➤ • Les épidémiologistes et les personnels médicaux de santé publique travaillant sur le terrain ont généralement l'habitude de suivre des règles strictes en matière de mesures de contrôle des maladies. Il semble qu'il y ait peu de place pour l'improvisation et l'évaluation critique des résultats.

• L'approche « chercher et détruire » en matière de contrôle des maladies transmissibles est encore répandue. Le dépistage à grande échelle pour trouver, par exemple, les porteurs de pathogènes entériques demeure une pratique courante, de même que la désinfection des surfaces à la suite de flambées épidémiques.

Méthodes de formation

Travailler en groupes représente une nouvelle expérience pour de nombreux stagiaires et la barrière de la langue en fait un réel défi. La plupart des stagiaires préfèrent les cours traditionnels. Pourtant, nous avons insisté sur le travail en groupe : il améliore la relation informelle entre enseignants et étudiants, et stimule la participation au cours.

La langue

Très peu d'épidémiologistes en Russie et dans les pays baltes utilisent l'anglais dans le cadre de leur travail. Pour la génération actuelle, le russe est la *lingua franca* (la langue véhiculaire) dans la région mais cela devrait changer. Nous devons par conséquent encore traduire les leçons et les polycopiés de la plupart des cours pour les années à venir.

Le rôle d'EPIET

Le programme est largement tiré de la formation EPIET. Nous utilisons ses études de cas et certains de ses cours, la plupart des enseignants et des intervenants sont soit des stagiaires ou d'anciens étudiants EPIET ou ont suivi le cours préparatoire. Les cours avancés sont élaborés d'après le cours préparatoire d'EPIET.

Perspectives

Le programme sous sa présente forme et avec le financement actuel se termine en 2001. Toutefois, notre objectif est de poursuivre certaines activités avec le soutien de la Force d'action pour le contrôle des maladies transmissibles dans la région de la mer baltique (3). Les principales activités consisteront à organiser des séminaires avec les instituts partenaires sur des thèmes spécifiques, et à inviter des épidémiologistes de ces mêmes instituts à venir dans nos établissements pour élaborer des études de surveillance communes. Nous souhaiterions également réaliser des investigations d'épidémies conjointes. Nous attendons de nos instituts partenaires qu'ils prennent de plus grandes initiatives pour la formation d'épidémiologistes en dehors de leurs murs.

Les trois pays baltes deviendront probablement membres de l'Union Européenne au cours des 3-5 prochaines années. Ils intègreront ensuite le Réseau de surveillance et de contrôle épidémiologiques en Europe ainsi que les réseaux spécifiques à certaines maladies. Dans l'intervalle, nous pensons pourtant que la collaboration particulière avec l'Europe du nord sera encore nécessaire au cours des prochaines années à venir. En particulier, nous espérons ne pas voir un nouveau rideau de fer s'ériger entre une Union Européenne élargie et la Fédération russe, en matière de surveillance et de prévention des maladies transmissibles. ■

➤ • Epidemiologists and public health medical officers working in the field are used to following strict regulations concerning control measures. There seems to be little opportunity for improvisations and critical evaluation of the outcomes.

• The "search and destroy" approach to communicable disease control is still prevalent. Widespread screening to find carriers of for instance enteric pathogens is still a common practice, as is disinfection of surfaces following outbreaks.

Training methods

Working in facilitated groups is a new experience to many participants, and the language problem makes it especially challenging. Most participants prefer the traditional lecture format. We have, however, insisted on group work as it increases the informal relationship between faculty and participants and activates the participants.

Language

Very few epidemiologists in Russia and the Baltic countries have working knowledge of English. Russian is a *lingua franca* in the region for the present generation, but will not remain so. Thus, we must include translations of lectures and handouts for most courses for several years to come.

The role of EPIET

The training programme draws heavily on EPIET. We use case studies and some lectures from EPIET, and almost all the lecturers and facilitators are EPIET fellows, EPIET alumni or have attended the EPIET introductory course. The advanced courses are modelled after the EPIET introductory course.

The future

2001 is the last year of the programme in its present form and with the present funding. We aim, however, to continue some of the activities with funding from the Task Force on Communicable Disease Control in the Baltic Sea Region (3).The main activities will be seminars with our sister institutes on specific topics and invitation to epidemiologists from these institutes to spend some time in our institutes to prepare joint surveillance studies. We would also like to see joint outbreak investigations. We expect our sister institutes to take larger responsibilities for training epidemiologists outside their institutes.

The three Baltic countries will probably join the European Union during the next 3-5 years. Then they will enter into the Network for the epidemiological surveillance and control in Europe and the disease-specific networks. However, we think that the special collaboration in Northern Europe may still be needed for several years to come. In particular, we do not want to see a new iron curtain separate an expanded EU and the Russian Federation in the field of communicable disease surveillance and prevention. ■

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surveillance

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La liste des contacts nationaux est disponible dans les numéros précédents ou sur le site web / The list of national contacts is available in the previous issues or on the web site

ANNONCE

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海外熱帯医学校における熱帯医学修士コースについて

英国、米国、タイの４つの熱帯医学校それぞれの代表的な熱帯医学修士コースについて下表にまとめた。公衆衛生政策を中心とした一般の公衆衛生修士（いわゆる MPH）はあえて含んでいないが、Mahidol および Tulane の Public Health コースはどちらも内容的に熱帯感染症対策を多く含むため挙げてある。

４つのすべての熱帯医学校において短期の熱帯医学 Diploma コース（DTM&H）が存在し、修士コースはその DTM&H の内容を包含しつつプラスアルファの要素を拡張したものが多い。プラスアルファで加えられるものは公衆衛生政策や疫学、リサーチスキル、リサーチプロジェクトあるいは臨床研究などである。

ロンドンは政策系、疫学系、感染症系の３分野で毎年 500 名を超える修士学生を受け入れており、その強みは単位選択の幅広さである。下記に挙げた２コースの日本人数は 3～6 人であるが、すべての修士コースをあわせると毎年 10～15 人の日本人学生が在籍する。

一方リバプールはコース数も学生数も少なく、熱帯医学・熱帯小児科学をあわせて 15 人ほど、日本人は 1～2 人である。少人数ならではきめ細かい学生指導とサポートに定評がある。

Mahidol の臨床熱帯医学修士は前半６ヶ月の DTM&H と後半６ヶ月の臨床研究に分けられている点がユニークで、後半に進むためには選抜をクリアーしなければいけない。一方、Master of Science in Trop Med は比較的基礎研究に重点がおかれたコースで、すでに研究内容がある程度定まっている学生には適しているようである。保健行政や現地活動の実践者向けには Master of Primary Health Care Management が適している。

Tulane の熱帯医学系修士には Public Health & Trop Med と MSc in Public Health があるが両者のコア部分には共通のものが多い。前者は DTM&H に相当するような短期コースを包含しておりやや臨床に重点がおかれているようである。

これら４つの熱帯医学校以外にも同様のコースは多く存在するが、例年ここに挙げたコースで学ぶ日本人学生は修士で 15 人前後、DTM&H をあわせれば 20 人を超えると推定される。

熱帯医学校における修士および関連コースの例

	対象	期間	全学生数	うち日本人	特徴
London School of Hygiene & Tropical Medicine, UK					
MSc in Tropical Medicine & Internatinal Health	MDのみ	12ヶ月	12～15	1～2	下記DTM&Hを含む＋疫学･政策的モジュール
Diploma in Tropical Medicine & Hygiene	MDのみ	3ヶ月	70	2～4	臨床熱帯医学＋国際保健
MSc in Control of Infectious Diseases	MDに限らない	12ヶ月	30～40	1～2	感染症対策(政策)、疫学
Liverpool School of Tropical Medicine, UK					
Master of Tropical Medicine	MDのみ	12ヶ月	4～6	1	DTM&Hを含む。Clinical attachment も可能
Master of Tropical Pediatrics	MDのみ	12ヶ月	10	0～1	
Master of Community Health	MDに限らない	12ヶ月	10	1	
Diploma in Tropical Medicine & Hygiene	MDのみ	3ヶ月	70	1～2	年2回開講
Mahidol University, Thai					
Diploma in Tropical Medicine & Hygiene	MDのみ	6ヶ月	25～30	1～3	
Master of Clinical Tropical Medicine	MDのみ	6ヶ月	定員7名	0名/過去5年	上記DTM&H修了者から選抜
MSc in Tropical Medicine	MDに限らない	12ヶ月	50～60	9名/過去5年	
Master of Public Health	MDに限らない	12ヶ月	40～50	2～3	MPHだが感染症対策中心
Master of Primary Health Care Management	MDに限らない	12ヶ月	30～40	0～1	公衆衛生的な感染症対策
Tulane University, USA					
Master of Public Health & Tropical Medicine	MD+RN etc	12ヶ月	10～15	1	下記Diplomaを含む
Diploma in Clinical Trop. Med. and Traveler's Healt	MD+RN etc				
Master of Science in Public Health	MDに限らない	12ヶ月		0～1	

※ 全学生数･日本人学生数は例年のおおよその人数を示す

Imperial College London

EPIDEMIOLOGY OF INFECTIOUS DISEASES

Short Course for

ember

Mathematical Models

Risk Assessment

Intervention Strategies

Directed by

Professor Roy Anderson FRS

Dr Christophe Fraser

Imperial College London

Organised by the Centre for Professional Development, Imperial College London

INTRODUCTION

In recent years, the health and economic impact of epidemics of infectious diseases such as malaria, tuberculosis, HIV/AIDS, SARS, the transmissible spongiform encephalopathies (BSE, vCJD and scrapie) and foot and mouth disease have been all too apparent in both industrialised and developing countries. Emerging and re-emerging infectious disease problems frequently dominate both national and international news headlines. Climate change and the destruction of habitat have provoked the emergence of some infections outside of their historical ranges. History demonstrates that the emergence of a novel recombinant strain of influenza is always a major potential source of human mortality. Sporadic outbreaks of human cases of avian influenza in recent years have heightened this concern. A further impetus for government focus on infection and epidemics relates to the enhanced threat arising from bioterrorism. The use of quantitative methods based on mathematical models to study the transmission dynamics and control of infectious diseases has increased in importance for scientists, policy makers and health professionals in designing effective approaches to control, using scenario analysis for planning, conducting risk assessment and interpreting epidemiological patterns.

Today, mathematical, statistical and computational methods play an increasing role in the investigation and control of infectious disease outbreaks. They serve to guide the collection of epidemiological data, underpin cost-benefit calculations, provide a framework for parameter estimation, help in the interpretation of field and laboratory observations, and suggest new approaches for the rational design of control strategies in both industrialised and resource poor settings. They have been applied in the study of a wide range of micro- and macro-parasites, including helminth infections, vector-borne diseases such as dengue and malaria, childhood vaccine-preventable bacterial and viral infections, pandemic infections (influenza), drug-resistant bacteria in both hospital and community settings and sexually transmitted diseases such as HIV-1 and hepatitis B. Methods specifically aimed at investigating emerging epidemics and sporadic outbreaks of infectious diseases have also recently been the focus of attention. The speed of development in this field has been very rapid in recent years, in part, due to greatly enhanced computational power and new measurement, formulation and analysis techniques.

This short course is designed and taught by staff in a world-leading research group at Imperial College London who work within the interdisciplinary Department of Infectious Disease Epidemiology under the direction of Professor Roy Anderson FRS. (wwwfom.sk.med.ic.ac.uk/medicine/about/divisions/pcphs/ide/default.html)

COURSE CONTENT

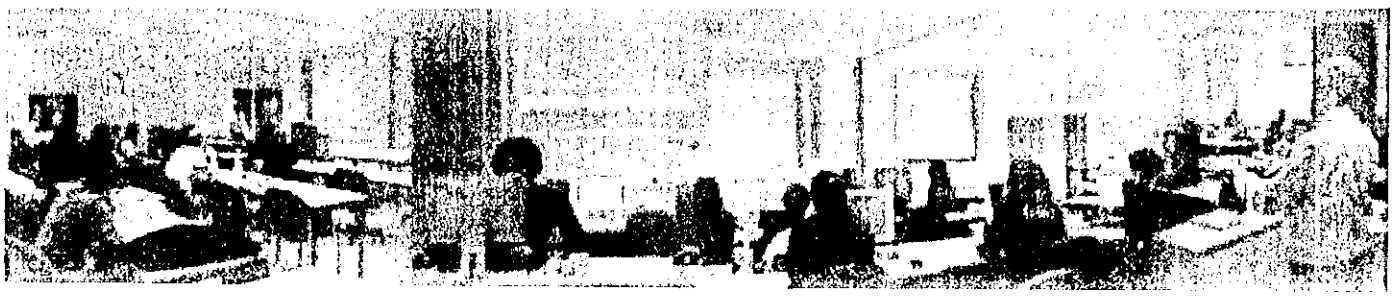
The first week will begin with an overview of current concepts in infectious disease epidemiology and the interdisciplinary nature of study methods in this field. The majority of time will be devoted to introducing the conceptual, mathematical, statistical and computational tools needed for a rigorous quantitative approach to infectious disease epidemiology. Lectures will cover core and advanced methods in infectious disease epidemiology, as well as a wide range of case-studies demonstrating the applications of these methods. There will also be considerable time for supervised practicals in addition to the lectures. Throughout, the approach adopted will concentrate on the applications of principles and methods to real examples of infection spread and control. Emphasis will be placed on the use of these to inform policy decisions. The second week will focus on consolidating and applying them, with lectures addressing case studies and most time spent on in-depth hands-on group projects.

The second week will focus on two 2-day projects. The first project will be a choice of

- The epidemiological emergence of drug-resistant HIV strains;
- The epidemiology of vector-borne diseases.

The topic for the second project

- Investigation of a major outbreak: the 2003 SARS epidemic.



COURSE AIMS

The course has been developed by a leading research team to help satisfy the growing demand for a thorough, but short, update in the essential elements and practically relevant aspects of infectious disease epidemiology.

Specifically, the aims of the course are to:

- Teach the concepts and underlying principles of infection dynamics within human and animal populations, and familiarise participants with recent advances in our understanding of the population processes of important infectious diseases.
- Illustrate how modern quantitative methods contribute to the development of epidemiological theory and the collection and interpretation of empirical data from a number of relevant disciplines.
- Provide authoritative instruction in the use of key quantitative methods along lines that will be readily assimilated by participants from different disciplinary and occupational backgrounds.
- Demonstrate the use of quantitative techniques in the design, implementation and evaluation of practical intervention strategies for a range of infections and diseases.
- Indicate lines of future development in the epidemiology of infectious diseases, and their implications for practitioners, from both industrialised and developing countries.

The research team has successfully run short courses in this field for over a decade, both at the University of Oxford and at Imperial College London. This course has been specifically developed to reflect the most recent developments in the subject.

WHO SHOULD ATTEND

The course has been designed to cater for the needs of:

- Professionals working in public health organisations, disease control agencies and field situations, who seek to understand modern developments in the epidemiology and control of infectious diseases.
- Professionals planning for the control of a deliberately or accidentally released pathogen.
- Those in the pharmaceutical industry who require quantitative methods to study infectious disease trends, and who need to understand the impact of drug resistance.
- Policy makers and others who need to understand and apply quantitative methods for infectious disease research in both medical, veterinary and conservation contexts.
- International organisations such as WHO and UNAIDS responsible for commissioning work to understand and cost-effectively control endemic and epidemic infectious agents.
- Medical, veterinary and biological researchers working in the pharmaceutical industry, universities and other research settings, who wish to enhance their skill base with knowledge of modern quantitative approaches to infectious disease epidemiology.

Participants do not need a sophisticated knowledge of statistics or mathematics to undertake the course and benefit substantially from it.

The key quantitative concepts and techniques employed will be presented step-by-step in a readily comprehensible and usable manner.

TOPICS

INTRODUCTION

Mathematical models and infectious diseases. successes of the past and challenges for the future.
Infectious disease epidemiology: where do mathematical models fit in?
Infectious disease epidemiology and classical statistics.

FUNDAMENTALS

Maths refresher: calculus.
S-E-I-R: the basic model of infectious disease epidemiology.
Maths refresher: solving differential equations.

CURRENT METHODOLOGY

Textbook statistics and the community effect in infectious disease epidemiology: a cautionary tale.
Stratified models: the effect of age, sex and other differentiators
Estimating parameters from data.
Comparing models to data: the iterative process of model acceptance, rejection and refinement.
Advanced modelling: space, networks and stochasticity.
Modelling outbreaks and determining the epidemic potential of new pathogens.
Sensitivity analysis.

CASE STUDIES

Vaccination strategies and herd immunity.
Vector-borne diseases: a multi-species ecosystem.
Macroparasites: the causes and effects of parasite aggregation.
Sexually transmitted diseases: the impact of heterogeneous behaviour.
HIV / AIDS: models for a global pandemic.
BSE: uncovering the hidden epidemic.
vCJD: predicting the unpredictable.
Influenza: the influence of antigenic drift and shift in creating epidemics and pandemics.
Hospital-acquired infections: where stochasticity rules.
Epidemiology of schistosomiasis.
The 2003 SARS epidemic.

GENETIC EPIDEMIOLOGY

Genetics and infectious disease epidemiology.
Molecular epidemiology of common bacterial pathogens.

FROM SCIENCE TO POLICY

From science to policy - an overview.
The Schistosomiasis Control Initiative.
The UK foot and mouth epidemic: mathematical models and policy in an outbreak.
Bioterrorism: planning for the control of deliberately or accidentally released pathogens.
Drug resistance: a manageable pandemic?

PRACTICALS

Introducing Berkeley Madonna as a tool for Modelling.
Designing a model of tuberculosis transmission.
Exploring heterogeneous behaviour in a model of sexually transmitted diseases.
Estimating key parameters from an outbreak of influenza.
A stochastic model of nosocomial MRSA.

FOR AN UP-TO-DATE PROGRAMME, PLEASE VISIT: www.imperial.ac.uk/cpd/epidemiology.htm

COMMENTS FROM PREVIOUS PARTICIPANTS:

- "Really enjoyed and learnt most from current methodology sessions, practicals and case studies which linked strongly with practicals."
- "Fantastic course, well planned and taught."
- "The course is extremely interesting and useful for a scientist entering the area or with some level of previous experience."
- "Great course, well done. A great opportunity to meet and discuss with leading experts."

The course has attracted a strong international participation.

COURSE PRESENTERS: DEPARTMENT OF INFECTIOUS DISEASE EPIDEMIOLOGY, IMPERIAL COLLEGE LONDON

Professor Roy Anderson FRS

Head, Department of Infectious Disease Epidemiology

Prof. Anderson's research interests are in epidemiology, transmission dynamics and control of a wide variety of infectious agents, ranging from HIV, via the parasitic infections, to livestock diseases such as SARS, Foot and Mouth and BSE. He is co-author with Robert May of the text book "Infectious diseases of humans: transmission dynamics and control" Oxford University Press (1991), and has published extensively on many different aspects of infectious disease transmission, evolution and control.

Dr Daren Austin

Honorary Research Fellow & Clinical Pharmacologist at GlaxoSmithKline

Dr. Austin's research interests focus on the use of mathematical models to predict the outcome for outbreaks in small settings. He is particularly interested in the dynamics of hospital outbreaks of resistant organisms, which are highly transmissible and often difficult to control. These "nosocomial" or hospital-acquired infections have received considerable attention in the media. As a Clinical Pharmacologist he works on the design and prediction of therapeutic regimens for new drugs primarily in the treatment of respiratory and inflammatory disease.

Dr María-Gloria Basáñez

Lecturer in Infectious Disease Epidemiology

Dr Basáñez's research interests are the population biology and epidemiology of arthropod-borne infectious diseases, in particular human onchocerciasis; helminth epidemiology and control; and the synthesis of field data, plus statistical analysis. She is also using mathematical modelling to further understand the population dynamics of macroparasites and the effect of control interventions on these dynamics.

Professor Christl Donnelly

Professor in Statistical Epidemiology

Prof. Donnelly's research interests are in the synthesis of statistical and biomathematical methods for the analysis of epidemiological patterns of infectious diseases. She is particularly interested in the epidemiology of SARS, transmissible spongiform encephalopathies -TSEs- (particularly BSE, vCJD and scrapie), foot and mouth disease (FMD), bovine TB (in cattle and badgers) and HIV/AIDS.

Dr Alan Fenwick OBE

Executive Director Schistosomiasis Control Initiative

Dr Fenwick has spent his working life in Africa specialising in schistosomiasis. He has worked as a malacologist in Tanzania and for many years in the Sudan where his applied research led to a large scale malaria and schistosomiasis control programme, The Blue Nile Health Project. He also has worked in Egypt on large research projects on vaccine development and assisting the National Schistosomiasis Control Project. Currently he is in receipt of a large grant from the Bill and Melinda Gates Foundation through Imperial College London to help countries in Sub-Saharan Africa to control morbidity due to schistosomiasis.

Professor Neil Ferguson OBE

Professor of Mathematical Biology & Royal Society University Research Fellow

Prof. Ferguson has a broad interest in the epidemiology, population dynamics, and evolution of infectious diseases, and in developing statistical techniques for analysing disease data and making risk assessments. His research includes work on childhood infections, antigenically variable pathogens, foot and mouth disease, influenza, BSE and vCJD, HIV and bioterrorism.

Dr Christophe Fraser

Research Fellow

Dr Fraser's research interests are in theoretical and applied mathematical biology. His current interests include the epidemiology of SARS, influenza and other emerging infections, the mathematics of quarantining, the population genetics of bacterial pathogens such as *Streptococcus pneumoniae* and *Neisseria meningitidis*, the pathogenesis, epidemiology and evolution of HIV, particularly with respects to retroviral recombination. He is also concerned with methods to measure the potential population-level impact of risk factors and interventions that increase or decrease infectious disease transmission for endemic infectious diseases.

Professor Geoff Garnett

Professor of Microparasite Epidemiology & Royal Society University Research Fellow

Prof. Garnett has as his main research focus the epidemiology of sexually transmitted infections, including patterns of risk behaviour and the design of interventions. He is an investigator on two community randomised trials in Zimbabwe and Peru, He is also studying the impact of STD vaccines, the global epidemiology of HIV and the control of bacterial STDs in low prevalence settings.

Dr Azra Ghani

Royal Society Dorothy Hodgkin Fellow

Dr Ghani's research interests are broadly in mathematical modelling and statistical analysis of infectious diseases, including BSE, vCJD, HIV and other sexually transmitted diseases. She has developed a detailed survival model to relate the BSE epidemic to the observed cases of vCJD, and hence predict the future course of the epidemic. She is also working on HIV relating patterns of antiretroviral therapy to clinical outcome and markers of disease progression.

Dr Nicholas Grassly

Research Fellow

Dr Grassly is an infectious disease epidemiologist, who co-ordinates the Joint United Nations Programme on HIV/AIDS (UNAIDS) 'Epidemiology Reference Group', which is responsible for global statistics on the HIV pandemic and establishing best practice for appropriate responses. His research focuses on microparasite epidemiology, particularly sexually transmitted infections, and the linking of theory and data to produce an evidence base for policy.

Dr Bill Hanage

Research Asociate

Dr Hanage works on the molecular epidemiology of bacterial pathogens, in particular *S. pneumoniae*. He is especially interested in the application of sequence based typing techniques to understand phenotypic differences between lineages, and the response of populations to clinical interventions, such as antimicrobial use and vaccination. His interests also include bacterial population genetics and phylogenetic analysis, and how these are affected by localised recombination.

Dr Edwin Michael

Lecturer in Infectious Disease Epidemiology

Dr Michael's interests are parasite population biology with a focus on the immuno-epidemiology, population dynamics, spatial ecology and molecular genetics of helminth infections. He is interested in applying a combined and integrated theoretical, laboratory and field-based approach to investigating these topics, using the results to assist the design of rational community-based control programmes.

Professor Brian Spratt FRS

Professor of Molecular Microbiology

Professor Spratt has worked on the mechanism of action of penicillin and identified the physiological targets of penicillin action (penicillin-binding proteins). He has also worked on resistance to ß-lactam antibiotics, particularly resistance mediated by alterations of the penicillin-binding proteins. Currently he is interested in the evolutionary and population biology of major bacterial pathogens and in multilocus sequence-based methods for the unambiguous characterisation of major bacterial pathogens on the internet (MLST).

Dr Russel Stothard

Programme co-ordinator Schistosomiasis Control Initiative.

Dr Stothard is a field epidemiologist with a specialisation in tropical parasitic infections. He has made detailed schistosome-snail studies in Tanzania, where he developed molecular genetic methodologies for diversity detection within the *Schistosoma haematobium* parasite and the complex relationship it has with its local intermediate host, freshwater snails of the genus *Bulinus*. He is the course covenor of the 3rd year B.Sc. module "*Modern parasite and pathogen epidemiology: from molecules to populations*".

Dr Joanne Webster

Reader in Parasite Epidemiology and Royal Society University Research Fellow

The main focus of her research is to identify and characterise the mechanisms and implications of host-schistosome coevolution, through a combination of both large scale field-based studies across Africa and Asia, and tightly controlled experiments and manipulation within the laboratory. She is also the Director of research surveillance for the Schistosomiasis Control Initiative. In addition, Dr Webster is involved in a range of other host-parasite interaction studies, including that on *Toxoplasma gondii* and bovine tuberculosis.

Additional guest lecturers will be announced as appropriate on the course website:

www.imperial.ac.uk/cpd/epidemiology.htm

Department of Epidemiology & Population Health

Epidemiology and Control of Communicable Diseases Study Unit 2437

Course Manual 2003

Epidemiology and Control of Communicable Diseases - 2003

TIMETABLE

WEEK 1:

SES-SION	DATE AND TIME	TOPIC	PRACTICAL ROOMS
1	Wed, 26/02 2:00 pm	INTRODUCTION/ GENERAL CONCEPTS **Lecture – Paul - (Goldsmiths)** Practical exercises	50/G3, 50/G4, 49/102, 51/105, 51/106 **[B-Gresse:112, 202, 403]**
2	Thu, 27/02 9:30 am	TRANSMISSION DYNAMICS **Lectures – Paul - (Goldsmiths – all morning)** Demonstration	Goldsmiths
3	Thu, 27/02 2:00 pm	MIASMA VERSUS CONTAGION **Lecture – Prof Peter Smith – (Goldsmiths)** (No practical today – prepare for "Disease of Unknown Aetiology" practical !)	Goldsmiths
4	Fri, 28/02 9:30 am	DISEASE OF UNKNOWN AETIOLOGY Practical - all morning	**[B-Gresse: B8, G2, 102, 104, 112, 310, 319, 409]**
5	Fri, 28/02 2:00 pm	MEASURING INFECTIOUSNESS **Lecture – Paul - (Goldsmiths)** No practical today – prepare for Monkeypox practical next Wednesday	Goldsmiths

WEEK 2:

SES-SION	DATE AND TIME	TOPIC	ROOMS
6	Wed, 05/03 2:00 pm	MONKEYPOX Practical – all afternoon	5, 50/G3, 50/G4, 49/101, 49/102, 51/105, 51/106, 99G
7	Thu, 06/03 9:30 am	FROM THEORY TO PRACTICE OF IMMUNIZATION **Lecture and exercises – Andy - (Goldsmiths – all morning)**	Goldsmiths
8	Thu, 06/03 2:00 pm	VACCINE EFFICACY AND SAFETY **Lectures – Paul (Basic) – (Goldsmiths)** **Dr Paddy Farrington (advanced) – (Room 5)** Practicals	**[B-Gresse 103, 112, 201, 202, 306, 319, 401, 402**
9 + 10	Fri 07/03 all day	**Visit to** **COMMUNICABLE DISEASE SURVEILLANCE CENTRE ("CDSC")** Programme starts at 10 am	

[B-Gresse ###] = Birkbeck College, Gresse Street (see map)

WEEK 3:

SES-SION	DATE AND TIME	TOPIC	ROOMS
11	Wed, 12/03 2:00 pm	OUTBREAK INVESTIGATION **Developing – Judith – (Goldsmiths)** **Developed – Laura – (Room 5)**	5, 50/G3, 50/G4, 49/101, 49/102, 51/105, 51/106, 99G ***{99/1, 99/2, B203, B9, M/LG7}***
12	Thu, 13/03 9:30 am	OUTBREAK INVESTIGATION (Group work)	5 ***{99/1, 99/2, B202, B203, 365}***
13	Thu, 13/03 2:00 pm	OUTBREAK INVESTIGATION (Continued)	5 ***{99/1, 99/2, B9, B202, B203, 365}***
14	Fri, 14/03 9:30 am	OUTBREAK INVESTIGATION (Continued)	5, 99/G ***{99/1, 99/2, B9, B202, B203, 365}***
15	Fri. 14/03 2:00 pm	OUTBREAK INVESTIGATION (Continued)	5, 364, 99G, 49/101 ***{99/1, 99/2, B202, B203, B9, 365}***

{ Computer rooms in curved brackets, italics and bold }

WEEK 4:

SES-SION	DATE AND TIME	TOPIC	ROOMS
16	Wed, 19/03 2:00 pm	MALARIA **Lectures and controversies – Dr Jo Lines – (Goldsmiths all afternoon)**	Goldsmiths
17	Thu, 20/03 9:30 am	SURVEILLANCE **Lecture – Paul – (Goldsmiths)** Practical	**[B-Gresse: B8, G2, 103, 104, 201, 310, 401, 402]**
18	Thu, 20/03 2:00 pm	MENINGITIS **Lectures and discussion – Prof Brian Greenwood and Dr James Stuart - (Goldsmiths – all afternoon)**	Goldsmiths
19	Fri, 21/03 9:30 am	STDs and AIDS **Lecture – Dr Anne Johnson – (Goldsmiths)** Practical	**[B-Gresse: G2, 112, 202, 306, 310, 319, 403, 409]**
20	Fri. 21/03 2:00 pm	IMMUNOEPIDEM LOGY AND CATALYTIC MODELS – OPTIONAL **Lecture - Paul – (Goldsmiths)** Practical	M2, 364, 50/G3, 50/G4, 49/101, 99/G **[B-Gresse: 201, 202]**

[B-Gresse ###] = Birkbeck College, Gresse Street (see map)

WEEK 5:

SES-SION	DATE AND TIME	TOPIC	ROOMS
21	Wed, 26/03 2:00 pm	TUBERCULOSIS **Lecture – Paul – Goldsmiths)** Practicals (Developed/developing)	364, 50/G3, 50/G4, 49/101, 49/102, 51/105, 51/106
22	Thu, 27/03 9:30 am	ERADICATION **Lectures – Paul and Andy** **And debate –**	Goldsmiths
23	Thu, 27/03 2:00 pm	OUTBREAK REPORT DISCUSSION **Developing – ..... (Goldsmiths)** **Developed – ..... (99 / G)**	
24	Fri, 28/03 9:30 am	FROM MOLECULES TO INFLUENZA, AND BEYOND **Lecture – Prof Robin Weiss – (Goldsmiths)**	Goldsmiths
	11:00 am	ASSESSMENT EXAM	5, 50/G3, 50/G4, 49/101, 49/102, 99G
25	2:00	EMERGING INFECTIONS **Lecture – Dr Mike Ryan (WHO) – (Goldsmiths)**	Goldsmiths
	4:00	MCQ DISCUSSION AND EVALUATION/FEEDBACK SESSION	Goldsmiths
	5:30	**TO THE JOHN SNOW**	**Soho**

Epidemiology and Control of Communicable Diseases - 2003

Sessions 11 to 15: INVESTIGATION OF A SIMULATED OUTBREAK

Announcement

This assignment will be undertaken in a number of small groups during the 12th, 13th and 14th of March.

Developed country: Your task is to investigate what appears to be an outbreak of gastrointestinal illness among students and staff who went to a lunch party. You will be given the names of all the guests and the menu. The guests will be students doing the developing country option and some of the staff.
Please meet in Room 5 at 14.00 on 12/03 for an introduction to the exercise

Developing country: There have been three deaths associated with an outbreak of cholera-like illness following a funeral in a rural village. You will be provided with the names of the persons attending this funeral and of the food that was offered to them. Your task is to conduct the investigation of this outbreak by interviewing the people who attended the funeral. These persons will be impersonated by your fellow students who have chosen the developed option, and by some of the staff.
Please meet in Goldsmiths at 14.00 on 12/03 for an introduction to the exercise

You are expected to investigate this potential outbreak in two and a half days, following the steps discussed previously. You need to design a questionnaire, interview the guests/funeral attendees, enter and analyse the data, identify the likely cause of the outbreak and write a report.

You will be divided into groups and the groups will be allocated to computer rooms. You will be informed of which group you are in at the first session. In addition there are rooms provided for groups to meet where they can plan their study, discuss progress and interpret results.

Detailed instructions for developed and developing country options follow on the subsequent pages.

Your report on the investigation (no more than 4 pages) should be given to Deanne Eastwood by Friday evening. We need two copies from each group. Put the candidate numbers of each member of the group on the front. **Each member of the group should keep a copy for themselves for their folder of work for the MSc examiners.** They are part of your assessment.

Outbreak investigation - Developed country option

Your task is to investigate what seems to be an outbreak of gastrointestinal illness among some students who went to a party last Saturday in Laura's house. This assignment will be undertaken by groups of students.

We will give you a list of guests (played by the students investigating the developing country outbreak, wearing name tags), the list of the foods served at the party and an opportunity to interview the host (Laura). We also give you the DoH official booklet with guidelines for the investigation of outbreaks: consult it! Transform your group into an outbreak investigation task force. Learn each others' names and find the skills of the members of the group. Allocate roles and plan how you will investigate the outbreak. Prepare a schedule for the week. This is what you have to do:

- Find out about whether this is an outbreak (I will tell you, when you interview me, if you ask me, that it appears to be restricted to those attending the party);
- Find out more about the party (food preparation, time, etc);
- Choose a study design and design a questionnaire;
- Collect data (Interview guests) During interview times, many people meet at the canteen or the common room in the basement.
- Consider double or single data entry. Enter and clean data;
- Analyse the data, including: distribution and duration of symptoms, case definition, epidemic curve (time of onset, incubation period), other descriptive information,
- Consider possible agents based on severity of symptoms and duration of incubation period. Collect left-over food samples/ stool samples as appropriate and hand in to the laboratory (Laura !) for analysis;
- Identify likely vehicle based on food specific attack rates overall and controlled for confounders. Use the statistical methods you are familiar with!
- Write a report with an executive summary (all information that **must** be known), background (to food-borne illness and to this outbreak), methods (including statistical methods), results, discussion, conclusion and recommendations, and a copy your questionnaire (or an improved version, incorporating what you learned from using your original one!) . Include references if appropriate. Write succinctly! (no more than 4 pages, excluding figures and tables)

Make sure you manage time well! A suggestion would be (note the overlaps, i.e., the group shared out tasks).

- Wednesday: finding about the party, study design and questionnaire;
- Thursday morning: questionnaire, interview, data entry, outline of report;
- Thursday afternoon: interview, data entry, analysis, outline/draft report;
- Friday morning: data entry, analysis, outline/draft report;
- Friday afternoon: analysis, draft report, final report .

At the end of all periods evaluate progress and group dynamics; call Laura if you identify a problem. We tried to engineer the groups so that you come from different MScs and bring different skills.

We expect that you will want to use epi-info to design the questionnaire and stata (or Epi-info, or Excel) to analyse the data.

Computer rooms and rooms for meetings are booked for you. Laura Rodrigues and Clarence Tam will be available to help you; look for LR and CT in your rooms timetable below to find out where we are.

Each group should submit a report to Deanne (no more than 5 pages) in room 254 by Friday evening. The report is part of the course evaluation - apologies for the group mark. In the SU timetable you will find a short session to give you feedback; you will also receive written feedback.

IMPORTANT: You will be acting as guests for the developing country outbreak simulation. You will receive a script with information about "your role" in their outbreak, and a name tag. Please wear it at all times. Please answer truthfully according to your script – feel free to make up any answers not in the script. (Both you and them should wear the name tags we will give you). Don't lose your piece of paper! We all learn more if you act your part. During interview times, many people meet at the canteen or the common room in the basement.

This is the food served in the lunch in my house: **Chicken:** 1 large chicken without giblets, butter, garlic, spices, 1 onion. Mix the garlic, the butter and spices; Spread outside and inside the chicken; Put onion inside the chicken. Roast in oven, first covered in foil and then uncovered, to go crisp
Rice: Rice, onions, oil; fry onions in oil, put rice, fry rice, add boiling water, cook. **Salad**: Pack of ready prepared salad from supermarket, with salad dressing. **Crab dip:** mayonnaise, crab sticks. Mix! **Chocolate cake**: One bowl: 5 spoons of flour, 5 spoons of chocolate, 3 spoons of sugar, baking powder. The other bowl: 2 cups of milk, 1 spoon of butter, 6 whole eggs. Mix ; pour on baking tray; hot oven for 1/2 hour. **Chocolate mousse**: butter, eggs, chocolate, rum. Melt chocolate, butter on low fire, add egg yolk and rum. Beat egg white with sugar until hard, spoon in with chocolate, yolk and rum, put in fridge to cool. **Fruit salad**: Banana, apple, pear, mango, grapes, kiwi, orange in slices. Sugar and brandy. Fridge for a couple of hours. Also served, bought from shop: **bread, cheese, whipped cream, white and red wine, coffee (milk for coffee).**

In the day of the outbreak investigation, you will be given

- For your own outbreak investigation, a list of guests coming to Laura's party (the students doing the developing country outbreak)
- For your role as a an African villager in the developing country outbreak, we will give you a script and a name tag.

Have fun. Laura

Outbreak investigation - Developing country option

Diarrhoea after a West African Funeral

During the cholera epidemic affecting West Africa in 1986 you are responsible for outbreak investigation and control in Guinee. On Wednesday 3rd September it is reported to you that there have been 3 deaths in a small village, Niolo Jattaba, following a funeral on the 27th of August. Since this is the first outbreak in rural areas, and other African outbreaks have been linked to funerals, you decide to conduct an investigation to attempt to define the cause of the outbreak and to devise appropriate control measures. In order to do this you conduct a house to house survey of the village concerned and interview all the persons who were at the funeral. Your working definition of "cholera" is; vomiting and watery diarrhoea (three or more stools per day). You identify 45 individuals who attended the funeral from 29 households. Three of them are the persons who died. Relatives who accompanied these people to the funeral are identified below. The names of all that went to the funeral will be given to you at the first session. At the funeral, guests were offered the following food and drinks;

Chicken Yassa (chicken with chilli)	Bread
Domoda (meat with peanut sauce)	Cake
Boiled rice	Palm Wine
Rice with goat meat sauce	Coca Cola
Peanuts	Water

You will be given a map of the village with the names of the compounds and the sites of wells. The names of compounds are those by which they are known in the village - often an old man or woman who used to live in the house, or one who lives there now. The only water supply to the village is well water, this is stored in the households in home water jars, which are replenished every 2-3 days. The funeral was held in the Bertha Mboge household (Bertha was the woman whose funeral it was). The only occupation (except for one or two individuals) in the village is farming.

You need to devise a questionnaire for the participants at the funeral and interview them. This should be double entered and verified, then analysed. It is easiest to use Epi-Info to enter the data and transfer it to STATA (using stat/transfer) for analysis.

For the analysis you will want to think about the following things (among others):

- Descriptive information including distribution and duration of symptoms and case definition
- Epidemic curve
- Possible source or sources of transmission
- Likely vehicle, based on food specific attack rates

You are reminded that if you wish to collect any specimens, then the details of what you collect and the tests that you want done should be e-mailed to judith.glynn@lshtm.ac.uk. If you provide an e-mail address the results will be sent back to you.

The report should be presented as though done for the Ministry of Health, including an executive summary. The description of the epidemic should be clear, with appropriate statistical analysis and interpretation of all results. Include an action plan. The full report should be no more than 4 pages excluding tables and figures. Include your questionnaire as an appendix.

Your report on the investigation should be given to Deanne Eastwood in room 254 Keppel Street by Friday evening. We need two copies from each group. Put the candidate numbers of each member of the group on the front. Each member of the group should keep a copy for themselves for their folder of work for the MSc examiners.

You are to conduct the investigation in groups of 6 or 7. Think about how you are going to work in the group. Think of it as an outbreak investigation task force. Learn each others names and find what particular skills the members of your group have. Allocate roles in the investigation and plan a schedule for the investigation.

As well as investigating the outbreak, you will be pretending to be people involved in an outbreak. Most of you will be playing a part in this cholera outbreak investigation. All of you will be playing a part in the developed country investigation. You will be given scripts telling you what your role is and what to do. Please answer truthfully according to the script, and feel free to improvise the answers to questions that are not on the script. (Both you and the "developed country group students" should wear the name tags we will give you to help you find each other.) There will be several rounds of interviews since there are so many groups.

Have fun!

Judith

(38 and 39)
You are asked to help us and the other students in the investigation of a simulated outbreak. The outbreak being investigated is of cholera. among people who attended a funeral in Guinee, West Africa. You are asked to pretend you were one of the guests. When the students come to interview you, please answer questions about food eaten and type and onset of symptoms as below. Any other question please feel free to improvise or refuse to answer. We hope this will not be too inconvenient!
The funeral was for Bertha Mboge who died after a short diarrhoeal illness.
You are Fula Bantang, female aged 21 years. you were well after the funeral at which you ate domoda, boiled rice, peanuts, bread, cake and rice with goat sauce. you drank palm wine and water.

Your brother, Bambo Bantang, aged 17 who was at the funeral with you died from severe diarrhoea and vomiting within two hours of onset on 29/8. he ate chicken yassa, bread and rice with goat meat sauce at the funeral and drank palm wine, coca cola and water.
You and your brother lived in Bambo Jawo compound amd get your water from the well next to boi sawaneh compound.