



BIOMEDICAL SCIENCES COURSE SYLLABUS

Engineered for skill enhancement.



PROGRAM HIGHLIGHTS

Accredited Certification:

- Industry-recognized and ISO-certified training program

Internships:

- Real-world exposure through lab internships and hospital-based projects

Placement Assistance:

- Dedicated support for resume building, mock interviews, and job referrals

Basic to Advanced Level Training:

- Taught by experienced biomedical professionals and academic experts

Live & Recorded Lectures:

- Ideal for both students and working professionals with flexible access

Capstone Projects:

- Hands-on research, diagnostics, and clinical case-based assignments



ABOUT US

- **OUR MISSION :**

NxtSync is a forward-thinking EdTech company aiming to bridge the gap between healthcare knowledge and coding expertise. We empower learners with job-ready skills in medical coding to meet the growing demand in the healthcare industry.

- **OUR VISION--UPSKILL:** Shaping future-ready coders
- **INNOVATE:** Integrating technology with healthcare education
- **EXCEL:** Producing globally certified professionals



WHY BIOMEDICAL SCIENCES?

- Integral to clinical research, diagnostics & healthcare innovations
- Opportunities in hospitals, pharma, diagnostics, and R&D labs
- Foundation for advanced careers (MD, PhD, MSc) and international study
- High demand for biomedical professionals in government & private sectors
- Roles in medical writing, lab technology, public health, and biotech



LEARNING PATH

- Introduction to Biomedical Sciences
- Human Anatomy & Physiology
- Medical Biochemistry
- Microbiology & Immunology
- Pathology & Pharmacology
- Biomedical Instrumentation
- Research Methodology & Biostatistics
- Bioethics & Regulatory Guidelines
- Capstone Project & Research Simulation



DETAILED MODULE BREAKDOWN

Module 1: Introduction to Biomedical Sciences

- Role of Biomedical Sciences in Healthcare
- Overview of Allied Health Professions
- Emerging Fields: Genomics, AI in Healthcare

Module 2: Anatomy & Physiology

- Human Body Systems
- Histology & Organ Functions
- Clinical Case Correlations



Module 3: Medical Biochemistry

- Biomolecules (Proteins, Carbs, Lipids, Nucleic Acids)
- Enzymes, Metabolism, Vitamins
- Diagnostic Biochemistry

Module 4: Cell & Molecular Biology

- Cell Structure & Functions
- DNA/RNA Synthesis, Gene Expression
- Recombinant DNA Technology

Module 5: Microbiology & Immunology

- Microbial Classification & Pathogens
- Infection Control & Antimicrobial Agents
- Immunity, Vaccines, Diagnostic Tests



Module 6: Pathology & Pharmacology

- Mechanisms of Disease
- General & Systemic Pathology
- Drug Mechanisms, Interactions, and Adverse Reactions

Module 7: Biomedical Instrumentation

- Imaging Techniques (MRI, CT, Ultrasound)
- Diagnostic Devices (ECG, Glucometers, etc.)
- Calibration & Maintenance

Module 8: Research & Biostatistics

- Study Designs & Hypothesis Testing
- Data Analysis, SPSS/Excel Use
- Clinical Trials & Evidence-Based Medicine



Module 9: Bioethics & Regulatory Affairs

- Ethical Issues in Human/Animal Research
- GCP, ICMR, WHO Guidelines
- Consent, Confidentiality, & Data Security

Module 10: Capstone Project

- Case Study on Disease Diagnosis
- Lab Report or Research Proposal
- Viva Presentation & Peer Review



ASSIGNMENT'S & ASSESSMENTS

- ✓ Weekly quizzes, lab-based assignments
- ✓ Mid-module evaluations & clinical case presentations
- ✓ Final Capstone Project with mentorship
- ✓ Interview prep & soft-skills training



TOOLS & FRAMEWORKS USED

- Laboratory Simulation Tools (e.g., Labster, Virtual Labs)
- Data Analysis Software (SPSS, Excel)
- Diagnostic Instruments (e.g., Microscopes, Spectrophotometers)



RECOMMENDED READING

- "Human Physiology" – Guyton & Hall
- "Lehninger Principles of Biochemistry" – Nelson & Cox
- "Robbins Basic Pathology" – Kumar, Abbas & Aster
- "Essentials of Medical Microbiology" – Apurba Sastry
- "Textbook of Immunology" – Kuby
- "Biomedical Instrumentation and Measurements" – Cromwell



WHY CHOOSE NXTSYNC?

- ★ Globally aligned curriculum
- ★ Interactive labs & diagnostic training
- ★ Academic + Industry mentorship
- ★ Career pathways in research, diagnostics, biotech, and public health



THANK YOU

