



Master of Science in Molecular Pathology

Basic Information

- 1. Department:** Human Genetics Unit, Faculty of Medicine, Colombo
- 2. Course Organizer:** Dr. Kalum Wettahsinghe,
+94 112 689 545
- 3. Learning Outcomes:**

By the end of the program students must have the requisite knowledge, skills and attitudes that would enable them to have a working knowledge of,

- Molecular technologies including polymerase chain reaction (PCR), real-time PCR, reverse transcription PCR (RT-PCR), allele-specific PCR (AS-PCR), restriction fragment length polymorphism (RFLP), multiplex ligation-dependent probe amplification (MLPA), conventional and Next Generation Sequencing including Whole Exome Sequencing, and array-based DNA technologies.
- Cytogenetics including terminology, karyotyping, fluorescence in situ hybridization (FISH) and array comparative genomic hybridization (array-CGH).
- Clinical applications of cytogenetics such as prenatal diagnosis, identification of congenital abnormalities, and diagnosis and monitoring of malignancy.
- Interpretation of molecular and cytogenetic data from clinical cases and compose diagnostic reports, in correlation with clinical, morphologic, and other findings.
- Bioinformatics.
- Pharmacogenetics and pharmacogenomics.
- Quality assurance, assay validation, ethics, regulatory issues, professionalism, and lab administration.

- 4. SLQF Level:** 10
- 5. Credit Hours:** 60
- 6. Duration in Months:** 2 years
- 7. Course Delivery:** Full Time
- 8. Entry Criteria:**

- Applicants should have a MBBS or equivalent degree registered with the Sri Lanka Medical Council.



- Foreign applicants should have a MBBS or equivalent degree registered with the Medical Council of the country of residence of the applicant.
- B.Sc. in a Biomedical Sciences Subject or equivalent degree

9. Admission Process:

Students are selected based on their performance at a selection examination which has a written component and an interview. The written component contributes 75% and the interview contributes 25% to the total mark. Students who obtain an overall mark of 50% or more will qualify for selection.

10. No. of Students per Batch: 10 - 20

11. Teaching/ Learning Method(s):

The Course of study shall consist of four semesters of 15 weeks duration spanning two years and is designed to provide a broad base training in molecular pathology. It would be delivered by a local and international faculty using a mix of open and distance learning methods.

12. Assessment Method(s):

The assessments would consist of written and practical assessments in module 1 to 7A and carrying out a research project, writing a dissertation and defense of the dissertation at a viva.

13. Lecture Panel:

Academic staff of the Human Genetics Unit/Department of Anatomy, Faculty of Medicine, University of Colombo and other extended Faculty.

14. Tuition Fees:

- Application Fee: Rs. 5,000
- Those who are selected for the course, the following fees will apply
 - Registration Fee: Rs. 25,000
 - Course Fee: Rs. 800,000
 - Library Fees: Rs. 2,500



Core course contents of Modules

Semester 1 and 2: Core Modules

- Module 1: Cytogenetics
- Module 2: Molecular Genetics
- Module 3: Special Topics
- Module 4: Introduction to Research Methods
- Module 5b: Bioinformatics
- Module 6B: Diagnostic Methods
- Module 7A: Hands on experience attached to a genetic diagnostics laboratory

Semester 3 and 4: Research

- Module 8: Research project, dissertation writing, and defense of the dissertation.