

2011/12

MEDICAL & SCIENCE MEDIA

Laboratory Medicine SOFTWARE

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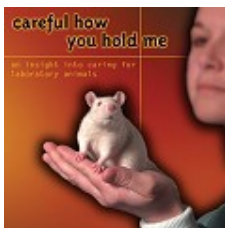
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<http://www.msmedia.com.au/lab-medicine-software.php>

[Cat #: MU-30](#)**Careful How You Hold Me: An Insight into Caring for Laboratory Animals – Wins & Mac**

This multimedia CD-ROM training program was primarily developed for new investigators and technical staff commencing work with animals (mice, rats, guinea pigs and rabbits) in bio-medical research. Veterinarians moving into the field of Laboratory Animal Science and Animal Welfare, and members of Animal Ethics Committees wishing to learn more about standards of practice will find it valuable also.



The content is organised for either random or sequential use. It includes over one hundred high quality still photographs, forty minutes of QuickTime® movies, and some testing, including an off-computer skills test, as well as hot links to useful background material, tables and references. There is strong emphasis on core information required to operate effectively as an animal based scientist. Material has been drawn from a wide range of sources including the experience of practitioners who have worked in the field over many years.

About the creators:

Lyndal Scott BVSc Dip Ed MACVSc was the Research Ethics/Animal Welfare Officer at the University of Melbourne. Paula Jablonski PhD MSc and Brian Howden PhD MSc were the Senior Lecturer and the Professional Officer, respectively, in the Department of Surgery, Monash University. Dr Denise Noonan is Animal Welfare Officer/Clinical Veterinarian at Monash University. Stephen Marshall is Manager of Animal Facilities at BRL, Austin Repatriation Hospital.

Minimum System Requirements: Runs on Macintosh and Windows: 32MB RAM, 640 x 480 display, thousands of colours, sound; MacOS 7.5+, Power Macintosh; Windows 95+, Pentium 133 or better.

[Cat #: MU-32](#)**sNet: The Chemical Laboratory Safety Net - Wins & Mac**

sNet is an interactive multimedia resource developed by the Victorian Institute for Chemical Sciences (VICS) to assist students and laboratory workers to identify and assess safety issues in educational, commercial and Government laboratories.



The central feature of sNet is a suite of 14 QuickTime-Virtual Reality (QTVR) scenarios representing commonly encountered workplace environments for researchers and laboratory staff. These include laboratories for chemical synthesis, instrumentation laboratories, office areas, an engineering workshop, teaching laboratory, biological or chemical sample storage and processing laboratories, and X-ray and radiation facilities.

These QTVR movies of real laboratories allow the user to explore the environment and identify and assess the safety issues associated with the many 'safety hotspots' located throughout the scenarios. Altogether, there are over 200 hotspots, each supported by links to notes on the identification, control, management and legislation relevant to the hazard. Other resources include sample MSDS, risk assessments, an index to all the sNet content and URL links to other relevant safety sites.

About the creators:

VICS is a collaboration between Monash University, RMIT University and The University of Melbourne.

Minimum System Requirements: Minimum: 256MB RAM, 1024 x 768 display in 16-bit colour, 16 x CD-ROM. PC: Intel Pentium III/AMD Athlon Processor, 1GHz or faster, Windows 2000/XP SP2. Macintosh: PowerPC G4 1GHz or faster, OS 10.3.

[Cat #: WU-3](#)**Gram Stain Tutor** - Wins

COURSE OUTLINE: Introduction: Overview, Gram Stain Procedure, Theory Interpretation. **Morphology:** Cells, Bacteria, Yeasts, Artefacts. **Specimen Sites:** CSF, Blood, Respiratory, Urine, Genital, Wound, Eye, Joint Fluid, Stool. **Case Studies:** Case #1, Case #2, Case #3, Case#4, Case #5, Case #6, Case #7. **Exams:** Exam #1, Exam #2.

LEARNING OBJECTIVES

- State the clinical importance of the Gram stain of body fluids, and describe and state the purpose of each step in the procedure
- List the major organisms isolated from the following specimens: blood, CSF, urine, respiratory, genital, wound, joint, eye, and stool
- State whether a specimen is likely to be normal, contaminated, or infected
- Use the proper generic terminology to systematically describe the morphology of bacteria or yeast
- Use the proper terminology to identify and describe cell types and common artefacts

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-2](#)**Urinalysis Tutor** - Wins

COURSE OUTLINE: Introduction: Overview, Kidney Structure and Function, Complete Urinalysis Exam. **Cells:** Introduction, WBCs, RBCs, Epithelial Cells, Oval Fat bodies, Quiz. **Casts:** Introduction Types of casts. **Crystals:** Introduction, Normal, Abnormal, Quiz. **Organisms & Artefacts:** Introduction, Organisms, Artefacts, Quiz. **Selected Clinical Presentations:** Glomerular Tubules, Chronic renal failure/End stage renal disease, Urinary Tract Cancer, Inadequate Specimen, Case study. **Exams:** Exam 1, Exam 2.

LEARNING OBJECTIVES

- Describe the anatomic structures involved in urine formation
- Describe the three parts of a complete urinalysis
- Describe three methods of enhancing the visualization of urinary sediment structures
- Identify and differentiate the common cell types found in urinary sediment
- Enumerate red blood cells and white blood cells in unstained urinary sediment
- Identify the types of casts seen in urinary sediment and state the clinical significance associated with each finding
- Differentiate between crystals found in normal urine and crystals associated with clinical disease
- Describe typical urinary sediment findings and key biochemical findings associated with selected renal disorders

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-11](#)**Basic Phlebotomy Tutor** - Wins

COURSE OUTLINE: Introduction: Overview, Learning Objectives, Anatomy, **Equipment:** Tubes, Needles, Tourniquets, Other. **Venipuncture:** Patient Introduction, Prepping, Blood Draw. **Procedural Complications:** Needle Insertion, Other Problems. **Quality Assurance:** Patient Complications, Suboptimal Specimens.

LEARNING OBJECTIVES:

- Discuss the function and structure of veins. Identify the names and locations of the veins most suitable for phlebotomy
- List equipment and supplies needed to collect blood and discuss the correct use of each

- Describe the steps in performing a venipuncture procedure
- Discuss techniques and equipment used to minimize biohazard exposure
- Identify procedure errors and discuss remedies for each
- Identify complications associated with blood collection and discuss how appropriately to respond when each occurs
- Recognize sub-optimal specimens and their effect on the quality of laboratory test results

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-12](#)

Advanced Phlebotomy and Pediatric Phlebotomy - Wins

Venipuncture techniques for alternate sites, and skin puncture and blood culture collection procedures

COURSE OUTLINE: Introduction: Learning objectives, Equipment Overview. **Collection Techniques:** Greet the Patient, Apply Gloves, Identify the Patient, Assemble Supplies, Venipuncture, Skin Puncture, Label Tubes, Pack Tubes. **Blood Culture:** Overview, Equipment, Procedure.

LEARNING OBJECTIVES:

- List the equipment and supplies needed for blood collection and describe the correct use of each
- Describe the steps in performing venipuncture procedures using the evacuated tube assembly with butterfly needle
- Describe the steps in performing a skin puncture procedure
- Describe the steps in performing a blood culture procedure

Pediatric Phlebotomy Module

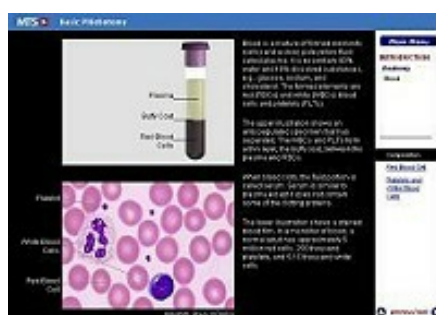
Techniques for blood collection from paediatric patients, including use of special equipment and distraction techniques

COURSE OUTLINE: Overview: Learning Objectives, Introduction, Identifying the Patient, Volume Considerations, Patient Considerations, Equipment. **Collection Techniques:** Venipuncture, Heel stick, Finger stick, Capillary, Blood Gas. **Difficult Draws:** Example 1, Example 2.

LEARNING OBJECTIVES:

- List the equipment and supplies needed to perform a paediatric blood draw
- List the key patient considerations for various age groups of paediatric patients
- Describe the steps in performing a paediatric venipuncture using a syringe and butterfly needle
- Describe the steps in performing paediatric finger stick and heel stick procedures
- Describe the steps in performing a capillary blood gas

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



[Cat #: WU-5](#)**Body Fluids Tutor - Wins****Synovial Fluid Module****Classification of synovial effusions. Gross and microscopic examination, including the use of polarized light**

COURSE OUTLINE: Overview: Learning Objectives, Anatomy, Specimen Collection, SF Classification. **Procedures:** Polarized Light, Stains. **Gross Examination:** Colour and Clarity, Viscosity, Notable Finding. **Microscopic Examination:** Cells, Crystals, Micro-organisms, Lipids, Artefacts. **Clinical Correlations:** Gout, Pseudogout.

LEARNING OBJECTIVES

- Describe the basic classification of synovial effusions
- Describe the gross appearance of synovial fluid specimens
- Discuss the principles and applications of polarizing microscopy and compensated polarizing microscopy, and how to perform them
- Distinguish urate crystals from calcium pyrophosphate dihydrate (CPPD) crystals
- Describe other crystals, artefacts, inclusions, and cell types that may be present in synovial fluids

Serous Fluid Module**Serous fluid production. Distinguishing transudates and exudates using laboratory testing. Gross and microscopic examination of serous fluids**

COURSE OUTLINE: Overview: Learning Objectives, Anatomy, Normal Production, Transudate, Exudate, Laboratory Findings, Clinical Causes. **Gross Examination:** Transudate, Turbid, Haemorrhagic, Clot, Bile Stained, Chylous. **Procedures:** Cell Count, Cyto-centrifuge, Wright Stain, Gram Stain. **Microscopic Exam:** Cell Types, Normal, Inflammation, Haemorrhage, Infection, Malignancy. **Exams:** Exam 1, Exam 2.

LEARNING OBJECTIVES

- Describe the normal production of serous fluids and the mechanisms of formation of transudates and exudates
- Distinguish transudates and exudates using lab testing, and understand their significance
- Describe the gross appearance of serous fluid specimens
- Describe the principles of manual chamber counts, cytocentrifuge preparation, and Wright staining
- Identify the major types of normal and abnormal cells in serous fluids and their significance

Seminal Fluid Module**Semen analysis, including the determination of sperm concentration, motility and morphology**

COURSE OUTLINE: Overview: Learning Objectives, Anatomy, Specimen Collection Quality Control, References. **Gross Examination:** Fluid Characteristics, pH. **Procedures:** Prepare Wet Mount, Load Hemacytometer, Prepare Semen Smear, Staining. **Microscopic Examination:** Components of Fluid, Sperm Motility, Other Wet Mount Observations, Sperm Concentration, Sperm Morphology, Other Cell Types, Differential Count. **Clinical Correlations:** Semen Analysis, Sperm Function, Sperm Vitality, Anti-Sperm Antibodies, Post-vasectomy Evaluation, Prostatitis, CAVD, Ejaculatory Dysfunction.

LEARNING OBJECTIVES

- List the glandular contributions and cellular components of seminal fluid
- Describe the methods used to determine sperm concentration, motility and morphology
- List the abnormalities detected and reference ranges for semen analysis
- Discuss the goals and limitations of semen analysis in the clinical setting

Cerebrospinal Fluid Module

Overview of the lumbar puncture procedure. Gross and microscopic examination of cerebrospinal fluid

COURSE OUTLINE: Overview: Learning Objectives, Anatomy, Specimen Collection, Laboratory Findings, Microbiology. **Gross Examination:** Overview, Clarity, Traumatic Tap. **Procedures** Cell Count, Cyto-centrifuge, Wright Stain, Gram Stain, Electrophoresis, Latex Agglutination. **Microscopic Examination:** Cell Types, Normal, Inflammation, Haemorrhage, Infection, Malignancy. **Exams:** Exam 1, Exam 2.

LEARNING OBJECTIVES

- Describe the production and collection of cerebrospinal fluid (CSF)
- Describe the gross appearance of CSF specimens
- Describe the principles of manual chamber counts, cytocentrifuge preparation, and Wright staining
- Identify the major types of normal and abnormal cells in CSF and describe their significance

Amniotic Fluid Module

The amniocentesis procedure and laboratory analysis of amniotic fluid

COURSE OUTLINE: Overview: Learning Objectives Specimen Collection. **Gross Examination:** Normal Fluid, Abnormal Fluids. **Clinical Correlations:** Screening for Birth Defects, Genetic Testing, Open Neural Tube Defects, Foetal Maturity, Haemolytic Disease.

LEARNING OBJECTIVES

- Describe the amniocentesis procedure and the most common indications for amniocentesis
- List the most common genetic abnormalities detected by cytogenetic analysis and their clinical features
- Describe the L/S ratio and other assays used to assess foetal lung maturity
- Describe the tests used to screen for open neural tube defects
- Describe haemolytic disease of the newborn (HDN) and how the severity of HDN is assessed in the lab

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-17](#)

Coagulation Tutor - Wins

LEARNING OBJECTIVES

- Describe the basic physiology of hemostasis and its regulation
- Name the common bleeding disorders and their associated defects
- Understand the methodology of common coagulation tests and their role in diagnosing bleeding disorders
- Know the common abnormal coagulation test result patterns and the bleeding disorders most frequently associated with them
- Understand the role of coagulation tests in monitoring anticoagulant therapy

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



[Cat #: WU-10](#)**Introduction to the Clinical Laboratory - Wins**

COURSE OUTLINE: Introduction: Learning Objectives, Clinical Lab and Healthcare. **Laboratory Testing Process:** Overview, Patient History/Physical Exam Test Ordering, Specimen Collection, Specimen Transportation, Specimen Processing Analysis, Results Validation, Results Reporting, Interpretation/Action. **Personnel:** Overview Collection/Transportation, Specimen Processing, Analysis/ Reporting Administration/ LIS. **Regulatory Framework:** Overview, Lab Quality. **Final Exam:** Exam 1.

LEARNING OBJECTIVES:

- Describe the pre-analytic, analytic and post-analytic stages of laboratory testing and list the important aspects of specimen collection and transportation
- Define Standard Precautions and recognize the importance of following safety guidelines
- Understand the patient's right to confidentiality and considerate treatment
- List the classical laboratory divisions and the common specimens and tests in each
- Describe clinical laboratory personnel and their roles
- Define Quality Assurance

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-9](#)**Introduction to Transfusion Services - Wins**

COURSE OUTLINE: Introduction: Learning Objectives, Overview. **Blood Components:** Overview, Red Cells, Platelets and Plasma , Cryoprecipitate. **Blood Groups:** Overview, ABO and Compatibility, Rh. **Pre-Transfusion Testing:** Overview, Agglutination, Determining ABO/Rh Group, Other Required Pre-transfusion Testing, Other Optional Pre-transfusion Testing. **Patterns** Anti-D, Warm Autoantibody, Antibody to High Frequency Antigen, HTLA, Anti-M. **Basic Antibody ID:** Overview, Exclusion/Inclusion Criteria, Examples. **Transfusion Reactions:** Overview, Haemolytic Transfusion Reaction, Dangerous Reactions without Haemolysis.

LEARNING OBJECTIVES:

- Name the 4 components that can be made from a unit of whole blood and describe the function of each
- Define the following terms: antigen, clinically significant antibody, hemolysis, and the complement system
- List compatible components for the following patient blood groups: A, B, O, and AB
- Define the antibody screen and explain why it is important in pre-transfusion testing
- Name 3 crossmatch tests and define when an antiglobulin crossmatch must be done
- Describe the laboratory's role in the evaluation of a suspected transfusion reaction
- Define the elements of accurate and thorough testing prior to infusion of blood components to a patient

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



[Cat #: WU-6](#)

Laboratory Safety - Wins

Biosafety Module

Standard precautions, personal protective equipment and spill cleanup

COURSE OUTLINE: Overview: Learning Objectives, Introduction, Health Risks, Standard Precautions. **Disease Transmission:** Overview, Parenteral, Respiratory, Contact, Phlebotomy Biosafety. **Biosafety Levels:** Overview. **Control Methods:** Overview, Engineering Controls, Work Practice, Controls. **Personal Protective Equipment:** Overview, Gloves, Gowns, Face Protection, Other PPE, Removal of PPE. **Exposure:** Overview. **Spill Cleanup:** Overview, Procedure, Disinfectants **Waste:** Disposal. **Final Exam:** Exam 1.

LEARNING OBJECTIVE

- List 3 modes of disease transmission and a way to reduce risk of laboratory transmission for each mode
- List the 3 control methods used to limit exposure in laboratories, and give 2 examples of each
- List 4 types of Personal Protective Equipment (PPE) commonly used in laboratories and when to use them
- State the steps to follow when cleaning up a spill of biohazardous material
- List 3 items that should be discarded as regulated medical waste

Chemical Safety Module

Proper handling, storage, and disposal of laboratory chemicals, and methods for responding to chemical spills and exposure

COURSE OUTLINE: Introduction: Learning Objectives, Overview. **Laboratory Standard:** Overview, Right to Know Training, Monitoring, Particularly Hazardous Substances. **Exposure Hazards:** Overview, Routes of Entry, Acute Effects, Chronic Effects, Exposure Definitions, Chemical Effects, Chemical Definitions. **Hazard Labeling:** Overview, Chemical Labeling, Secondary Labeling, Hazard Identification System, Room Signs. **Material Safety Data Sheets:** Overview, MSDS Contents. **General Handling:** Overview, Work Practice Controls, Basic Chemical Handling, Basic Compressed Gas Handling, Working Alone, Personal Protective Equipment, Standard Operating Procedures, Chemical Inventory. **Transport and Storage:** Transport, Storage. **Waste Management:** Overview, Source Reduction, Packaging Storage for Disposal, Waste Disposal. **Spills:** Overview, Spill Kits, Assessing Spills, Cleanup, Mercury. **Chemical Exposure:** Exposure Routes, Eyewash, Emergency Shower, Medical Consultation. **Final Exam:** Exam 1.

LEARNING OBJECTIVES

- List the 4 routes of entry for hazardous chemicals
- Define acute and chronic health effects
- Describe the proper method for labeling hazardous chemicals
- Describe the purpose of a material safety data sheet and list the 7 required types of information
- State the main hazard classes for dry chemicals, liquid chemicals and compressed gases
- List 5 requirements for disposal of hazardous chemicals
- State the method for assessing and cleaning a hazardous chemical spill
- State the steps to follow after exposure to a chemical

Electrical Safety Module

Basic electrical theory, and how to identify and avoid electrical problems in the lab

COURSE OUTLINE: Overview: Learning Objectives. Introduction. **Electrical Theory:** Overview, Circuit, Short Circuit, Grounding, Circuit Breakers, Electrical Shock, Static Electricity. **Equipment Safety:** Overview, Damaged Equipment, Power Cords, Maintenance, Extension Cords, Wet Locations, Flammables. **Exposure:** Course of Action. **Final Exam:** Exam 1.

LEARNING OBJECTIVES

- Describe the basic theory behind Voltage, Amperage, Short Circuits and Grounding Systems
- List 3 things that are indications of electrical problems in an instrument
- Identify 2 serious outcomes associated with electrical shock

- Describe when and how to inspect portable electrical equipment
- List the steps to take if someone is experiencing electrical shock

Ergonomic Safety Module

Risk factors and symptoms for repetitive stress injury in the clinical laboratory, with explanation and demonstration of ergonomically correct practices

COURSE OUTLINE: Overview: Learning Objectives, Introduction. **Repetitive Stress Injury:** Overview, Symptoms, Risk Factors, Neutral Posture, Awkward Postures, Static Positions, Forceful Exertions, Repetitive Motion, Contact Stress, Lifting, Vibration or Repeated Impact, Environmental Conditions. **Avoiding RSI:** Take Action, Activity at Home.

LEARNING OBJECTIVES

- Identify eight risk factors for repetitive stress injury
- Identify symptoms of repetitive stress injury
- List eight methods of avoiding repetitive stress injury

Fire Safety Module

The selection and use of portable fire extinguishers, types of fires and fire hazards, and the steps to take in the event of a fire

COURSE OUTLINE: Introduction: Learning Objectives, Overview. **Fire Chemistry:** Fire Triangle, Definitions, Classes of Fire. **Portable Fire Extinguishers:** Overview, Dry Chemical Extinguishers, Water Fire Extinguishers, Other Types, Selection of Extinguishers. **Fire Prevention:** Overview, Identify Hazards, Housekeeping, Fire Response Equipment, Flammable Chemicals. **Fire Response:** Overview, Be Prepared, Response to Fire, Assessing and Fighting Fire, Operation of a Portable Fire Extinguisher.

LEARNING OBJECTIVES

- List the 3 legs of the Fire Triangle
- List the 4 classes of fire and an example of each
- Identify 5 types of fire extinguishers and the class(es) of fire each can be used on
- Describe the proper use of a portable fire extinguisher
- List the 4 steps to follow if you discover a fire

Formaldehyde Safety Module

Proper handling, storage, and disposal of Formaldehyde, and methods for responding to spills and exposure

COURSE OUTLINE: Introduction: Learning Objectives, Overview, Properties, Forms of Formaldehyde. **Health Effects:** Overview, Carcinogenic and Reproductive Effects, Toxic Effects, Irritant, Corrosive, Sensitizer. **Working with Formaldehyde:** Exposure Limits, Regulated Areas, Exposure Monitoring, Medical Surveillance, Laboratory Exposure Risks, Exposure Control, Chemical Labeling, Storage, Waste, Spill Cleanup, First Aid.

LEARNING OBJECTIVES

- List 4 hazards associated with formaldehyde
- List 4 symptoms associated with overexposure to formaldehyde fumes
- State the airborne exposure limits for formaldehyde
- Describe an appropriate label for formaldehyde-containing solutions
- List the required personal protective equipment necessary when working with concentrated formaldehyde
- Describe appropriate steps to take when cleaning a minor spill of formaldehyde

UV Safety Module

The hazards associated with UV light in the clinical laboratory and the proper use of safety equipment to avoid exposure

COURSE OUTLINE: Overview: Learning Objectives, Introduction. **Exposure Risk:** Review of UV Light, Assessing Risk, Working With UV Light, Biosafety Cabinets. **Health Effects:** Overview, Skin, Eye. **Exposure Control:** Shields, Personal Protective Equipment. **Final Exam:** Exam 1.

LEARNING OBJECTIVES

- List two negative health effects of UV light exposure
- List four pieces of UV personal protective equipment and describe how to use them appropriately
- Describe how to distinguish UV protective shielding from shielding that does not protect against UV light

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



Cat #: WU-13

Microscopy Tutor - Wins

COURSE OUTLINE: Overview: Key Concepts, Microscope Anatomy, Optical Path. **Practical Aspects:** Köhler Illumination I, Köhler Illumination II, Essential Details. **Image Formation:** Optics, Image Formation, Limits to Resolution.

LEARNING OBJECTIVES:

- Explain the function of each part of the light microscope and show where it is located
- Define "resolution", "contrast", and "definition" as they relate to the light microscope. Explain which parts of the microscope affect each. Manipulate these parts
- The user will be able to summarize the optical path of light throughout the microscope from beginning to end
- The user can determine the magnification, numerical aperture, and optimum cover-slip thickness of an objective lens
- The user can perform each step in the process of Köhler illumination in order. They can also use the fine focus control to visualize the third dimension of a specimen
- The user can recognize when an objective lens is dirty and can perform this simple maintenance procedure
- The user can understand common lens aberrations as evidenced by choosing the best optics for a given application. The user will also be capable of critically evaluating manufacturer's specifications
- The user will have a spatially accurate, 3-D understanding of the three properties of light and how they relate to the light microscope

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-4](#)**Mycology Tutor** - Wins

COURSE OUTLINE: Introduction: Overview, Safety. **Fungal Detection:** Direct Techniques, Isolation Techniques. **Organism Identification:** Yeasts, Moulds. **Disease Associations:** Superficial Mycoses, Subcutaneous Mycoses, Systemic Mycoses. **Opportunistic Fungi:** Overview, Common Opportunists, Less Common Opportunists.

LEARNING OBJECTIVES

- Recognize the four classes of fungi and the sexual cycles used to divide each group
- Demonstrate the ability to use colour, shape, texture, and differential media and tests to accurately and correctly describe a specimen
- Describe in detail the most common procedures to identify yeasts and moulds
- Recognize further tests that are available if necessary
- List the conidiogenesis methods commonly used in the laboratory to recognize and define different moulds
- List the common superficial, subcutaneous, and systemic mycoses and recognize the clinical presentation, obverse and reverse colonies, and microscopic features of each
- Identify macroscopically and microscopically common opportunistic fungi as well as some of the less common opportunists

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

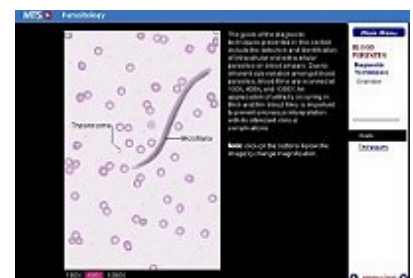
[Cat #: WU-8](#)**Parasitology Tutor** - Wins**Identification of clinically important parasites**

COURSE OUTLINE: Introduction: Overview Test Selection. **Blood Parasites:** Diagnostic Techniques, Intracellular Parasites, Extracellular Parasites, Artefacts. **Stool Parasites:** Diagnostic Techniques, Protozoa, Helminths, Artefacts. **Other Sites:** Cerebrospinal Fluid, Cyst Fluid, Eye, Genital, Skin, Urine. **Final Exams:** Blood Parasites Exam, Stool Parasite Exam.

LEARNING OBJECTIVES:

- Explain common parasite life cycles and relate how that knowledge aids in selection of the appropriate test methodology
- Discuss the different lab tests available for detection of parasites and compare each in detail
- Discuss how a particular laboratory approach is chosen to detect a certain parasite and why it is the best choice
- Demonstrate the ability to interpret the results of the various methods of identifying the presence of parasites, both intracellular and extracellular in blood and in stool samples
- Discuss the general geographic distribution of many common parasites seen in the laboratory
- Differentiate between true parasites and common artefacts that are seen and recognize when to pay special attention to the possibility of confusing the two
- Identify parasites found in sites other than blood and stool samples and the appropriate way to test for each of them

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



[Cat #: WU-7](#)**Patient Safety Tutor - Wins**

COURSE OUTLINE: Introduction: Learning Objectives, Overview. **Biosafety:** Overview, Standard, Precautions, Personal Protective Equipment, Handwashing, Sharps, Biosafety Cabinet, Centrifuge, Cleanup, Waste Management, Labeling, Exposure, Exam. **Chemical Hygiene:** Overview, PPE, Chemical Fume Hood, Labeling, MSDS, Storage, Spill Cleanup, Exposure, Exam. **Fire Safety:** Overview, Flammable Materials, Types of Fires, Fire Extinguishers, Evacuation, First Aid, Exam. **Electrical Safety:** Overview, Outlets, Extension Cords, Grounding Equipment, Inspections, Exposure, Exam. **Ergonomics:** Overview, Symptoms, Avoidance, Exam, U.V. Light Safety, Overview, PPE, Exposure, Exam.

LEARNING OBJECTIVES:

- State 2 reasons why most labs do not have a "patient safety culture"
- List 3 major findings from studies of patient safety
- List 3 sources of cases of lab-related patient injuries
- Injuries and techniques for overcoming these barriers
- Define cognitive and noncognitive errors
- Characterize any case of lab-related injury (or potential injury) regarding:
 1. Patient outcome
 2. Responsibility for problem
 3. Phase of testing
 4. Preventability and error type
 5. Interventions to prevent similar cases.

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

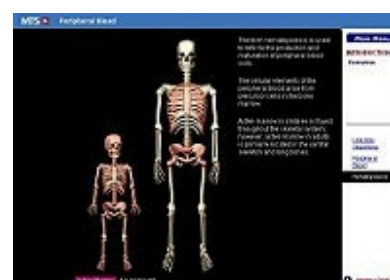
[Cat #: WU-1](#)**Peripheral Blood Tutor - Wins**

COURSE OUTLINE: Introduction: Overview, Smear Preparation, Wright's Stain Procedure, Smear Evaluation. **Cell Morphologies:** Blood Cell Structure, Red Blood Cells, White Blood Cells, Platelets Artefacts Quiz. **Disease Associations:** Red Blood Cells, White Blood Cells, Neoplastic Disorders.

LEARNING OBJECTIVES

- Describe the steps necessary for the preparation of a Wright-stained peripheral blood smear and its proper microscopic evaluation
- Identify the sequence of cell types encountered during normal maturation of myeloid, erythroid, and megakaryocytic cells in the marrow
- Recognize and name the normal and abnormal forms of neutrophils, erythrocytes, lymphocytes, macrophages, and platelets using proper medical terminology
- Correlate single morphologic abnormalities seen in any of the above cell lineages to one or more specific disease states
- Integrate combinations of morphologic abnormalities involving one or more cell lineages to suggest a diagnosis of a disease state

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.



[Cat #: WU-15](#)**Protein Electrophoresis Tutor - Wins**

COURSE OUTLINE: Introduction: Program Overview, Agarose Gel Electrophoresis, Immunofixation, Densitometry. **Serum and Urine Patterns:** Normal Pattern, Monoclonal Gammopathy, Inflammation, Protein Losing Disorders, Liver Disease, Other Serum Patterns, Other Urine Patterns. **Cerebrospinal Fluid:** Normal CSF, Abnormal CSF, **Review of Disease States:** Monoclonal Gammopathy, Inflammation, Liver Disease, CSF Oligoclonal Banding. **Final Exam:** Exam 1.

LEARNING OBJECTIVES:

- Describe the methods of agarose gel electrophoresis, immunofixation, and densitometry
- Name the clinical conditions most commonly associated with monoclonal gammopathy, and some key clinical features of each condition
- View an agarose gel, an immunofixation, and a densitometry and determine if a monoclonal gammopathy is present. If it is present, the user will be able to identify the immunoglobulin type
- View an agarose gel of serum, urine, or cerebrospinal fluid and identify the electrophoresis pattern (e.g., inflammation, liver disease, haemolysis, alpha-1 antitrypsin deficiency, tubular proteinuria, CSF oligoclonal banding, etc)

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.

[Cat #: WU-14](#)**Specimen Processing Tutor - Wins**

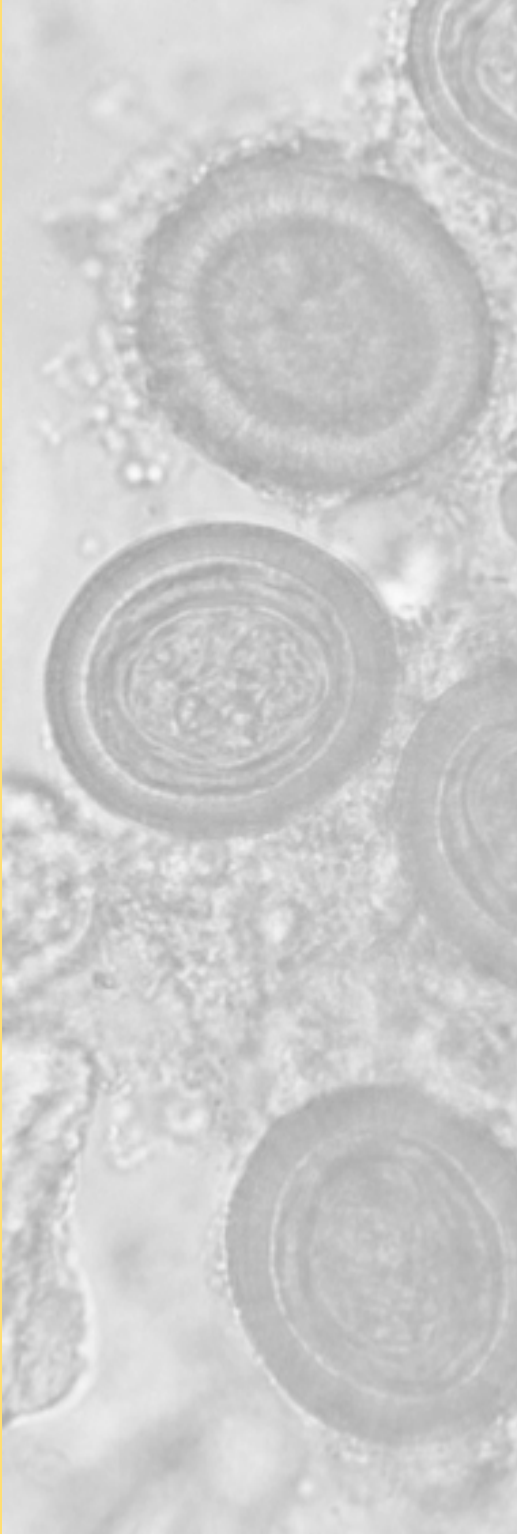
COURSE OUTLINE: Introduction: Learning Objectives, Overview, **General Topics:** Working With Specimens, Working With People, Lab Organization. **Specimen Processing Procedure:** Overview, Receiving Data Entry, Dispatch Further Processing, Routing Analysis, Reporting, Follow-up Issues. **Exception Handling:** Mislabelled Specimen, Damaged Specimen, Inadequate Specimen **Final Exam:** Exam 1.

LEARNING OBJECTIVES:

- Explain the role of Specimen Processing Services (SPS) in the clinical laboratory, and describe each phase of specimen processing
- Describe 2 common safety problems for specimen processing personnel and how to avoid these problems
- Define protected health information (PHI) and list 3 ways that specimen processing personnel must protect patient confidentiality
- Describe 3 common problems that can occur during specimen processing and how to handle and reduce each of these problems
- Describe the following procedures: 1. Add-ons 2. Cancellations 3. Urgency Upgrades

System Requirements: Microsoft Internet Explorer version 6.0 or above, Windows Media Player 6.4, or above, Wins 98, or above, Pentium-class processor or above, Display capable of 800x600 or greater resolution, Display capable of displaying 16-bit colour, Sound card and speakers (recommended, not required), Printer.





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