Information on the MSc Research Project

The research project is a key component of your MSc programme, counting for 60 of the 180 credits. Therefore, it is very important that you spend sufficient time planning your project so that it is as successful and rewarding as possible. The information below addresses the questions commonly asked about the MSc project. If you have any further queries, each programme has a designated member of staff responsible for the organisation of projects. You can find their contact details on our web site on the appropriate programme page.

Where can I do my project?

You can complete your project in Liverpool, either by carrying out experimental work in one of our laboratories or by undertaking a desk-based study (e.g. a literature-based study or analysis of data). Alternatively, you can go overseas to collect your data provided you have additional funds to cover the costs involved (see below) and subject to a satisfactory risk assessment and ethics approval (if applicable). International students may return to their home country to conduct their data collection if they wish. Students typically spend around 8 weeks in the field.

How much does a project cost?

The standard MSc fee covers the cost of a desk-based study conducted in Liverpool.

If you wish to conduct a project overseas, you will be asked to pay a fee of £3500 in addition to the standard fee. Payment of this fee at the beginning of the programme is to assure us that you have the necessary funding to conduct an overseas project before we make commitments with overseas hosts but it will be returned to you in full when you need to make the arrangements for your project. The figure of £3500 is based on the experience of previous students and allows maximum flexibility in choice and design of project. However, costs vary widely depending on the location and the nature of the work and it is usually possible to design a project at a lower cost if your budget is restricted. Typically, students pay £700 - £1000 for their flight, visa and insurance. The School can book flights and arrange visas through our approved agent subject to an administrative fee, or you can make your own travel arrangements. All students are required to take out travel insurance through the LSTM-approved scheme (current cost is £100). Other expenses to take into account are accommodation, medical costs (vaccinations / anti-malarial drugs), costs of obtaining local ethical clearance and local travel. Clinical or laboratory-based projects may involve purchase of chemicals, whilst projects involving interviews often require the services of a local interpreter / research assistant.

MSc Biology & Control of Parasites and Disease Vectors / MSc Molecular Biology of Parasites and Disease Vectors

The programme fee covers the cost of an experimental project based in the LSTM research laboratories. Some projects also involve a short period of data collection overseas (normally 2-4 weeks). Students who choose these projects must cover any additional costs for the overseas trip (estimated £1500). Students are not required to pay these additional costs at registration but must have the necessary funds available in March when booking travel, accommodation etc.

How do I organise my project?

There are a variety of projects depending on which MSc programme you are following and your individual research interests. You are advised to give some thought before arriving in Liverpool as to the type of project you might like to carry out, including approaching potential overseas hosts if appropriate. The School keeps a database of potential projects, some with overseas partners. In the first week of the programme, we hold a Project Fair at which you can find out more about the research interests of the LSTM staff and the potential projects on offer. You can devise your own project provided a suitable LSTM supervisor can be identified.

In Semester 1, you will follow a module in Research Methods, during which you will get help in designing and costing your project, completing your risk assessment and obtaining ethics approval (if necessary). You will also meet with your supervisor to get one-to-one advice.

Can I change my mind about the type of project I want to do?

If you have paid the £3500 project fee but subsequently decide to undertake a project in Liverpool, the fee will be refunded. Likewise, switching from a project based in Liverpool to one involving overseas data collection is not a problem provided you have the necessary funding and allow sufficient time to make this change and to complete project preparation. However, please note that overseas projects are inevitably more expensive than those based in Liverpool and you will need access to additional funds.

If you are hoping to obtain sponsorship to help with your fees, you should include the full overseas project fee of £3500 in any sponsorship application in order to keep your options open regarding choice of project. Otherwise, you are likely to have difficulty in obtaining additional funding from your sponsor once the programme has started.

DISSERTATION PROJECTS FOR THE MSc PROGRAMMES

Molecular Biology of Parasites & Disease Vectors
Biology & Control of Parasites & Disease Vectors

Dissertation projects chosen by students on the MSc programmes *Molecular Biology of Parasites & Disease Vectors* (MBPDV) and the *Biology & Control of Parasites & Disease Vectors* (BCPDV) include laboratory projects, overseas field-based studies and desk-based analyses. Although students may choose from the outset which type of project they wish to follow, students usually apply initially to undertake a project within one of LSTMs state-of-the-art laboratories housed in the Centre for Tropical and Infectious Diseases (CTID) in Liverpool. Research in the CTID is often closely linked to field work and laboratory institutions overseas so, as studies progress and students develop specific interests, the flexibility exists to convert to a project involving field or laboratory work overseas.

The programme fee covers the cost of an experimental project based in the LSTM research laboratories. Some projects also involve a short period of data collection overseas (normally 2-4 weeks). Students who choose these projects must cover any additional costs for the overseas trip (estimated £1500). Students are not required to pay these additional costs at registration but must have the necessary funds available in March when booking travel, accommodation etc.

Academic staff generally provide project topics based upon current research at LSTM in consultation with our research partners overseas or with clients such as Ministries of Health or NGOs. Some topics are initiated by students, sometimes in discussion with their employer or funder if applicable. Alternatives to laboratory and field-based projects include students carrying out desk based analyses, narrative literature reviews, or formal systematic reviews, which can be completed based in LSTM.

Some projects carried out by previous students have been published in peer reviewed journals:

- Abe M, McCall PJ, Lenhart A, Villegas E, Kroeger A. (2005). The Buen Pastor cemetery in Trujillo, Venezuela: measuring dengue vector output from a public area*. Trop Med Int Health.* **10**(6):597-603.
- McCall PJ, Hume JC, Motshegwa K, Pignatelli P, Talbert A, Kisinza W. (2007). Does tick-borne relapsing fever have an animal reservoir in East Africa? *Vector Borne Zoonotic Dis.* **7**(4):659-66.
- Ronald LA, Kenny SL, Klinkenberg E, Akoto AO, Boakye I, Barnish G, Donnelly MJ. (2006). Malaria and anaemia among children in two communities of Kumasi, Ghana: a cross-sectional survey. *Malar J.* **5**:105.
- Eccleston, N., McGarry, J., Perally, S., Prescott, M., Ward, D., Williams, D., Brophy, P.M. and LaCourse, E.J. Proteomic Analysis of Glutathione Transferases from the Tropical Liver Fluke *Fasciola gigantica*. In preparation to be submitted to *Molecular and Cellular Proteomics.*
- Rutter, A., Makepeace, B., Prescott, M., and LaCourse, E.J. Proteomic Profiling of Glutathione Transferases from the Filarial Nematode *Onchocerca ochengi* Following Tetracycline Exposure. In preparation to be submitted to *PLoS Neglected Tropical Diseases.*

Other project titles have included:

- Colonisation of *Lu. Longipalpis* by *Asaia* sp. a potential endosymbiotic bacterium
- Malaria burden estimates in >5 year olds using a rolling MIS in Chikwawa district, Malawi
- Investigation of target-site resistance mechanism in the malaria vector *Anopheles funestus*
- Prospective surveys for detection of human fascioliasis and schistosomiasis in the Mount Elgon Region, Uganda.
- Prevalence of *Plasmodium falciparum* malaria and vector status in South West Burkina Faso.
- Identifying the mutations conferring metabolic resistance to *Anopheles funestus* in Africa.
- Characterization of temephos resistance in *Aedes aegypti* from San Jose de Cucuta, Colombia.
- Prevalence of *Wuchereria bancrofti* lymphatic filariasis in vector and human populations in South West Burkina Faso.
- Assessing the prevalence of *Fasciola* spp. in the cattle population of the Mount Elgon Region, Uganda
- Larval and adult mosquito carbamate/organophosphate resistance in Ghana
- Molecular aspects of early *Anopheles gambiae* development
- Molecular Epidemiology of *Giardia duodenalis*
- Determining how rotavirus transmission is affected by helminth infection.
- Fitness effects of resistance to dieldrin in *Anopheles gambiae*.
- The role of sialated glycans in IgM as an adjuvant
- Does vertical transmission of African Tick Borne Relapsing Fever occur in the vector?
- Male fertility genes of *Anopheles gambiae* mosquitoes