

MALLAREDDY UNIVERSITY

SCHOOL OF ALLIED SCIENCES



ABOUT US

MASTER OF SCIENCE IN CLINICAL MICROBIOLOGY

A master's degree in clinical microbiology or M. Sc, Clinical microbiology is a branch of microbiology which deals with the study of bacteria, viruses, fungi, and parasites which are of medical importance. Duration of this course is 2-years long and its syllabus is divided into 4- semesters. The course aims to provide a comprehensive theoretical knowledge of the spread of micro-organisms, disease causation, diagnosis and or treatment of pathogens of major significance to public health, and to equip students with all the skills necessary to practice in the field. The curriculum is designed to provide comprehensive training and a solid foundation for a successful career. It incorporates advanced practical training in this diverse field, also ensure that graduates to perform research to improve the prevention and treatment of bacterial, viral diseases and prepare for careers in clinical sciences and research.





Eligibility

They should have passed B. Sc MLT or B. Sc or Bachelor's degree in (Medical/ Applied Medical Science/ Biosciences/ Medical Science & Allied Medical / Life Sciences).

Admission Criteria

Subject to fulfilling eligibility criteria.

Key Activities of Clinical microbiologists:

- Recommend methods for obtaining and transporting clinical specimens that aid in diagnosing infectious diseases.
- Select the most appropriate tests and identify bacterial, viral, fungal and parasitic agents that are likely to be contributing to infectious processes.
- Determine the susceptibility of microorganisms to antimicrobial agents that could be used to treat infections caused by the microorganisms.
- Report results to healthcare providers caring for patients in a clear, concise and clinically-relevant manner.
- Work with healthcare teams, including public health officials, to improve processes to diagnose and control infectious diseases, with a strong emphasis on effective communication at all levels.
- Work with pharmaceutical and medical device manufacturers to develop new and improved technologies to confront emerging infectious diseases.
- Use digital technology to interpret clinical cultures, perform identification of microorganisms and initiate appropriate antimicrobial susceptibility testing.
- Develop/validate complex laboratory assays to complement public health goals in an outbreak setting like COVID-19.
- Crucial role in Infection prevention and Control(IPC)
- Epidemiological surveillance.



Tools/Techniques in Conventional and Emerging Clinical Microbiology:

Conventional Testing methods: Microscopy, Culture identification, Antigen identification, Serology.

Emerging Technologies:

Automation: Phoenix, Vitek, Microscan MALDI-TOF MS, for identification and Antimicrobial sensitivity testing, LAMP

Molecular methods-NAAT- PCR(RT-PCR, qPCR), Next Generation Sequencing(NGS), Sample to Result platforms – Gene Xpert; FilmArray.

ML(Machine Learning)-Deep learning



M. Sc (Clinical Microbiology) Career opportunities

- Agriculture Department
- Beverage Industry
- Chemical Industries
- Environmental Agencies
- Food Industry
- Laboratories
- Private Hospitals
- Pharmaceutical Industries
- Research Organizations

- Universities



M. Sc (Clinical Microbiology) Job Types

- Analyst
- Biochemist
- Biotechnologist
- Biomedical Scientist
- Cell Biologist
- Geneticist
- Immunologist
- Mycologist
- Microbiologist
- Parasitologist
- Protozoologist
- Science Writer
- Teacher
- Virologist

