Title of PhD project	**Modelling trachoma epidemiology and survey methodologies to achieve elimination**	
Supervisor	Dr Emma Harding-Esch	LSHTM
Co-Supervisor	Dr Anthony Solomon	LSHTM
Second Co-Supervisor	Dr Rachel Pullan	LSHTM
Brief description of project	Trachoma is the leading infectious cause of blindness, targeted for elimination as a public health problem by 2020. Since 2012, the Global Trachoma Mapping Project (GTMP) - the largest infectious disease survey ever undertaken - and its successor, Tropical Data (www.tropicaldata.org), have supported ministries of health in 40 countries to conduct standardised, epidemiologically robust population-based prevalence surveys in 1816 evaluation units (EUs – generally equivalent to a health district), processing >168 million data items (trachoma clinical signs, GPS coordinates, and environmental indicators). The datasets include longitudinal data (baseline, impact, and surveillance surveys conducted with the same methodology in the same EUs). This project will link those data with other geographical and environmental datasets. Via modelling and geospatial analyses, the project will: improve our understanding of the epidemiology of trachoma at various scales; refine epidemiologically and statistically sound survey methods for determining whether trachoma elimination targets have been met, and for post-elimination surveillance; determine predictors of reaching the elimination targets; forecast timelines for achieving these targets; assess the cost-effectiveness of these methods. These outcomes will help inform global public health policy for trachoma elimination, and will be relevant to other infectious diseases.	
Skills we expect a student to develop/acquire whilst pursuing this project	The student will develop skills in: • Quantitative methods • Health economics • Programming, including data processing and data analysis • Working with large data sets	

	- Health policy - Global health politics - Disease elimination - Critical thinking - Research communication to diverse audiences Training will be provided by supervisors and the advisory panel, as well as through relevant courses (https://doctoral-skills.ucl.ac.uk/bloomsbury/list-training.pht#, http://mrc-lid.lshtm.ac.uk/files/2016/09/2017-18-CPF-Timetable.pdf), including: advanced quantitative and epidemiological data analysis methods; modelling the transmission dynamics of infectious diseases; Geographical information systems (GIS); applications to public health and informing disease elimination policy.
Particular <u>prior</u> educational requirements for a student undertaking this project	Interest in the particular issues relevant to the control and elimination of neglected tropical diseases. Strong quantitative skills, with some prior knowledge of epidemiology and statistics. Experience of using mathematical models and/or of health economics would also be beneficial. Willingness to learn mathematical modelling, health economics, statistical and quantitative approaches.