

VACCINOLOGY: PRINCIPLES, PRACTICE, AND FUTURE DIRECTIONS

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 comprehensive vaccinology module series provides a **structured, up-to-date understanding of vaccines**, from fundamental immunological principles to **next-generation technologies and global challenges**.

Designed to integrate **immunology, biotechnology, public health, and ethics**, the program is ideal for students and professionals seeking a **conceptually strong and clinically relevant** foundation in vaccinology.

- ✓ Evidence-based
 - ✓ Aligned with global vaccine practices
 - ✓ Taught by subject experts
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Who Should Enroll

- Undergraduate & postgraduate students (Biological Sciences, Biotechnology, Immunology)
 - Medical and allied health students
 - Public health professionals
 - Laboratory scientists and researchers
 - Healthcare professionals involved in vaccination programs
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Module Outline (4 Core Modules)

Module 1 — Foundations of Vaccinology & Immune Responses

- Principles of vaccination
 - Innate and adaptive immune responses to vaccines
 - Active vs passive immunity
 - Antigens, immunogens, and determinants of immunogenicity
 - Adjuvants and vaccine-induced immune memory
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Module 2 — Vaccine Design and Types of Vaccines

- Vaccine development pipeline (preclinical to Phase IV)
 - Live attenuated, inactivated, toxoid, subunit, and conjugate vaccines
 - Recombinant protein vaccines
 - DNA, mRNA, and viral vector vaccines
 - Multivalent and combination vaccines
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Module 3 — Vaccine Safety, Efficacy, and Immunization Strategies

- Vaccine efficacy vs effectiveness
 - Clinical trial phases and pharmacovigilance
 - Adverse events following immunization (AEFI)
 - Cold chain and vaccine storage
 - Immunization schedules, boosters, and global programs (EPI, GAVI, COVAX)
 - Vaccine hesitancy and risk communication
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Module 4 — Future Directions and Challenges in Vaccinology

- Next-generation vaccines (saRNA, VLPs, nanoparticles)
 - Mucosal and needle-free vaccines
 - Reverse vaccinology and AI-driven vaccine design
 - Therapeutic and personalized cancer vaccines
 - Global vaccine equity, ethics, and policy challenges
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Learning Outcomes

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

- ✓ Explain immune mechanisms underlying vaccine protection
 - ✓ Compare traditional and modern vaccine platforms
 - ✓ Interpret vaccine efficacy, effectiveness, and safety data
 - ✓ Understand immunization strategies and booster policies
 - ✓ Critically evaluate future technologies and global challenges in vaccinology
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WHY THIS PROGRAM?

- ✓ Scientifically rigorous
 - ✓ Public-health focused
 - ✓ Covers cutting-edge vaccine technologies
 - ✓ Integrates ethics, equity, and global health
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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.
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Assessment

- Online MCQ-based assessment
 - Comprehensive coverage of all four modules
 - **Pass mark: 80%**
 - Only 3 attempts allowed
 - Time-limited assessment
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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
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- Scientific Support: Ms. Dishmi Bawanga
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- Design & Visual Communication: Mr. Dimantha Ranaweera
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