab installation and setup, IT training, Lt training or specialized support, we can get you up and running even faster with an add-on package of training and support services.

Visit our website adinstruments.com/education or contact your local ADInstruments representative for more information

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