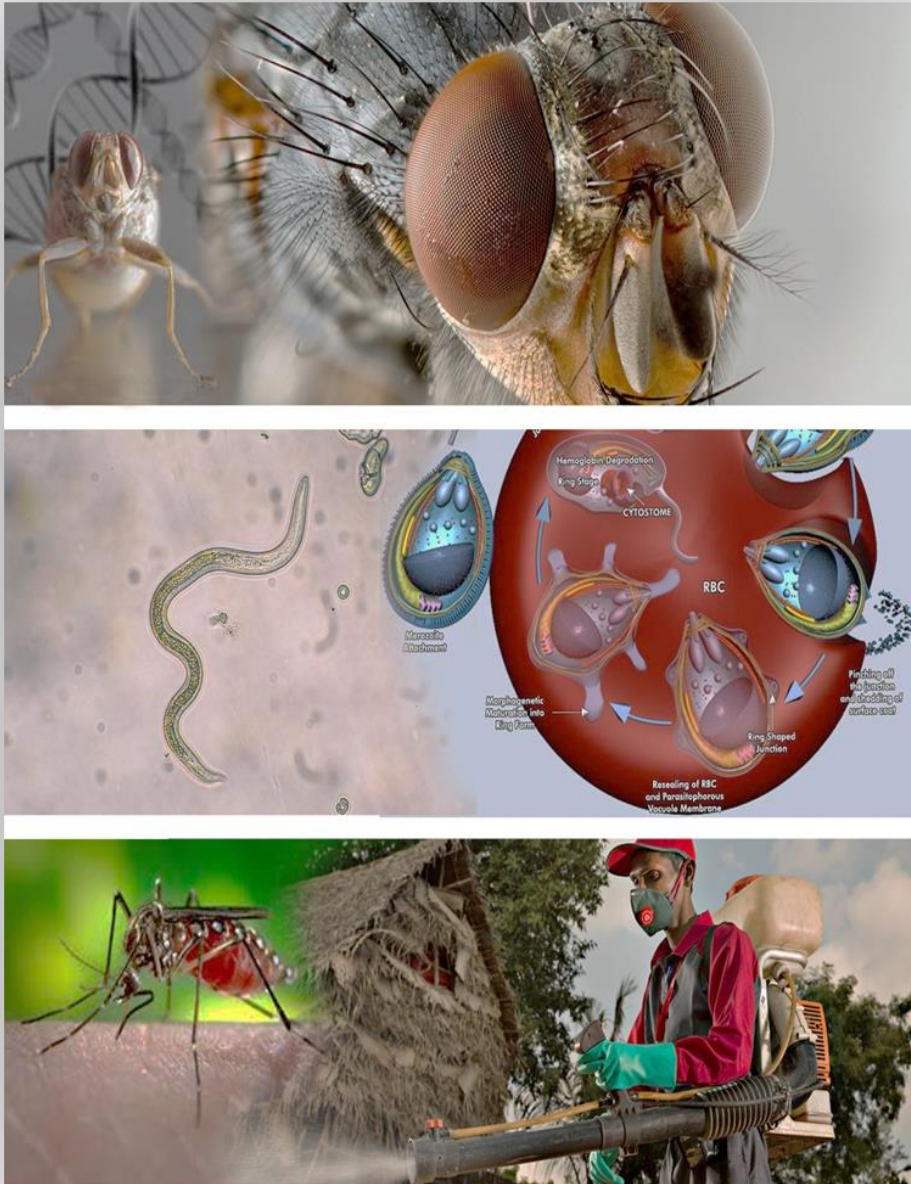




Master of Science Degree in Medical Entomology and Applied Parasitology

Programme
Guide

Academic year
2019/2020





THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF NATURAL SCIENCES
DEPARTMENT OF ZOOLOGY

Master of Science Degree in Medical Entomology and Applied Parasitology

Programme Guide
Academic year 2019/2020

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About this Programme Guide

This Programme Guide provides useful information to students about the Master of Science Degree Programme in Medical Entomology and Applied Parasitology offered by the Department of Zoology, Faculty of Natural Sciences, The Open University of Sri Lanka (OUSL),

Please read this Guide carefully and keep it as a reference source throughout your studies with the OUSL, as it provides essential information about the student life at OUSL

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The Open University of Sri Lanka

The Open University of Sri Lanka (OUSL) is one of the national universities in Sri Lanka established in 1980 under the Universities Act no. 16 of 1978. This is the only recognized university in Sri Lanka where students may pursue further education through the Open and Distance Learning (ODL) mode. The OUSL has the same legal and academic status as any other national university in Sri Lanka.



As per the public administration circular no. 16/92, dated 13.03.1992 issued by the Ministry of Public Administration, Provincial Councils and Home Affairs, the degrees awarded by the OUSL are treated as equivalent to degrees awarded by the other universities under the purview of the University Grants Commission.

MSc in Medical Entomology and Applied Parasitology



Master of Science Degree in Medical Entomology and Applied Parasitology is a programme of study offered by the Open University of Sri Lanka (OUSL). It is designed to meet the growing need for knowledge and skill development in vector borne disease control and vector control. The Programme will be offered once every two academic years.

Objectives of the programme

The programme aims to

- Enable a personnel employed in the health sector to obtain specialized knowledge in fields related to vectors, pathogens and their control.

- Expand opportunities for postgraduate studies in the field of Medical Entomology and Applied Parasitology.
- Promote research in areas relevant to Medical Entomology and Applied Parasitology

Admission requirements

- ❖ a Bachelor's Degree in Science (Biological Science) from a recognised University, or
- ❖ a Bachelor's Degree in Veterinary Science from a recognised University, or
- ❖ a Bachelor of Medicine and Bachelor of Surgery (MBBS) from a recognized University, or,
- ❖ an equivalent or higher qualification acceptable to the Senate of The Open University of Sri Lanka.

Duration of the programme

The programme is two academic years in duration.

Course fee

The following are the details of payments that are required to be paid as course fees.

| | |
|-------------------------------------|---------------|
| Tuition fee: | Rs. 225,000/= |
| Refundable laboratory deposit- | Rs. 10,000/= |
| Registration and supplementary fees | Rs. 1,000/= |
| Facilitation fee | Rs. 1,500/= |
| Library fee | Rs. 200/= |

Programme Delivery/Learning methods

M.Sc. in Medical Entomology and Applied Parasitology will be offered as a Distance Learning Programme of study. Formal lectures like in other conventional universities will not be held. Students will provided with self-study printed course material, online course contents, study guides, CD Roms etc .

Course materials

Students will learn using specially prepared distance learning course material which is available as printed material, sometimes as CD Roms and online contents. You will be able to collect printed material and the CD Roms after you register for the programme of study. Some courses will have their course contents online. You will be provided access to OUSL's Learning Management System (LMS), E-Learn to access these contents when academic activities begin.

The course material is written in simple English. You are required to read and understand the content of the course material on your own. The self-assessment activities in the printed text and online material will provide you opportunities to test your knowledge. In the absence of self-activities, please treat the learning objectives (listed at the end of each session) as self-assessment activities. Interaction with your teachers online, will provide you an opportunity to clarify your difficulties in the instructional materials.

Day Schools

Learning will be further facilitated by face to face discussion classes. You will have the opportunity to clarify your problems in the instructional material at these discussion classes. Discussion classes will be held **only in the Colombo Regional Centre (CRC) on Friday and the following weekends**. You will receive a schedule of academic activities, once you register for the programme of study. Attendance at these day schools is very useful.

Laboratory/Field practical sessions

Laboratory/Field practical sessions for two compulsory courses in the first year (levels 9) will be conducted in the laboratories of the Colombo Regional Centre and nearby field sites. All laboratory sessions will be scheduled on some week days and followed by weekends. There will be practical assignments you will have to do on your own and submit reports .

Research project

In the second year of the programme of study, students will need to complete a research project and submit a dissertation and face a viva voce. We expect you to involve in either field and/or experimental work and submit a dissertation within 9 months of the second year of study. The following are the major activities you will engage in doing the research project.

- Submitting a project proposal which indicates aims, objectives, significance of the study, methodology, indicators of progress, time frame etc. and presenting it to a panel of academics
- Carrying out field work/experimental work planned in the research project
- Submission of mid-term progress report and making a presentation to a panel of academics
- Writing a dissertation after careful analysis of results and its submission.
- Viva voce with external examiners

In addition to the above activities the progress of the research project will be regularly monitored by the supervisors, Coordinator of the programme of study and the Head of the department.

Course units in the study programme

Level 8 (first year)

At level 8 all course units are compulsory

| Course Code | Credits | Course Title |
|-------------|---------|---|
| ZYP8301 | 3 | Arthropods of Medical and Veterinary Importance |
| ZYP8302 | 3 | Human Parasites |
| ZYP8603 | 6 | Introduction to Immunology & molecular biology |

Level 9 (first year)

At level 9 all course units are compulsory

| Course Code | Credits | Course Title |
|-------------|---------|---|
| ZYP9304 | 3 | Host Parasite Interactions |
| ZYP9605 | 6 | Epidemiology and Control of Vector-borne Diseases |
| ZYP9306 | 3 | Diagnostic Parasitology |
| ZYP9307 | 3 | Practical Techniques in Medical Entomology |
| ZYP9308 | 3 | Public Health – Issues and Policies |

Level 10 (second year)

Compulsory courses

| Course Code | Credits | Course title |
|-------------|---------|---|
| ZYPAI09 | 18 | Research Project |
| ZYEA314 | 3 | Research Methodology and Communication Skills |

Three of the optional course units should be taken in the second year, depending on the need and interest.

Optional Courses

| | | |
|---------|---|---|
| ZYPA410 | 4 | Defense Mechanisms in Vectors and Parasites |
| ZYPA411 | 4 | Molecular Biology of Vectors and Parasites |
| ZYPA412 | 4 | Control of Arthropod Vectors of Diseases |
| ZYPA413 | 4 | Clinical Aspects of Vector-borne Diseases |

Workload

The course units have a credit rating ranging from 3 to 18 credits. A course having credit rating of 3 will require 150 hrs of notional study time going through the self-study course material, doing the self-assessment activities and recommended reading in the course

material. The workload will increase on a pro-rata basis with the number of credits offered. Those studying while employed full-time need to manage time for study with other.

Assessment and Evaluation

There are two components of assessment in each course unit. Continuous assessment (OCAM) and Final examination (FEM).

The continuous assessments will include NBTs (No Book Tests), Mini projects, Online assignments, Practical tests, Project reports, Seminar presentations etc.

NBT- A test where students are not allowed to use any course material when answering the question paper.

The final assessment will be a written examination of 3hours duration held at the end of the academic year.

On prior requests, arrangements can be made to hold NBTs and Final Examinations at Regional Centres other than the Colombo Regional Centre.

1.1 Course Evaluation

The overall assessment mark (Z%) of a student in respect of courses shall be based on the Overall Continuous Assessment Mark (X%) and the mark obtained at the Final Examination (Y%) and shall be computed as follows:

$$Z = 0.4X + 0.6Y$$

For the above calculation to apply, the Final examination mark $Y \geq 40$ and the Continuous Assessment Mark $X \geq 40$

However, if $Y < 40$, then $Z = Y$

A student who sits the final examination in any course shall be awarded a Grade and a Grade Point Value as follows, based on the overall assessment mark (Z%)

| Marks Range (Z%) | Grade | Grade Point Value |
|------------------|-------|-------------------|
| 85-100 | A+ | 4.00 |
| 80-84 | A | 4.00 |

| | | |
|--------|-----|------|
| 75- 79 | A - | 3.70 |
| 70-74 | B+ | 3.30 |
| 65-69 | B | 3.00 |
| 60-64 | B- | 2.70 |
| 55-59 | C+ | 2.30 |
| 50-54 | C | 2.00 |
| 45-49 | C- | 1.70 |
| 40-44 | D+ | 1.30 |
| 20-39 | D | 1.00 |
| 00-19 | E | 0.00 |

A⁺, A, A⁻, B⁺, B, B⁻, C⁺ and C constitute Pass grades.

Award of the MSc Degree and the Post graduate Diploma in Medical Entomology and Applied Parasitology

a) Award of the MSc in Medical Entomology and Applied Parasitology

A candidate shall be eligible for the Degree of Master of Science in Medical Entomology and Applied Parasitology, if he/she satisfies the following requirements given below. A candidate can receive either a Pass, Merit Pass or a Distinction Pass.

The requirements for a Pass and a Merit Pass are as follows
A candidate shall be awarded a **Pass** in the M.Sc. Degree if he/she has obtained: either this sentence or the one below

- 1). A student shall be awarded a **Pass** on obtaining
 - a) C grade or above for the total of 42 credits for Discipline based courses at Levels 8, 9 & 10 and for the 18 credit research project at Level 10 and a
 - b) GPA of at least 2.00 for the discipline-based courses and the research project mentioned in 1(a) above and a
 - c) C grade or above for the Continuing Education course ZYEA301



- 2) A student shall be eligible to receive a **Pass with Merit** on obtaining
- a) C grade or above for the total of 42 credits for Discipline based courses at Levels 8, 9 & 10 and 18 credit research project at Level 10 and a
 - b) GPA of at least 3.30 for discipline-based courses and the Research project mentioned in 2(a) above and
 - c) C grade or above for the Continuing Education course ZYEA301 and
 - d) has completed all the courses, including the dissertation, of the programme at the first attempt.

- 3) A student shall be eligible to receive a **Pass with Distinction** on obtaining
- a) C grade or above for the total of 42 credits for Discipline based courses at Levels 8, 9 & 10 and 18 credit research project at Level 10 and a
 - b) GPA of at least 3.70 for discipline-based courses and the Research project mentioned in 3(a) above and
 - c) C grade or above for the Continuing Education course ZYEA301 and
 - d) has completed all the courses, including the dissertation, of the programme at the first attempt.

d) Award of the Post graduate Diploma in Medical Entomology and Applied Parasitology [PGDip (Med Ento and App Parasit)]

A candidate who so desires, may exit from the programme with a Postgraduate Diploma in Medical Entomology and Applied Parasitology [PGDip (Med Ento Appl Parasit)] under these Rules, provided he/she makes an application to the Senior Assistant Registrar/Examinations before the prescribed date on the prescribed form.

A student shall be awarded a **PGDip (Med Ento Appl Parasit)** on obtaining

- a) C grade or above for the total of at least 27 credits for Discipline based courses at Levels 8 & 9 and
- b) GPA of at least 2.00 for the courses considered in 1 (a) above

Student Affairs Division

The student affairs division maintains the personal and academic records of the Open University students. All matters pertaining to registration of students such as change of address, civil status etc, should be immediately informed in writing to the Senior Assistant Registrar/student Affairs Division, Open University, PO Box, 21, Nawala, Nugegoda (Phone 0112881205, 0112881485).

Library facilities

You are required to do additional reading on topics covered in the study material. The main library of the University is available for this purpose at the central campus at Nawala. The Library is open seven days a week from 8.30 am - 6.30 pm except on holidays declared by OUSL. Those who wish to make use of the lending facilities of the library can pay a refundable deposit of Rs 1000/=for two books. A heavy fine is payable for not returning books two weeks after borrowing them.

Computer facilities

Computer facilities are made available in the computer laboratories at the Regional Centres. You can use them to access the online content of your courses. In addition, Nodes Access Centres (NACs) situated at Regional and study Centres can be used by students to access online course.

Temporary Residential Facilities

Facilities are available for overnight study (during practical sessions and examinations) at the Temporary Residential Facilities in the Central Campus, Nawala for those who reside out of Colombo. You will need to apply on the prescribed application form for such facilities. A refundable deposit of Rs. 500/= and a small fee is charged for overnight stay.

Regional Services

The university has a network of Regional/Study Centres distributed throughout Sri Lanka. These Centres provide facilities for distribution of course materials limited reference libraries and examination centres. The Regional Centres are based at Colombo, Kandy, Matara, Anuradapura, Batticola, Jaffna, Kurunegala, Badulla, and Ratnapura. All academic activities will be conducted in the Colombo Regional Centre but CA tests and Final examinations can be held at other regional Centres if you request in writing.

Course content

Year 1 Courses

ZYP8301- Arthropods of Medical and Veterinary Importance (3 credits)

An introduction to the medically and veterinary important insects and arachnids, their morphology, life cycles, transmission of diseases, control and in general, some aspects of vector biology.

ZYP8302- Human Parasites (3 credits)

An introduction to common medically important human parasites, their distribution, morphology, life cycle, transmission, pathology and control.

ZYP8603- Introduction to immunology and molecular biology (6 credits)

General Immunology and Basics of molecular biology.

ZYP9304-Host Parasites Interaction (3 credits)

Concepts in parasitism; host resistance to parasites including immune responses and the role of genetic and nutrition; parasites effects on hosts and disease manifestation; Parasite adaptations; Physiology and biochemistry of selected parasites.

ZYP9605-Epidemiology and control of Vector borne diseases (6 credits)

Epidemiology of major vector borne diseases, chemotherapy for parasite control and vector control programmes.

ZYP9306-Diagnostic Parasitology (3 credits)

Hands on experience in the relevant techniques in collection, identification, culturing etc of parasites

ZYP9307-Practical techniques in medical entomology (3 credits)

Hands on experience in standard and modern techniques in collection, identification, culturing medically important insects. Susceptibility to insecticides, biochemical tests for detection of resistance, blood meal identification etc of vectors.

ZYP9308- Public Health -Issues and Policies

Health care system in Sri Lanka; Health issues and policies related to vector borne disease management.

Year 2**Compulsory courses****ZYPAI09-Research Project****ZYEA314-Research methodology and communication skills**

Principles involved in statistical design and analysis of biological experiments and epidemiological studies; Basic computer skills, writing project proposals, preparation of research publications, Presentation skills.

Optional courses

Depending on the needs and career intentions, a student will be expected to offer any 3 out of five courses listed below

ZYPA410-Defence mechanisms in vector and parasites

Immune responses of vectors to parasites, vector resistant to insecticides parasite resistance to drugs. In depth study of immunological aspects of parasitic infections (parasite antigens, antigen variations, immune responses, Immune evasion, immunopathology, immunity in specific host systems.

ZYPA411-Molecular biology of vectors and parasites

Genome analysis, Molecular systematics, Antigen Cloning, Molecular approaches to parasites and vector cell biology, Parasite drug and vaccine development and vector control.

ZYPA412-Control of Arthropod vectors of diseases

Arthropod vectors habitats and behavior, vector population dynamics, vector surveillance, predicting and forecasting vector outbreaks, vector control methods; chemical, use of bio pesticides, microbial control, classical biological control, integrated vector management and novel methods of control.

ZYPA413-Clinical aspects of vector borne diseases

Diagnosis, Drugs for the treatment of parasitic infections and their pharmacology

Programme Coordinator and Course Coordinators

Programme Coordinator- Dr Chanika D Jayasinghe, Dept of Zoology, OUSL

| Course code | Names | Contact details |
|----------------|---|--|
| ZYP8301 | Prof. Thustha Jayasooriya Department of Zoology, OUSL | htjay@ou.ac.lk 0112881292 |
| ZYP8302 | Prof. Gaya Ranawaka Department of Zoology, OUSL | grana@ou.ac.lk 0112811455 |
| ZYP8603 | Dr. Uthpala Jayawardena Department of Zoology, OUSL Mr Saminda Fernando Department of Zoology, OUSL | uajay@ou.ac.lk 0112881446 saminda@ou.ac.lk 0112881446 |
| ZYP9304 | Dr. Chanika Jayasinghe Department of Zoology, OUSL | cdjay@ou.ac.lk 0112881446 |
| ZYP9605 | Dr. Chanika Jayasinghe Department of Zoology, OUSL | cdjay@ou.ac.lk 0112881446 |
| ZYP9606 | Mr Saminda Fernando Department of Zoology, OUSL | saminda@ou.ac.lk 0112881446 |
| ZYP9607 | Ms. Krishni Weerakoon Department of Zoology OUSL (Kandy Regional Centre) Mr J. Jude Department of Zoology, OUSL (Jaffna Regional Centre) | kcwee@ou.ac.lk pjjud@ou.ac.lk |
| ZYP9608 | Dr. Chanika Jayasinghe Department of Zoology, OUSL | cdjay@ou.ac.lk 0112881446 |
| ZYPAI09 | Dr. Chanika Jayasinghe Department of Zoology, OUSL | cdjay@ou.ac.lk 0112881446 |
| ZYEA314 | Prof Thusitha Jayasooriya Department of Zoology, OUSL | htjay@ou.ac.lk 0112881292 |
| ZYPA410 | Dr. Jayantha Wattavidanage Department of Zoology, OUSL | wvper@ou.ac.lk 0112881636 |

| | | |
|----------------|--|--|
| ZYPA411 | Mr Saminda Fernando Department of Zoology, OUSL | saminda@ou.ac.lk 0112881446 |
| ZYPA412 | Prof Thusitha Jayasooriya Department of Zoology, OUSL | htjay@ou.ac.lk 0112881292 |
| ZYPA413 | Dr. Uthpala Jayawardena Department of Zoology, OUSL | uajay@ouac.lk 0112881446 |