

August
2020

DR. BASHIR UR REHMAN



**FACULTY OF HEALTH & MEDICAL SCIENCES
INSTITUTE OF ALLIED HEALTH SCIENCES**

CURRICULUM

BS CLINICAL LABORATORY SCIENCES

JAN 2012 (Aug 2020 Revised)



**AZAD JAMMU & KASHMIR UNIVERSITY,
MUZAFFARABAD**

**Associate Dean
Dr. Bashir ur Rehman**

DEAN'S WELCOME

Dear student and prospective student,

I welcome you wholeheartedly to the faculty of health and Medical sciences at the University Of Azad Jammu & Kashmir.

Clinical laboratory sciences (also known as medical technology or medical laboratory science) is a biology/chemistry-based bachelor's degree that prepares students for exciting, challenging and dynamic careers in places such as hospital labs and clinics, forensic labs, veterinary clinics, industrial research labs and molecular biotechnology labs. Professionals in this field analyze blood, urine, tissue, and other body specimens. These test results play an important role in the detection, diagnosis, and treatment of disease. Laboratory scientists are in high demand. And with future growth predicted to be above average for all professions, laboratory science provides solid job security.

Earning a degree in clinical laboratory science opens doors to a wide variety of career opportunities. The majority of graduates sit for the national certification examination that grants the credentials of medical laboratory scientist, or MLS. Formerly known as a clinical laboratory scientist or medical technologist, the MLS is a "disease detective," helping to pinpoint the cause of disease through the examination and analysis of blood, tissue and other body fluids.

After completing the course, you will be offered a professional Bachelor of Science degree. The degree is recognized nationwide and will qualify you to work as a Laboratory technologist. We have designed the course in a way that offers you the most interactive informal and encouraging environment conducive to learning. You will be encouraged to think critically to seek knowledge yourself and to translate theory into practice. Our curriculum is based on the art and science of helping you learn. The principles of our educational philosophy are that you are self-directed learners have rich experiences and knowledge on which to draw, desire to learn to better handle real life situations, and see education as process that increases competence and leads to achievement of your full potential. Last but not least every facility that makes you enjoy learning shall be at your disposal.

I am confident that you will excel in this program and wish you all the best.

Dr. Bashir Ur Rehman

Associate Dean Faculty of Health & Medical Sciences.

OBJECTIVES AND CURRICULUM

The goal of this four year bachelor of sciences degree program is to prepare Clinical Laboratory Sciences technologist who are highly competent in the knowledge skills and professional demeanor consistent with local employer expectations and professional standards. At the completion of the MCLS-MLS program, students will be able to:

- Explain the principles and methods used in molecular laboratory tests.
- Explain the clinical significance of molecular laboratory procedures in diagnosis and treatment of disease and maintenance of health.
- Interpret and evaluate patient results and suggest or select appropriate additional testing.
- Use quality assurance principles and practices to ensure the accuracy and reliability of laboratory information.
- Use the principles of method evaluation to select new techniques and instruments.
- Explain and apply the major principles and practices of laboratory administration, supervision and budgeting.
- Use educational methods to present information and develop instructional materials.
- Use research methods to design, conduct and disseminate results of studies on new technologies, procedures or diagnostic correlations in molecular science.
- Interpret, implement, and complying with laws, regulations and accrediting standards and guidelines of relevant governmental and non-governmental agencies.
- Apply principles of management to the acquisition and evaluation of laboratory information systems to maintain optimal laboratory efficiency.
- Communicate effectively with laboratory personnel, other health care professionals, patients and the public. Communicate effectively in both written and spoken English.
- Formulate a strategic plan for professional career development.
- Develop and complete a Capstone project in advanced clinical laboratory practice, education, or laboratory operations.

The curriculum is designed to prepare students to work anywhere in Pakistan and abroad as highly qualified Clinical Laboratory Sciences Technologist. In the regard, the curriculum meets international standards and ensures that students master world class performance competencies. Subject are taught over eight semesters the duration of each semester is 20 weeks. A Maximum of 24 Credits can be obtained in a single semester. The Bachelor of Science in Clinical Laboratory sciences is awarded when the student accumulates a total of 124 credits.

In the fourth study year students are required to complete an eight weeks practicum in an accredited institution attend particular honors seminars undertake independent research and write an honors thesis in a major subject.

Title of Degree: **BS CLINICAL LABORATORY SCIENCES**

Minimum Duration: **08 semesters**
First four semesters on Campus
Last four semesters in Teaching Hospitals

Total Duration: **08-12 semesters**

Total Credit Hours: **124 credit hours**

LIST OF AFFILIATED HOSPITALS

- HH SKBZ CMH MUZAFFARABAD
- ABBAS INSTITUTE OF MEDICAL SCIENCES (AIMS) HOSPITAL MUZAFFARABAD
- DIVISIONAL HEAD QUARTER HOSPITAL, MIRPUR
- RAWALPINDI INSTITUTE OF CARDIOLOGY, RAWALPINDI

SCHEME OF STUDIES
BS CLINICAL LABORATORY SCIENCES

1st Semester

| Code | Course Title | Credit Hour |
|---------------------------|-------------------------------|-------------|
| BMT-3101 | Anatomy– I | 3 (2 + 1) |
| BMT-3102 | Physiology – I | 3 (2 + 1) |
| BMT-3103 | Biochemistry – I | 3 (2 + 1) |
| BMT-3104 | Microbiology – I | 3 (2 + 1) |
| BMT-3105 | Pakistan Studies | 3 (3 + 0) |
| BMT-3106 | Introduction to Computer & IT | 3 (3 + 0) |
| Total Credit Hours | | 18 |

2nd Semester

| Code | Course Title | Credit Hour |
|---------------------------|-------------------|-------------|
| BMT-3201 | Pathology | 3 (3 + 0) |
| BMT-3202 | Anatomy– II | 3 (2 + 1) |
| BMT-3203 | Physiology – II | 3 (2 + 1) |
| BMT-3204 | Biochemistry – II | 3 (2 + 1) |
| BMT-3205 | Microbiology – II | 3 (2 + 1) |
| BMT-3206 | Islamic Studies | 3 (3 + 0) |
| Total Credit Hours | | 18 |

3rd Semester

| Code | Course Title | Credit Hour |
|---------------------------|--------------------|-------------|
| BMT-4301 | Pathology – II | 3 (2 + 1) |
| BMT-4302 | Pharmacology – I | 3 (2 + 1) |
| BMT-4303 | Emergency Medicine | 3 (3 + 0) |
| BMT-4304 | Critical Care – I | 3 (2 + 1) |
| BMT-4305 | Arabic | 3 (3 + 0) |
| Total Credit Hours | | 15 |

4th Semester

| Code | Course Title | Credit Hour |
|---------------------------|--|-------------|
| BMT-4401 | Pharmacology – II | 3 (2 + 1) |
| BMT-4402 | Critical Care – II | 3 (2 + 1) |
| BMT-4403 | Emergency Medicine-II | 3 (3 + 0) |
| BMT-4404 | Applied Physics and Engineering Sciences | 3 (2 + 1) |
| BMT-4405 | Epidemiology and Biostatistics | 2 (2 + 0) |
| BMT-4406 | English Communication Skill | 2 (2 + 0) |
| Total Credit Hours | | 16 |

BS CLINICAL LABORATORY SCIENCES**5th Semester**

| Code | Course Title | Credit Hour |
|---------------------------|--------------------------------|--------------------|
| BMT-5581 | Cytology & Cytopathology | 3 (2 + 1) |
| BMT-5582 | Blood Transfusion | 3 (2 + 1) |
| BMT-5583 | Clinical Virology & Immunology | 3 (2 + 1) |
| BMT-5584 | Essentials of Hematology-I | 3 (2 + 1) |
| BMT-5585 | Clinical Biochemistry-I | 3 (2 + 1) |
| Total Credit Hours | | 15 |

6th Semester

| Code | Course Title | Credit Hour |
|---------------------------|---------------------------------------|--------------------|
| BMT-5681 | Cell and Molecular Biology Techniques | 2 (2 + 0) |
| BMT-5682 | Molecular Biology Laboratory Course | 3 (2 + 1) |
| BMT-5683 | Essentials of Hematology-II | 3 (2 + 1) |
| BMT-5684 | Clinical Biochemistry – II | 3 (2 + 1) |
| BMT-5685 | Fundamentals of Infectious Diseases | 2 (2 + 0) |
| BMT-5686 | Principles of Genetics | 2 (2 + 0) |
| Total Credit Hours | | 15 |

7th Semester

| Code | Course Title | Credit Hour |
|---------------------------|---|--------------------|
| BMT-6781 | Clinical Endocrinology | 3 (2 + 1) |
| BMT-6782 | Laboratory Methods in Immunology and Virology | 3 (2 + 1) |
| BMT-6783 | Research Methodology | 3 (2 + 1) |
| BMT-6784 | Introduction to Bio Medical Ethics | 3 (3 + 0) |
| BMT-6785 | Laboratory Sciences Standards & Quality Assurance | 3 (2 + 1) |
| Total Credit Hours | | 15 |

8th Semester

| Code | Course Title | Credit Hour |
|---------------------------|--|--------------------|
| BMT-6881 | Clinical Laboratory Management | 3 (2 + 1) |
| BMT-6882 | Forensic Toxicology and Forensic Molecular Biology | 4 (3 + 1) |
| BMT-6883 | Clinical Practicum | 3 (0 + 3) |
| BMT-6884 | Body Fluids Analysis | 3 (2 + 1) |
| BMT-6885 | Research Project | 3 (0 + 3) |
| Total Credit Hours | | 16 |