

BIostatISTICS AND RESEARCH METHODS FOR MEDICAL RESEARCH

An Integrated Online Module Series

Offered by the

Institute of Biochemistry, Molecular Biology & Biotechnology (IBMBB)
University of Colombo

Programme Information Last Updated: June 2026

Course Coordinator: Dr. Visula Abeysuriya

Understanding Our Online Self-Paced Courses

Our courses are designed to fit your schedule. "Self-paced" means you learn at your own speed, on your own time. There are no fixed class times or live lectures. You can access course materials 24/7 and progress through modules whenever it suits you.

About the Program

This integrated module series provides a clear and practical foundation in **biostatistics and medical research methodology**, designed specifically for students and professionals in biomedical sciences, immunology, and public health.

The programme introduces essential statistical concepts, data classification, study designs, and ethical principles required for **planning, conducting, analysing, and interpreting biomedical research**. Emphasis is placed on conceptual understanding, correct application, and ethical responsibility rather than mathematical complexity.

- ✓ Conceptually strong and student-friendly
 - ✓ Aligned with biomedical and public health research practice
 - ✓ Emphasises ethical and methodological rigor
 - ✓ Suitable for coursework, certification, and research preparation
-

Who Should Enroll

- Undergraduate and postgraduate students in Biomedical Sciences, Biotechnology, Immunology, and Public Health
 - Medical and allied health students
 - Research assistants and laboratory scientists
 - Early-career researchers and postgraduate trainees
 - Professionals involved in health research and data analysis
-

MODULE OUTLINE (5 CORE MODULES)

Module 1 — Basic Biostatistical Terms and Concepts

- Definition and scope of biostatistics
 - Role of biostatistics in medical and immunological research
 - Population and sample
 - Descriptive vs inferential statistics
 - Measures of central tendency (mean, median, mode)
 - Measures of dispersion (range, variance, standard deviation)
-

Module 2 — Types of Data and Levels of Measurement

- Classification of data in biomedical research
 - Qualitative and quantitative data
 - Discrete and continuous variables
 - Levels of measurement: nominal, ordinal, interval, and ratio
 - Relationship between data type and statistical test selection
 - Medical and public health examples
-

Module 3 — Study Designs in Medical Research

- Importance of appropriate study design
 - Observational vs experimental studies
 - Descriptive study designs (case reports, case series, cross-sectional studies)
 - Analytical study designs (case-control and cohort studies)
 - Experimental studies (randomised controlled trials and community trials)
 - Strengths, limitations, and applications of each design
-

Module 4 — Biomedical Research Ethics

- Introduction to research ethics
 - Importance of ethics in biomedical research
 - Core ethical principles: autonomy, beneficence, non-maleficence, and justice
 - Historical development of research ethics (Nuremberg Code, Declaration of Helsinki, Belmont Report)
 - Ethical responsibilities of researchers
 - Protection of human participants
-

Module 5 — Informed Consent and Ethical Approval Process

- Concept and purpose of informed consent
 - Components of valid informed consent: disclosure, comprehension, voluntariness, and documentation
 - Participant rights and right to withdraw
 - Vulnerable populations and special protections
 - Role of Ethical Review Committees (ERCs / IRBs)
 - Ethical approval process and ongoing monitoring
-

Learning Outcomes

By completing this module series, participants will be able to:

- ✓ Explain core biostatistical terms and concepts used in biomedical research
 - ✓ Correctly classify data and identify appropriate levels of measurement
 - ✓ Select suitable study designs for different research questions
 - ✓ Understand and apply ethical principles in human research
 - ✓ Recognize the importance of informed consent and ethical approval processes
-

Timeline

- The course is conducted in 4-month batches, with the first month reserved for registration.
 - Once registered, you may begin the course at any time and complete it at your own pace within the batch period.
 - **Current Batch (Batch 2): June – October, Registration is open in June, and all learners must complete the course by 31st October, regardless of their registration date.**
 - If you are unable to complete the course within the allocated 4-month course period, an additional 10-day grace period will be provided to complete all course requirements.
-

Assessment

- Online MCQ-based assessment
 - Comprehensive coverage of all four modules
 - **Pass mark: 80%**
 - Only 3 attempts allowed
 - Time-limited assessment
-

Certification

Digital certificates validated and issued every 4 months.

Certificates will be released after the batch end date. Certificates are typically issued approximately 10 days after the course completion deadline.

 **IBMBB Digital Certificate in Vaccinology**
✓ Officially issued by the University of Colombo

Course Fees

Rs. 4,000 (LKR)

How To Apply

[Click here](#) (SSP login)

SSP Login Instructions: Enter your email carefully in the SSP login. Course access will only be sent to this email and cannot be changed or transferred to another address later.

Course Registration Guide

Step 1: Click the Registration Link (SSP login)

Step 2: Create Your Account ([Register here](#))

Step 3: Log In

Step 4: Click "Apply for Courses"

Step 5: Choose Your Course

Select Fundamentals in Immunology and Biostatistics Course, then pick the specific courses you want.

Step 6: Make Payment

Complete the payment process. Once confirmed, you're officially enrolled.

Step 7: Check Your Email for LMS Access

Within 1-3 working days, you'll receive an email with your LMS login details and instructions on how to start your course.

Check your spam folder if you don't see it.

Enrollment & Contact

- Course Coordinator: Dr. Visula Abeysuriya
visula@ibmbb.cmb.ac.lk
- Scientific Support: Ms. Dishmi Bawanga
dishmi@ibmbb.cmb.ac.lk
- Design & Visual Communication: Mr. Dimantha Ranaweera
dimantha@ibmbb.cmb.ac.lk

www.ibmbb.cmb.ac.lk