



The **Back to Basics** Program [BtB] has been designed and developed as a refresher or bridging program for Medical Laboratory Professionals working or wanting to work in the Healthcare System.

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Back to Basics (BtB) has been designed and developed for:

- **Domestic Laboratory Technologists:**
 - Who are currently working in the system, who are seeking comprehensive continuing education and renewed competency. 15 two-hour courses cover hematology and chemistry topics in great detail, many including case studies to solidify knowledge.
 - Who may have been on maternity or other leave and who are seeking to re-enter the workforce. A refresher course to bring you "back up to speed" with the latest technology, testing, systems, protocols and procedures employed in today's ever changing laboratory environment.
- **Internationally Educated Medical Laboratory Technologists (IEMLTs)** who are hoping to work in the Canadian Health Care System and who are seeking the necessary credentials to do so.
 - The Hematology & Chemistry components of BtB are "pre-approved" by the CSMLS as a recognized refresher course for IEMLTs. Designed to help you meet the objectives set out in a "Learning Plan".

- Each course is available separately but is much more cost effective if both components [Chemistry and Hematology] are purchased at the same time.

These courses have been delivered by content experts in their fields, most of whom teach at the University of British Columbia in Pathology and Laboratory Medicine. This successful program has recently been completely revised and it is totally current.

BtB is now available in either DVD or online format. Written materials complement the electronic components and an examination is available upon completion of each course.

Full courses and individual topics are available. Individual topics do not include an exam. For a listing of all of the individual topics, see the course topic links on the website or at the bottom of this handout.

SAVE MONEY: If you purchase both courses together at the same time then you will receive a significant discount in price. You are given 4 months to complete all courses.

BCSLS members: 1 Course: \$399, 2 Courses: \$599

Non-members: 1 Course: \$499, 2 Courses: \$699

International: 1 Course: \$599, 2 Courses: \$799

ONE Course includes:

If you registered for one course, the B2B (Back to the Basics) package includes:

- ◆ Videos or DVDs:
 - ◆ 6 Hematology DVDs or Online Video file access
- OR
- ◆ 8 Chemistry DVDs or Online Video file access
- ◆ AND: Corresponding written materials for each or topic.
- ◆ AND: An exam

TWO Courses include:

If you registered for both courses, the B2B package includes:

- ◆ Videos or DVDs:
 - ◆ 6 Hematology DVDs or Online Video file access
- AND
- ◆ 8 Chemistry DVDs or Online Video file access
- ◆ AND: Corresponding written materials for each topic.
- ◆ AND: two exams

Optional Reading Material (used if you may need a little more background for some of the terminology covered in the course videos and written material):

- Essential Haematology; Authors - Victor Hoffbrand, Paul Moss, John Pettit. Book not included in course.
- Clinical Chemistry, Edition:5, Author: Lawrence A Kaplan, ISBN:9780323036580.

Course Credit Hours:

Chemistry: 26 Hematology: 24

- In determining the credit hours we consider the videos and written material within the modules, preparation and /or study time and then of course the final exam(s). This is an estimated figure and of course it will be different for different people.

PASSING MARKS

- ◆ BCSLS Policy stipulates that a passing mark is 60% or higher.

Timelines and Deadlines:

- ◆ **Enrollment:** You can enrol anytime during the year, as it's a self study course.
- ◆ **Course completion:** You have **FOUR** months to complete all of your course(s) and exam(s) that you have registered for, starting from your first day of registration.
- ◆ **Course material access:** You will have access to any online course videos and materials for a six month period from the date of initial registration.
- ◆ **Extensions:** If, for some reason, you require additional time you will need to contact the office and apply for an extension. Additional costs will be required for an extension. Submitted to the office at least 2 weeks before your month deadline.
- ◆ **Exam(s) written: you must send us the name, phone and address of your invigilator two weeks before you want to write the exam.**
- ◆ **Exam marks:** Will be released to the student, up to 4 weeks after you have submitted the online exam.
- ◆ If you do not complete the exam you will be given an **INCOMPLETE standing**.

What to expect once you have registered for:

Online course(s):

- Once you register and pay for your course(s), you will receive a confirmation email.
- It will take 2-4 days to set you up in the online system. At which point you will receive an email with your password information and link to the course website.
- Go to the website link. You will be able to change your password in the 'MY ACCOUNTS' tab, and all of your course materials (video's, exam(s) and written materials will be found in the 'MY CONTENT' tab.
- You have 4 months to complete your course(s) and exam(s), **but** you will have 6 months access to your course(s). After which time your access is terminated.
- After you have submitted your **exam**, it will take 2-4 weeks for it to be graded.
- You will receive an official letter of completion from BCSLS after your grades have been received in the office.
- If you want your grades to be sent to another party (ex. CSMLS), then notify the office in an email. BCSLS@bcsls.net

DVD course(s):

- Once you register and pay for your course(s), you will receive a confirmation email.
- Courses can take 1-2 weeks for packaging and shipping.
- Open package and check contents to verify that you have received the correct DVDs.

- **Written Course materials and Exam(s):** An email with an exam link and password will be emailed to you in the next couple of days. Exams can only be taken online. You can only begin the exam once.
 - Go to the website link. Your written course materials and course exam(s) will be found in the 'MY CONTENT' tab.
 - You can save your written material as a pdf file and save to your computer.
 - After you have submitted your exam, it will take 2-4 weeks for it to be graded.
- You have 4 months to complete your course(s)
- You will receive an official letter of completion from BCSLS after your grades have been received in the office.
- If you want your grades to be sent to another party (ex. CSMLS), then notify the office in an email. BCSLS@bcsls.net

How to write EXAM(S):

- Choose an invigilator – a responsible adult who is NOT a friend or a relative. The invigilator verifies that the student did not use any books/resources while writing the exam(s) in the allotted time period.
- Agree on a date, time and place for you, the student, to write the exam(s). **NOTE: you will need a computer and internet access.**
- **WHEN you wish to write your exam, send us the name, phone number and address of your invigilator by email – bcsls@bcsls.net. Allow at least 2 weeks for this process.**
- The invigilator contract is mailed directly to the invigilator.
- In front of the invigilator you can open your computer and access the exam(s) online.
- The link and password were emailed to you directly at an earlier date.
- The invigilator must sign the invigilator statement verifying that the exam was completed within the allotted time limit and that no books/resources were available during the exam.
- The invigilator seals the contract in the return envelope, initials the flap of the envelope, and mails it back to our office.
- After you have submitted your exam, it will take 2-4 weeks for it to be graded.
- You have 4 months to complete your course(s)
- You will receive an official letter of completion from BCSLS after your grades and invigilator contract have been received in the office.
- If you want your grades to be sent to another party (ex. CSMLS), then notify the office in an email. BCSLS@bcsls.net

EXAM(S):

- All exams are completed online. You will be given a link with password.
- You are only to begin an exam once.
- Closed book exam
- Exams are marked individually and are **NOT** averaged together for one final mark.
- Exam times are as follows:
 - Chemistry – 1.0 hour
 - Hematology – 1.0 hour
- All questions are from the Video's and the course materials.

- The exam(s) include multiple choice and subjective/short answer
- Each Exam is marked out of 70. The amount of questions is proportional to the amount of material covered, (i.e. there will more questions about RBC, and less on Body Fluids). Thirty percent of the questions will be multiple choice, seventy percent will be subjective questions (short answer). There will be no essay questions.
- Questions are randomly chosen. Questions are weighted differently depending on the major points expected in the answer. (I.e. T/F is worth 1 mark, subjective short answer could be worth 5 marks, etc...)
- They are based on knowledge required to function effectively in the core lab areas.

If you do not complete the exam you will be given an **INCOMPLETE standing**.

EXAM RE-WRITES

- You are allowed one exam re-write for each course if you choose to.
- Exam re-write fees are \$200 per exam.

PASSING MARKS

- BCSLS & CSMLS Policies stipulate that a passing mark is 60% or higher.

ASSISTANCE AVAILABLE:

If you require assistance with the any aspect of the program or material, please email your inquiry to the BCSLS office. Every effort will be made to assist you or to refer your questions to the marker. BCSLS@bcsls.net

Opinions expressed by the speakers should not be considered the opinion of the BCSLS.

BACK TO BASICS COURSE OBJECTIVES

1. To identify tests that would be performed in a high volume or stat laboratory.
2. To give technologists a basic understanding of how and why these tests are performed.
3. To expose technologists to some of the disease processes associated with tests performed in a high volume or stat laboratory.

Course material developed in 2012; reviewed/approved by contents experts in 2012

BCSLS presents a series of lectures designed to update technologists in the clinical tests performed in a high volume, automated, or STAT laboratory. This course has separate courses in Chemistry and Hematology.

Each video focuses on the clinical tests used in each area. The clinical significance of the test, the sample required, the limitations/interference's, and common reporting protocols will be examined. The case studies will provide an opportunity to integrate clinical information from each discipline. Students can register in either Hematology, Chemistry, or both. Students will be examined on the course(s) that they register in.



Back to Basics Overviews – Hematology



1 – *White Blood Cells*, by Dr. Sigurdson

This session focuses on the origin, maturation and function of the myeloid and lymphoid white blood cells. Normal and reactive morphology as well as leukemias are examined. There is a review of the principles involved in the automated differential.

2 – *Red Blood Cells*, by Dr. Scott

Red blood cells play a vital role in the transport of oxygen. Disease states such as anemia and genetic abnormalities of hemoglobin may affect this function and result in distinct morphological changes. Normal and abnormal morphology will be examined and related to abnormalities in the red cell indices.

3 - *Hemostasis*, by Dr. Krisinger

Hemostasis is a perfect balance between blood clot formation and fibrinolysis. This session describes the biochemical interplay required to protect the body from catastrophic blood loss upon injury while maintaining the fluidity of blood at sites remote from injury. Imbalances can lead to thrombosis or bleeding. Techniques for the investigation of routine coagulation tests will be covered as well.

4- *Blood Platelets and Transfusion Science*, by Dr. Schubert

Platelets play an important role in blood clotting and wound repair. This session covers basic platelet biology as well as highlights of recent scientific discoveries. Platelet functions and their analyses will be discussed especially in the light of platelet disorders. Scientific approaches will be introduced to address current challenges in blood banking affecting transfusion medicine.

5 – *Fluid Morphology*, by Dr. Manna

This session will review various fluids which are analyzed in the hematology lab and these include CSF, peritoneal, pericardial, pleural and synovial fluids. The focus will be on cell counts and morphology and the two main objectives are: to be able to identify

and differentiate among benign cells; and be able to screen for infections as well as hematologic and non-hematologic malignancies.



6 – *Quality Assurance in the Hematology Lab*, by Kin Cheng / Jim Yakimec

To ensure quality of the service provided by the laboratory, it must satisfy the needs of the ordering physicians, patients and the regulatory agency. Clinical Laboratory Standards Institute (CLSI) defined twelve building blocks that are essential for a quality management system. These essential building blocks must be applied across the path of workflow, from pre-examination, examination to post-examination.

Before a new instrument or methodology is introduced in the laboratory, it must be properly evaluated to validate its performance specifications. Once it is placed into clinical use, quality control tools are applied to ensure accuracy and precision of the reported results. The final piece in a quality assurance scheme is to ensure the clients receive the results in a timely fashion.

Back to Basics overviews: Chemistry



1 – *Water and Electrolytes*, by Dr. Pudek

Review the distribution and physiological mechanisms regulating water, sodium and potassium. Common pathological conditions such as hyponatremia, hypernatremia, hypokalemia and hyperkalemia illustrated with brief case histories will be discussed.

2 – *Disorders of Glucose Metabolism*, by Dr. Pudek

The metabolism and regulation of glucose will be reviewed. The causes, clinical features and diagnosis of diabetes mellitus and hypoglycemia will be examined and the abnormalities of carbohydrate metabolism will be illustrated with case examples.

3 – *Evaluation of Acid Base Status*, by Dr. Schreiber

Measurements of acid-base status are used to diagnose and monitor patients with a wide variety of conditions. Values for pH, $p\text{CO}_2$ and HCO_3^- allow one to determine which acid-base disorder (if any) is present. The specific cause of an acid-base disorder can usually be diagnosed from a combination of history, physical exam and additional lab tests. This talk will briefly review acid-base physiology, and then discuss how laboratory data are interpreted to give a clinically meaningful result.

4 – *Lipoprotein Metabolism, by Dr. Holmes*

The basic aspects of lipoprotein metabolism will be discussed along with fundamentals of the analytical methods employed for each. Cases will be used to highlight the clinical utility of routine and esoteric lipoprotein analysis. Novel cardiovascular biomarkers will be briefly reviewed with emphasis on C reactive protein.

5 – *Therapeutic Drug Monitoring & Toxicology, by Dr. Cleve*

A few “rules of thumb” and basic concepts to help you give more useful answers to therapeutic drug level requests and keep you out of trouble with toxicology.

6 – *Understanding Medical Laboratory Quality, by Dr. Noble*

Modern view of Quality in the medical laboratory still begins with Quality Control but no longer ends there. Today the arena of Quality extends to a full discussion of Quality Assessment, Quality Management, Continual Improvement, Quality Partners, Quality Costs and Quality Culture. It is through our efforts and energy to ensure Quality that we can meet the needs of our patients, our colleagues and our profession.

7 – *Kidney Function Tests, Urinalysis and Urinalysis Case Histories, by Dr. Pudek*

In this session the physiological function of the kidney, common disorders of the kidney and the role of renal function tests in assessing kidney disease will be examined. The components of routine urinalysis will also be reviewed. The laboratory assessment of renal disease will be reviewed using case examples.

8 – *Clinical Enzymology & Biomarkers of Cardiac Injury. Cardiac Markers: Myocardial Infarction, by Dr. Pudek*

The general properties of enzymes and how they are measured will be reviewed. The sources, clinical use and methods of measurement of alkaline phosphatase, lactate dehydrogenase, aspartate transaminase, alanine transaminase, amylase, gamma glutamyl transpeptidase, creatine kinase and lipase will be discussed. Case histories will be utilized to illustrate the application of clinical Enzymology.

In part 2 of this the role of troponin I and T as markers of cardiac injury including myocardial infarction will be reviewed.