

A Textbook For Medical Laboratory Sciences

COMPREHENSIVE GUIDE TO MEDICAL LABORATORY SCIENCES



SPJ PUBLICATION

BOOK & JOURNAL

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**CALL FOR BOOK CHAPTER CONTRIBUTIONS:
"COMPREHENSIVE GUIDE TO MEDICAL LABORATORY
SCIENCES"**

Dear Medical Laboratory Professionals,

We hope this message finds you well.

We are excited to announce the development of a ground breaking three-volume book series titled "**Comprehensive Guide to Medical Laboratory Sciences.**" This book is designed to be an essential reference for undergraduate and postgraduate students, educators, and professionals in the field of Medical Laboratory Science.

The series will cover different subjects that span both foundational and advanced topics in medical laboratory science, offering an in-depth exploration of the most critical aspects of the field.

We are seeking contributions from scholars, professionals, and subject matter experts to share their knowledge and insights in this comprehensive work. Your expertise in Medical Laboratory Science would be an invaluable addition to this series. We invite you to contribute a chapter on one of the core subjects or propose a relevant and innovative topic that fits within the scope of the book.

Your contribution will not only enrich the quality of this reference guide but also play a pivotal role in advancing education and practice in Medical Laboratory Science.

Submission Guidelines:

- ✚ Chapter Proposal: Authors are invited to submit a 300-500-word abstract of their proposed chapter along with a brief bio.
- ✚ Chapter Length: Full chapter submissions should be between 5,000-10,000 words.
- ✚ Formatting Requirements: All submissions must adhere to standard academic formatting with citations in APA/Harvard style.
- ✚ Submission Deadline for Abstracts: 15/10/2024
- ✚ Submission Deadline for Full Chapters: 25/12/2024
- ✚ Submission: Send your abstract and full chapter to ms@spjinternational.co or editor@spjinternational.co
- ✚ Online Submission Link: <https://omp.spjinternational.co/index.php/spjp/about/submissions>

Formatting Guidelines:

- ✚ Font: Times New Roman, 12-point
- ✚ Headings: Bold for Chapter Titles, Italicized for Subheadings
- ✚ Spacing: Single-spaced for text; Single-spaced for tables and figures
- ✚ Margins: 1-inch on all sides
- ✚ Page Numbers: Upper Right side of each page
- ✚ References: Follow Vancouver style.
- ✚ Figures and Tables: Numbered and placed within the text

Target Audience:

- ✚ Undergraduate and postgraduate students in medical laboratory science
- ✚ Healthcare professionals and laboratory technicians
- ✚ Educators and trainers in allied health programs
- ✚ Researchers and academicians

Contact Information: For queries and submissions, please contact:

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- ✚ Additionally, it includes the provision of a hard copy of the certificate for all authors and grants one complimentary copy of the book per registration.

THE DETAILED INDEX AND CHAPTER OUTLINE ARE AS FOLLOWS

1. Introduction to Medical Laboratory Science
 - + History and evolution of medical laboratory science
 - + Overview of the role and responsibilities of medical laboratory professionals
 - + Types of medical laboratories and their functions
 - + Career pathways in laboratory science
2. Laboratory Safety and Ethics
 - + Principles of laboratory safety
 - + Personal protective equipment (PPE) and infection control
 - + Chemical, biological, and radiation safety
 - + Ethical issues in medical laboratory practice
 - + Patient confidentiality and informed consent
3. Basic Laboratory Techniques
 - + Introduction to laboratory techniques and protocols
 - + Microscopy: types, usage, and sample preparation
 - + Centrifugation, pipetting, and dilution techniques
 - + Preparation of laboratory reagents and solutions
 - + Record keeping and data management in laboratories
4. Clinical Chemistry (Biochemistry)
 - + Principles of clinical chemistry
 - + Common biochemical tests (electrolytes, enzymes, metabolites)
 - + Role of biochemistry in diagnosing metabolic disorders
 - + Automation in clinical chemistry
 - + Interpretation of biochemical laboratory results
5. Haematology and Blood Banking
 - + Structure and function of blood cells
 - + Haematological tests: CBC, ESR, blood smears, reticulocyte count
 - + Coagulation studies and disorders
 - + Blood banking principles: ABO and Rh typing, cross-matching
 - + Blood donation, screening, and transfusion reactions

6. Microbiology

- ✚ Introduction to bacteriology, virology, mycology, and parasitology
- ✚ Techniques for isolation and identification of microorganisms
- ✚ Antimicrobial susceptibility testing (AST)
- ✚ Role of microbiology in infection control and disease prevention
- ✚ Advanced microbiological techniques (PCR, MALDI-TOF)

7. Immunology and Serology

- ✚ Fundamentals of the immune system
- ✚ Types of immune responses (innate vs. adaptive immunity)
- ✚ Immunological assays and their clinical applications
- ✚ Autoimmune diseases and diagnostic tests
- ✚ Serological tests: ELISA, Western Blot, Immunofluorescence

8. Histopathology and Cytology

- ✚ Basic principles of tissue processing and staining (H&E, special stains)
- ✚ Examination of cell and tissue morphology
- ✚ Cytology: techniques for fine needle aspiration and pap smears
- ✚ Histopathological analysis of neoplastic and non-neoplastic tissues
- ✚ Immunohistochemistry and molecular pathology techniques

9. Medical Parasitology

- ✚ Overview of medically important parasites (protozoa, helminths)
- ✚ Life cycles, transmission, and diagnosis of parasitic diseases
- ✚ Laboratory methods for parasite identification (staining, microscopy)
- ✚ Common parasitic infections and their clinical significance

10. Medical Mycology

- ✚ Study of medically significant fungi
- ✚ Fungal diseases (superficial, subcutaneous, systemic mycoses)
- ✚ Laboratory diagnosis of fungal infections (culture, KOH preparation)
- ✚ Antifungal susceptibility testing and resistance mechanisms

11. Molecular Biology and Genetics

- ✚ Basics of DNA, RNA, and protein synthesis
- ✚ Techniques in molecular biology (PCR, sequencing, electrophoresis)
- ✚ Genetic mutations and their role in disease
- ✚ Applications of molecular diagnostics in oncology, infectious diseases
- ✚ Gene therapy and personalized medicine

12. Clinical Pathology

- ✚ Pathophysiology of common diseases
- ✚ Laboratory tests for organ function evaluation (liver, kidney, heart)
- ✚ Urinalysis, fecal analysis, and body fluid examination
- ✚ Role of pathology in disease diagnosis and monitoring

13. Medical Virology

- ✚ Structure, classification, and replication of viruses
- ✚ Laboratory diagnosis of viral infections (serology, molecular tests)
- ✚ Important human viral diseases (HIV, hepatitis, influenza)
- ✚ Vaccines and antiviral therapies

14. Phlebotomy

- ✚ Introduction to phlebotomy and its importance in laboratory testing
- ✚ Techniques of venipuncture and capillary sampling
- ✚ Handling and processing of blood samples
- ✚ Complications of phlebotomy and troubleshooting techniques

15. Clinical Research Methods

- ✚ Research design and methodology in medical laboratory science
- ✚ Data collection techniques (sampling, questionnaire design)
- ✚ Statistical analysis and interpretation of research data
- ✚ Ethical considerations in clinical research
- ✚ Writing research papers and scientific reports

16. Laboratory Management and Quality Control

- ✚ Principles of laboratory organization and management
- ✚ Staff training, scheduling, and workflow optimization
- ✚ Quality assurance and control in laboratory operations
- ✚ Implementation of standard operating procedures (SOPs)
- ✚ Accreditation and certification of medical laboratories

17. Medical Instrumentation

- ✚ Overview of instrumentation used in clinical laboratories
- ✚ Principles and operation of diagnostic equipment (spectrophotometers, centrifuges, analyzers)
- ✚ Calibration, maintenance, and troubleshooting of instruments
- ✚ Advances in automation and robotics in laboratory settings

18. Biomedical Waste Management

- ✚ Types and classification of biomedical waste
- ✚ Safe disposal and management of laboratory waste
- ✚ Regulations and guidelines for biomedical waste management
- ✚ Environmental and occupational hazards related to laboratory waste

19. Medical Ethics and Healthcare Laws

- ✚ Overview of medical ethics and professional conduct
- ✚ Legal frameworks governing medical laboratory practice
- ✚ Patient rights and laboratory confidentiality
- ✚ Informed consent and handling of sensitive patient data
- ✚ Ethical dilemmas in laboratory medicine and resolution strategies

We look forward to receiving your insightful contributions to this comprehensive resource in Medical Laboratory Science.