

BASIC EPIDEMIOLOGY (2001)

**ORGANISERS: Professor Oona Campbell
Ms Tanya Abramsky
Dr Hannah Kuper**

**TIMETABLE SLOT: Term 1
Tuesday am**

AIM

To provide an introduction to the basic concepts and methods of epidemiology.

OBJECTIVES

By the end of the module students should be able to:

- (i) understand and apply measures of disease incidence (risk, rate and odds) and prevalence, and measures of effect (e.g. relative and absolute risk);
- (ii) assess strengths and limitations of different sources of epidemiological data on health status and health service utilization in both industrialized and developing countries;
- (iii) demonstrate understanding of the basic principles underlying different study designs, including cross-sectional, cohort, case-control and intervention studies;
- (iv) assess strengths and limitations of different study designs;
- (v) identify problems caused by random errors, bias and confounding in interpreting epidemiological data;
- (vi) distinguish between statistical association and causality;
- (vii) assess advantages and disadvantages of different preventive strategies, including the use of measures of public health impact to anticipate their potential benefits;
- (viii) appreciate the practical benefits and limitations of different forms of epidemiological evidence in formulating and influencing public health policy decisions; and
- (ix) understand the concepts of sensitivity, specificity and predictive values.

CONSTITUENCY

Basic Epidemiology will be compulsory for all students on the MSc courses in Community Eye Health, Demography & Health, Medical Statistics, Public Health, Public Health Nutrition, Reproductive & Sexual Health Research and is recommended for students on the MSc course in Health Policy, Planning & Financing.

CONCEPTUAL OUTLINE

1. Measures of disease frequency and risk, and alternative sources of epidemiological data.
2. Study design: cross-sectional, cohort, case-control and intervention studies.
3. Interpretation of epidemiological studies: causality, random errors, bias, confounding.
4. Preventive strategies, measures of public health impact and screening.

TEACHING STRATEGY

Teaching consists of ten half day sessions generally comprised of a one and a half hour practical session in which students work in small groups followed by a one hour lecture in which the topic for the next practical session is presented. Methods will be illustrated using epidemiological data from industrialized and developing countries, investigations of communicable and non-communicable diseases, and aetiological and public health studies.

LEARNING TIME

Total learning time is 65 hours, composed of: contact time = 25 hours; private study = 40 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

BASIC STATISTICS FOR PUBLIC HEALTH & POLICY (1121)

**ORGANISERS: Dr Shakoor Hajat
Dr Zaid Chalabi**

**TIMETABLE SLOT: Term 1
Monday am**

AIM

To introduce the basic statistical methods used in public health research. As part of this introduction, students will learn to make practical use of a simple statistical computer package.

OBJECTIVES

By the end of this module students should be able to:

- (i) describe the role of statistical methods in public health research;
- (ii) present results effectively by making appropriate displays, summaries, and tables of data;
- (iii) appreciate the problem of sampling variation, and the role of statistical methods in quantifying this;
- (iv) select an appropriate statistical method for the analysis of simple data sets;
- (v) correctly interpret the results of statistical analyses reported in the health literature;
- (vi) perform simple statistical analyses using STATA; and
- (vii) interpret their findings from statistical analyses and present these findings in a clear, concise, and logical manner.

CONSTITUENCY

This module is for all students in PHP requiring an introduction to or consolidation of basic statistical skills. It does not assume any previous knowledge of statistics, although students who have some such knowledge will be aided by it. This module is compulsory for MSc Public Health.

CONCEPTUAL OUTLINE

1. Describing data: tables and graphs; proportions; measures of central tendency (mean, median), and spread (range, standard deviation); differences and ratios.
2. Sampling variability: confidence intervals and p-values, especially for means and proportions, and for differences in means and proportions.
3. Simple linear regression analysis and correlation coefficients and an introduction to multivariable analysis.
4. Statistical analyses by computer (using STATA).

Emphasis will be on practical skills of data analysis and interpretation, rather than on mathematical details or theory. Methods will be illustrated using data of relevance to PHP students, with examples drawn from both the industrialized and developing world.

TEACHING STRATEGY

Lectures will introduce topics, but students are likely to learn most by working through carefully constructed exercises as private study and in the practical sessions, and by discussion in the practical sessions. Some exercises will require using the STATA computer package, and some practical sessions will therefore be in the computer laboratories, which are also open to students at other times.

LEARNING TIME

Total learning time is 65 hours, of which contact time = 25 hours; private study = 40 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

CLINICAL TRIALS (2033)

**ORGANISERS: Professor Stuart Pocock
Tim Clayton**

**TIMETABLE SLOT: Term 1
Thursday pm**

AIM

To provide an introduction to the main issues in the design, analysis and interpretation of clinical trials.

OBJECTIVES

By the end of this module students should be able to:

- (i) explain fundamental principles of comparative clinical trials in investigating and ensuring efficacy and safety of treatments;
- (ii) describe the main features of clinical trials, including methodological and organisational considerations;
- (iii) explore key decisions surrounding design, delivery and assessment of clinical trials; and
- (iv) explain the principles of trial conduct, reporting and meta-analyses.

CONSTITUENCY

This module is intended for MSc students in Medical Statistics. All other students with an interest in clinical trials are welcome.

CONCEPTUAL OUTLINE

The following topics will be covered in the module:

General principles of comparative clinical trials, randomization (including the rationale, organization, ethics and methods of randomization), size of trials (including power calculations, the need for large trials, and problems of small trials), alternative trial designs, principles of meta-analysis, data monitoring and clinical trials reporting. There will also be a half-day practical on drafting a trial protocol.

TEACHING STRATEGY

Learning will generally be based on relevant practicals following lectures.

LEARNING TIME

Total learning time is 65 hours, composed of: contact time = 25 hours, assignment/assessment time = 5 hours, self directed learning time = 35 hours.

Though participants are encouraged to attend all 10 weeks, the first five weeks are a reduced option for students other than the Medical Statistics students requiring a brief introduction to clinical trials.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

DEMOGRAPHIC METHODS 1 (2010)

ORGANISER: Andy Sloggett

**TIMETABLE SLOT: Term 1
Thursday am, weeks 2-6**

AIM

To present to students some basic techniques for demographic analysis.

OBJECTIVES

By the end of this 5-week module students should be able to:

- (i) demonstrate an understanding of some key techniques used in demographic analysis for the measurement of fertility and mortality;
- (ii) identify the key steps in interpreting basic demographic data; and
- (iii) explain the usefulness of a demographic approach for the study of population and health issues.

CONSTITUENCY

MSc Demography and Health and MSc Reproductive & Sexual Health Research students must take this course: it is optional for other courses. No statistical expertise is assumed but basic numeracy is required. Competence in the basic techniques of demographic analysis is necessary for further work in population studies.

CONCEPTUAL OUTLINE

Demography is a quantitative discipline and the course will concentrate on basic methodologies of demographic analysis. This will inevitably involve a substantial amount of calculation for which we use Excel. The methods covered include an analysis of the structure of a population, basic fertility and mortality measures, life table analysis and standardisation.

TEACHING STRATEGY

The module will consist of five half-day sessions. Each session will consist of a lecture followed by a practical class. Several practical sessions will be computer based, introducing the Excel spreadsheet as a utility for demographic analysis. Students wishing to extend this course by attending Demographic Methods 2 are welcome to do so if their timetables allow.

LEARNING TIME

Total learning time is 20 hours, composed of: contact time = 12.5 hours; non-contact time = 7.5 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

ENVIRONMENT, HEALTH AND SUSTAINABLE DEVELOPMENT (1125)

ORGANISERS: Sari Kovats
Simon Lloyd

TIMETABLE SLOT: Term 1
Wednesday am

AIM

To introduce students to the concepts needed to understand and analyse the interaction of human activities, human health and the environment.

OBJECTIVES

- (i) describe a range of issues concerning environmental quality including: air, water, housing, and chemical hazards;
- (ii) demonstrate the links between health, environment and sustainable development;
- (iii) explain equity and sustainability as central principles in environmental health and risk management;
- (iv) evaluate global environmental changes in terms of health impacts and causes;
- (v) discuss how environmental issues are addressed in current public health practice.

CONSTITUENCY

This module is optional for students on the MSc Public Health, and it is compulsory for students who wish to take the MSc Public Health Environment and Health stream. It forms a suitable introduction to the modules Environmental Health Policy (1300) and Environmental Epidemiology (1301).

CONCEPTUAL OUTLINE

The module outlines how environmental factors affect human health and the measures taken to reduce those risks. The module will address the links between health, environment and development, international and local policy contexts. As well as introducing the traditional (local) environmental hazards, the emerging problem of global environmental changes and the challenges to epidemiology will be addressed.

TEACHING STRATEGY

The module will be organised around 10 sessions. Most sessions will consist of a one-hour lecture and a seminar of one and a half hours.

LEARNING TIME

Total learning time 65 hours, composed of contact time = 25 hours; reading and private study time = 40 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

EPIDEMIOLOGY IN CONTEXT (2024)

**ORGANISERS: Professor Betty Kirkwood
1Isolde Birdthistle**

**TIMETABLE SLOT: Term
Monday am**

AIM

To encourage students to think about the ways which epidemiological research links into wider public health and policy issues.

OBJECTIVES

During this module students will:

- (i) explore ethics issues and their importance to epidemiology and public health;
- (ii) explore the problems of dealing with uncertainty in making public health policies;
- (iii) explore the barriers to acting on epidemiological evidence;
- (iv) explore the barriers to undertaking epidemiological studies and disease control;
- (v) communicate effectively when sharing knowledge and experience;
- (vi) be introduced to speaking in public.

CONSTITUENCY

This module is compulsory for the MSc course in Epidemiology.

CONCEPTUAL OUTLINE

This module increases awareness of the role of epidemiology to public health by discussing some of the more common applied issues involved in epidemiology and public health. The topics are thought-provoking, even controversial, to stimulate interest and debate. The five seminars draw on current or recent examples of the interface between science and policy. One session will be specially devoted to ethics and public health. Where possible students will draw on their own experience and knowledge and share this with their colleagues.

TEACHING STRATEGY

Five half-day sessions in which speakers will introduce a topic. This will be followed by small group discussions. Individuals may be asked to report back to the whole group, using a variety of interesting methods.

LEARNING TIME

15 hours contact time plus an average of 5 hours preparation.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

EXTENDED DEMOGRAPHY (2051)

ORGANISER: Andy Sloggett

**TIMETABLE SLOT: Term 1
Thursday am, weeks 2-12
Monday am, weeks 8-12**

AIM

To present to students a range of techniques for demographic analysis and a review of how demographic information may be collected.

OBJECTIVES

By the end of this module students should be able to:

- (i) demonstrate an understanding of techniques used in demographic analysis for the measurement of fertility, mortality, and population structure and change;
- (ii) identify the key steps in interpreting basic demographic data;
- (iii) explain the usefulness of a demographic approach for the study of population and health issues;
- (iv) appreciate how different types of demographic information may be collected.

CONSTITUENCY

Extended Demography is compulsory for the MSc in Demography and Health. The first five sessions of this course are taken by other students under the course title "Basic Demographic Methods". No statistical expertise is assumed but basic numeracy is required. Competence in the basic techniques of demographic analysis is necessary for further work in population studies, and this module is essential for those wishing to take the Population Dynamics & Projections (2429) module.

CONCEPTUAL OUTLINE

Demography is a quantitative discipline and the course will concentrate on methodologies of demographic analysis. This will inevitably involve a substantial amount of calculation. The methods covered include the structure of populations, the use of basic fertility and mortality measures, life table analysis and the use of model life tables, period and cohort analysis of fertility, including determinants of fertility, healthy life expectancy and migration. More advanced methods for investigating fertility and mortality are introduced but not dealt with in depth.

TEACHING STRATEGY

This module will consist of 15 half-day sessions. Each session will consist of a lecture followed by a practical class. Several practical sessions will be computer based, introducing the Excel spreadsheet as a utility for demographic analysis. Some sessions, especially those involving collection of demographic data, are double lecture / discussion sessions.

LEARNING TIME

Total learning time is 60 hours, composed of: contact time = 37.5 hours; non-contact time = 22.5 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

EXTENDED EPIDEMIOLOGY (2007)

**ORGANISERS: Professor Liam Smeeth
Dr Clarence Tam
Emily Herrett**

**TIMETABLE SLOT: Term 1
Tuesday & Wednesday am**

AIM

To provide an introduction to basic concepts in the design, analysis and interpretation of epidemiological studies and an introduction to epidemiological methods applied to public health.

OBJECTIVES

By the end of the module students should be able to:

- (i) identify and state the key considerations in the planning and design of epidemiological studies;
- (ii) describe, apply and interpret correctly epidemiological measures, including measures of disease frequency, measures of effect, and measures of public health impact;
- (iii) describe the principles and evaluate the relative merits of different study designs, including the main analytic methods available;
- (iv) state the uses, strengths and limitations of routine data sources in both developed and developing countries;
- (v) summarise the key concepts and implications of sampling error, bias and confounding in epidemiological studies and know how to apply strategies for addressing these;
- (vi) describe the concepts of misclassification and validity of disease and exposure measurements, including the principles and practice of disease screening;
- (vii) judge the adequacy of evidence supporting causal links between exposure and disease;
- (viii) evaluate the results and interpretations of published epidemiological studies;
- (ix) select an appropriate study design to address specific epidemiological questions.

CONSTITUENCY

Extended Epidemiology is a core teaching module for all students on the MSc Epidemiology, MSc Veterinary Epidemiology and MSc Public Health in Developing Countries courses. Students of MSc Control of Infectious Diseases must take either Basic Epidemiology or Extended Epidemiology.

CONCEPTUAL OUTLINE

This module covers: Cases, rates and measures of effect; Study design; Error, bias and confounding; Screening; Surveillance (including comparison & analysis of routine data); and Causality.

TEACHING STRATEGY

Teaching will consist of twenty half-day sessions principally composed of one hour lectures followed by one-and-a-half hour practical classes where students work in small groups. There will be a problembased exercise on study design and logistics during the latter half of the module, with students working in groups. Lectures and practicals will be illustrated using examples and data from the developed and developing world, and communicable and non-communicable diseases. Students are expected both to read around the topic and to do additional exercises in their own time.

LEARNING TIME

Total learning time is composed of: lectures = 20 hours; practicals = 22.5 hours; design exercise = 5 hours; self-directed learning time = 82.5 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

FOUNDATIONS OF MEDICAL STATISTICS (2038)

**ORGANISERS: Professor Chris Frost
Dr Dan Altmann Monday all day, Tuesday pm**

TIMETABLE SLOT: Term 1

AIM

To introduce the basic principles of probability and classical statistical inference and their application in simple medical settings.

OBJECTIVES

By the end of this module students should be able to:

- (i) have a working knowledge of the fundamentals of statistical inference and elementary probability;
- (ii) apply appropriately, and understand the strengths and limitations, of basic statistical methods in a medical context;
- (iii) understand the theoretical basis and application of linear regression methods.

CONSTITUENCY

This module is compulsory for the MSc course in Medical Statistics.

CONCEPTUAL OUTLINE

This module will consist of four integrated components:

1. The fundamentals of probability, including an introduction to common distributions and measures of location and dispersion.
2. An introduction to classical inference including the distinctions between population and sample, and between statistics and population values. This component will also include sampling distributions (approximate and exact), estimation, properties of estimators, hypothesis tests, type I and II errors, sensitivity and specificity and confidence intervals.
3. Applications in common settings, including hypothesis tests and confidence intervals in simple applications, comparisons of groups, association (contingency tables and correlation) and the importance of assumptions.
4. Linear regression models (including simple, multiple and polynomial), residuals, outliers, leverage, influence and Cooks' distance, analysis of covariance, interaction and confounding, model inadequacies.

TEACHING STRATEGY

Learning will generally be based on a lecture followed by a relevant practical with some practicals involving the use of computers. Assignments will be given as part of the practical work. A little over half the contact time will be spent in the form of practicals.

LEARNING TIME

Total learning time is 160 hours, composed of: contact time=70 hours; self-directed learning time=60 hours; assignment time=30 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

FUNDAMENTAL PUBLIC HEALTH NUTRITION (2055)

**ORGANISERS: Dr Alan Dangour
Dr Mathilde Savy**

**TIMETABLE SLOT: Term 1
Monday all day, Wednesday am**

AIM

To introduce major principles of the science of nutrition and their applications focusing on nutritional needs, and the assessment of dietary and nutritional status of individuals and populations.

OBJECTIVES

At the end of the module students should be able to understand, critically discuss and where appropriate implement the following concepts and tools:

- (i) the processes of ingestion, digestion, absorption, metabolism, and utilization of nutrients and other food constituents by the body;
- (ii) the principles of setting, defining and meeting macro- and micro-nutrient requirements;
- (iii) the factors that influence dietary patterns and food choices, including social, cultural and economic determinants;
- (iv) the genetic and epigenetic (infection and other environmental factors) determinants of nutritional needs;
- (v) the available methods for the assessment of food availability, dietary intake, food quality and dietary patterns relevant to health and nutritional status;
- (vi) the available methods for the assessment of nutritional status (clinical, anthropometric, biochemical, functional) [select examples only as these are also covered in other modules];
- (vii) the processes involved in establishing nutrient recommendations and food based dietary guidelines for optimal health and nutrition of populations groups;
- (viii) global trends in food supply and dietary patterns, and their impact on health and nutrition of populations.

CONSTITUENCY

This module is compulsory for the MSc in Public Health Nutrition.

CONCEPTUAL OUTLINE

This extended module will provide an integrated introduction to the main concepts, methods and principles of nutritional science relevant to public health. Students will be familiarised with the essential tools of the public health nutritionist such as dietary intake and energy expenditure methods, food tables, food balance sheets, and nutritional assessment methods. The module will provide the background information essential for more specific discussion of public health nutrition in Terms 2 and 3.

TEACHING STRATEGY

Teaching consists of 30 half day sessions. Teaching methods include lectures, group participation, discussions with invited experts and computer practicals.

LEARNING TIME

Total learning time is 160 hours, composed of: contact time=70 hours; self-directed learning time=60 hours; assignment time=30 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

HEALTH POLICY, PROCESS & POWER (1117)

ORGANISER: Dr Justin Parkhurst

**TIMETABLE SLOT: Term 1
Wednesday pm**

AIM

To equip students to study or work in the health policy arena at international, national and local levels.

OBJECTIVES

By the end of this module students should be able to:

- (i) review different theoretical approaches and concepts used in policy analysis;
- (ii) analyse the political system within which policies are made and the contextual factors that lead to policy change;
- (iii) identify the different arenas involved in health policy, the actors within these arenas, and the key features of processes of policy identification, formulation, and implementation;
- (iv) plan how to use in research and/or decision-making the policy analysis framework introduced during the module.

CONSTITUENCY

Health Policy, Process & Power is intended for students interested in the broad political dimensions of health. It is relevant to those who have lived and worked in low, middle and high income countries. This linear module is useful but not essential for those wishing to take the modules: Globalisation & Health (1503) or Environmental Health Policy (1300).

CONCEPTUAL OUTLINE

This module starts by outlining a framework for policy analysis, considering content, context, actors and processes, and defines what we mean by policy. We look at some of the different theories that are useful in policy analysis: exploring the notion of power and its relationship to political systems, and how research is used in policy. The next part of the module explores who makes policy? by looking at different actors, and how they influence policy: national actors (e.g. domestic interest groups, including business; politicians, bureaucrats, the media), and international actors (e.g. UN organisations, international interest groups, multinational corporations and public-private partnerships). We then go on to consider how policy is made. We look at models of the policy process (Including dividing the process into stages, or alternative approaches) and the role of the state and market. Finally we show how policy analysis can be used retrospectively, in research, but also prospectively, to decide what policies are feasible, or what needs to be done to ensure policies are implemented.

TEACHING STRATEGY

This module will be organized around ten one hour lectures, linked to fortnightly seminars of one and a half hours, which will be based on case studies and student led.

LEARNING TIME

Total learning time is 65 hours, composed of: contact time = 16 hours; reading and preparation time = 49 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

HEALTH PROMOTION THEORY (1109)

ORGANISER: Adam Fletcher

**TIMETABLE SLOT: Term 1
Thursday am**

AIM

To provide students with an overview and a critical appreciation of the nature and purpose of health promotion.

OBJECTIVES

By the end of this module students should understand:

- (i) the historical development of health promotion in the UK;
- (ii) various approaches to the definition of health;
- (iii) proposed mechanisms to promote health via various social interventions;
- (iv) the way in which theories and principles from history, psychology, sociology, ethics, epidemiology, biology, and communication and marketing theory have been used to inform health promotion.

CONSTITUENCY

This module is compulsory for students taking the Health Promotion stream of the MSc in Public Health and optional for other Public Health streams and MScs.

CONCEPTUAL OUTLINE

This module focuses on theory and is not intended to be a practical course in health promotion methods. However, consideration of theory is important in developing practical methods. The module will focus on the theories and principles which underlie health promotion. Drawing on theories from history, psychology, sociology, ethics, epidemiology, biology, and communication and marketing theory, lectures will consider the nature of health and the variety of influences on it, the purpose of health promotion and the content of health promotion interventions.

TEACHING STRATEGY

Teaching will be by lectures and seminars. There will be 10 lectures, half of which will be linked to a one-and-a-half-hour seminar. The seminars will consist of groupwork, presentation of material by students and discussion.

LEARNING TIME

Total learning time is 65 hours, of which 17.5 hours is contact time and 46.5 hours of private study.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

HEALTH SERVICES (1107)

ORGANISER: Professor Nick Black

**TIMETABLE SLOT: Term 1
Friday am**

AIM

To provide students with a range of ways of thinking about health services and health systems. Drawing on epidemiology, history, medicine, economics and sociology, the module will help students understand how services function, the reasons services have developed in the way they have, the basis of some universal, persistent problems, and possible solutions to such difficulties.

OBJECTIVES

By the end of this module students should be able to:

- (i) describe some of the basic functions of health services and outline the reasons why services have developed in the way they have;
- (ii) explain how the disciplines of epidemiology, history, medicine, sociology and economics each contribute unique insights to understanding how a health service functions;
- (iii) describe and give examples of the inputs, processes and outcomes of health services;
- (iv) critically examine responses to challenges to health services in different countries;
- (v) analyse key, persistent and widespread problems in providing health services and suggest approaches to resolving these problems.

CONSTITUENCY

This module is aimed at those intending to purchase, plan, evaluate or manage health services. It will take examples from high, middle and low income countries. No previous specialist knowledge is required by students wishing to take this module. The module provides good preparation for the following modules: Health Care Evaluation (1400), Organisational Management (1403), Integrating Module: Public Health (1608), and Integrating Module: Health Services Management (1607). It is compulsory for students taking the Health Economics, Health Services Management and Health Services Research streams of the MSc in Public Health.

CONCEPTUAL OUTLINE

Students can opt to join a seminar group which concentrates either on high income or on middle/low income countries. Inputs to health services: Introduction to course and to health services - what is meant by health care, lay care and formal care, different levels of health services. Diseases and medical knowledge. Health professionals. Sources of finance. Processes of health services: Need, demand and use. Paying providers. Professional-patient interaction. Organising health services: Health systems. Historical influences. Outcomes and quality improvement: measures of outcome; assessing quality; improving quality of care.

TEACHING STRATEGY

The module consists of ten half-day sessions in Term 1. The format is a practical seminar of one and a half hours linked to a one hour lecture.

LEARNING TIME

Total learning time is 65 hours, composed of contact time = 30 hours; reading time and private study = 15 hours; seminar preparation and assessment time = 20 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

IMMUNOLOGY OF INFECTIOUS DISEASES (3120)

ORGANISER: Dr John Raynes

TIMETABLE SLOT: Term 1

AIM

To provide students with a thorough grounding in basic immunology at both the theoretical and practical level.

OBJECTIVES

By the end of this module, students should be able to:

- (i) demonstrate understanding of basic concepts of modern molecular immunology and immunity to infection;
- (ii) understand immunological components of other relevant modules provided by the School;
- (iii) carry out basic laboratory work illustrating relevant experimental principles and immunological techniques;
- (iv) apply basic statistical methods to the gathering and analysis of immunological data.

CONSTITUENCY

General Immunology will be appropriate for those students with little or no prior experience in the subject. It will be essential for those with no experience in modern immunology who wish to pursue the Advanced Immunology course.

CONCEPTUAL OUTLINE

The subject areas to be covered by lectures, journal clubs and private study will provide an overview of modern molecular immunology and immunity to infection. Specific topics will include: innate immunity mechanisms; the lymphoid system; cells; trafficking; phagocytes; antibody structure and function; the major histocompatibility complex; antigen processing and presentation; T-cell receptors and activation; cytokines; cell cooperation; cytotoxicity; inflammation; tolerance; autoimmunity; hypersensitivity; immunodeficiency; immunogenetics; mucosal immunity; immune responses to infections; nutrition and immunity; vaccines. Laboratory work will be used to illustrate the experimental principles involved and will acquaint students with modern immunological techniques. In addition there will be sessions on statistics.

TEACHING STRATEGY

Lectures, practicals and time-tabled discussions/journal club sessions/problem solving sessions
Experience of a research conference is provided by attendance at the BSI Congress in Harrogate. This is compulsory for MSc Immunology of Infectious Diseases students (but students from other courses are not required to attend but may do so if they wish).

LEARNING TIME

Total learning time is 283 hours, composed of: contact time = 201 hours; reading time = 69 hours; assignment/assessment time = 13 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

INTRODUCTION TO HEALTH ECONOMICS (1103)

ORGANISER: Dr Alec Miners

**IMETABLE SLOT: Term 1
Monday pm**

AIM

To introduce economic ideas that can be used in pursuit of better health and health care. Students will be helped to appraise strengths and limitations of these ideas.

OBJECTIVES

By the end of this module, students should be able to:

- (i) analyse determinants of demand, supply and costs of production;
- (ii) apply the concepts of efficiency, equity, elasticity, marginal analysis and opportunity cost;
- (iii) understand the basic market model, market failure and the roles and limitations of markets (and governments) in the finance and organisation of health care;
- (iv) understand the principles of economic evaluation as applied to health care.

CONSTITUENCY

Although a background in economics will be helpful, the module assumes no previous training in economics. This module is primarily intended for MSc Public Health, for which it is compulsory. Students from other MScs will be welcomed. The module is an essential pre-requisite for the modules: Economic Analysis for Health Policy (1504) and Economic Evaluation (1501).

CONCEPTUAL OUTLINE

The module introduces key economic concepts: making choices within scarce resources, efficiency, equity, elasticity of demand, costing, production, marginal analysis, and opportunity cost. These are applied to issues in finance and delivery of health services. It examines the conditions under which normal markets and insurance markets work, and why they often fail in health care. It considers the principles and application of economic evaluation in health and health care.

TEACHING STRATEGY

Teaching is by lectures, seminar discussions and small group exercises.

LEARNING TIME

Total learning time is 65 hours: 25 hours contact time and 40 hours private study.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

ISSUES IN PUBLIC HEALTH (1123)

**ORGANISER: Dr Cecile Knai
Professor Martin McKee**

**TIMETABLE SLOT: Term 1
Tuesday pm**

AIM

This module is designed to give an answer to the question “what is public health?” and to introduce the main concepts, principles, and practices of public health, illustrated by selected major topics in high and middle income countries.

OBJECTIVES

By the end of this module students should be able to:

- (i) explain the philosophy underpinning public health action, how it has evolved and how to apply it to health policies;
- (ii) interpret and evaluate work that applies key public health approaches, including describing patterns of health in populations, assessing disease burden, and assessing health impacts of policies in other sectors;
- (iii) communicate to others the major threats to health and their distribution within populations;
- (iv) explain the nature, strengths and weaknesses of the main types of public health interventions.

CONSTITUENCY

This module is designed for students wishing to understand the development, conceptual basis, and evidence for effectiveness of policies designed to promote health of populations and whose aim is to contribute to population health in high or middle income countries. It is compulsory for students taking the General stream of the MSc in Public Health. The module provides good preparation for the following modules: Globalisation & Health (1503) and Integrating Module: Public Health (1608).

CONCEPTUAL OUTLINE

The course aims to provide students with a basic awareness of the scale and scope of public health and the role of different disciplines and professions in securing and maintaining population health. The module begins by examining the evolution and conceptual basis of public health, the ways of describing patterns of health and disease in defined populations, and methods of assessing the health impact of different types of policy. It then explores in detail selected leading threats to health, looking at their impact on population health and the interventions that are used to counter them.

TEACHING STRATEGY

Teaching is by lectures, structured, self-directed learning, seminars, and group project work.

LEARNING TIME

Total learning time is 65 hours, composed of contact time = 15 hours; seminars = 12 hours; private study, including structured learning = 38 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

PARASITOLOGY & ENTOMOLOGY (3122)

**ORGANISERS: Dr Clive Davies
Dr Vanessa Yardley**

TIMETABLE SLOT: Term 1

AIM

To provide an overview of the major parasitic diseases of man and their vectors.

OBJECTIVES

By the end of this module students should be able to:

- (i) demonstrate understanding of the biology and the life cycles of the major parasites and of their vectors or intermediate hosts;
- (ii) identify the major parasites, vectors and intermediate hosts;
- (iii) demonstrate understanding of the pathogenesis and pathology of the major parasitic diseases and the immune responses to these parasites;
- (iv) appreciate the epidemiology of the major parasitic infections;
- (v) interpret and apply basic epidemiological and statistical methods;
- (vi) appreciate methods available for chemotherapy and control.

CONSTITUENCY

Parasitology & Entomology lasts ten weeks and assumes no prior knowledge of medical parasitology or entomology.

CONCEPTUAL OUTLINE

For each disease, consideration will be given successively to: biology, life cycles, diagnosis and vector identification (where appropriate), pathogenesis and pathology, immunology, epidemiology, treatment and control. Special sessions will be devoted to vector concepts and parasite transmission, and to the biology and control of parasitic diseases.

TEACHING STRATEGY

About half the time will be spent on theoretical work and half on practicals. Laboratory work is particularly important, since, in addition to practical instruction, there is ample opportunity for in-depth discussion with students on aspects of particular interest. To facilitate this a substantial number of staff will attend each practical session. Students taking the MSc Tropical Medicine & International Health course will spend Wednesdays at the Hospital for Tropical Diseases and Tuesday afternoons studying subjects outside this core course. The rest of the class will have private study at these times, or occasionally be taught specialised aspects of entomology.

LEARNING TIME

Total learning time is 280 hours, composed of: contact = 122 hours; private study time = 138 hours; assignment/assessment time = 20 hours (comprising progress essay time of 10 hours and "spots" revision time of 10 hours).

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

POPULATION STUDIES (2011)

ORGANISER: Professor Emily Grundy

**TIMETABLE SLOT: Term 1
Monday pm**

AIM

To enable students to acquire a broad substantive knowledge of population trends and an understanding of the major theories, findings and debates about determinants of trends and differentials in the fertility and mortality of human populations and the consequences of such variations.

OBJECTIVES

On completion of the module, the student should be able to:

- (i) demonstrate knowledge of broad contemporary and historical variations and trends in demographic trends, particularly mortality and fertility, but also international migration, in human populations;
- (ii) summarize and evaluate the main theoretical arguments that have been proposed to explain trends and differentials in mortality and fertility;
- (iii) articulate and defend arguments about what explains fertility and mortality variation and trends by making use of key literature in the field;
- (iv) identify the key implications of different theories for fertility, health, and development policy;
- (v) understand the population and other consequences of changes in fertility and mortality, such as population ageing, and the interaction between population change, public health, and public policy.

CONSTITUENCY

This module is suitable for any student who needs to know about trends and variations in fertility and mortality in human populations, theories about the determinants of such trends and the implications they, and associated changes in population size and structure, have for public health and public policy. The module is a core course for the MSc in Demography and Health.

CONCEPTUAL OUTLINE

The decline of fertility and mortality in human populations in the last two centuries represents a fundamental revolution with far reaching effects on social, economic and demographic structures of human society. The module reviews the structure of demographic transition in historical Europe and contemporary less developed countries and attempts by researchers to identify the key factors explaining the timing and pace of these trends. A core theme in the study of fertility is the validity of economic versus cultural explanations for population change, and whether state policy can play an independent role.

Similarly, a core theme in the study of mortality is the relative importance of economic and lifestyle factors, public health measures and clinical care as determinants of mortality and health. Persistence of differentials in health and fertility in contemporary times are also studied, as well as future prospects for countries at the end of the demographic transition. Demographic and public health consequences of population change, including population ageing and other changes in population composition, are also studied.

TEACHING STRATEGY

A combination of lectures, student presentations and workshops.

LEARNING

Total learning time is 65 hours, composed of: contact time = 25 hours; preparing presentations = 10 hours; individual private study = 20 hours; essay assignment = 10 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

PRINCIPLES OF SOCIAL RESEARCH (1104)

**ORGANISER: Ms Lorelei Jones
Dr Judith Green**

**TIMETABLE SLOT: Term 1
Thursday pm**

AIM

To introduce the basic principles of practice and theory in social research and to demonstrate their application to the empirical study of health.

OBJECTIVES

By the end of this module students should be able to:

- (i) demonstrate an understanding of key concepts in social research methodology;
- (ii) identify appropriate research designs for a range of research questions in health;
- (iii) evaluate the strengths and weaknesses of different research designs and data collection methods;
- (iv) critically evaluate published social research studies;
- (v) demonstrate an understanding of how social research findings can be used in public health disciplines.

CONSTITUENCY

This module is compulsory for students taking MSc Public Health, MSc Demography & Health, MSc Reproductive & Sexual Health Research, and MSc Public Health in Developing Countries. It is optional for other MScs. This module would provide good preparation for the following modules: Health Care Evaluation (1400); Medical Anthropology in Public Health (1802); Sociological Approaches to Health (1803); Qualitative Methodologies (1700); and History and Health (1401).

CONCEPTUAL OUTLINE

This module outlines the range of methodological approaches and philosophies which underpin social research, and identifies different kinds of qualitative and quantitative research design. Lectures introduce quantitative data collection methods (survey research and the design of questionnaire and health outcome instruments); qualitative methods of data collection (interviews, focus groups, participant observation) and analysis, and documentary data collection (e.g. policy documents, media and visual representations). Two lectures take a more theoretical approach. Seminars and critical reading provide an opportunity to look at research design and data collection in more detail, and gain practical experience.

TEACHING STRATEGY

Ten weekly lectures, together with essential reading, provide the structure and overview of key concepts. Two seminars are based around critical reading of a selection of social science articles; the others are practical sessions in which students develop skills in refining research questions, interviewing, questionnaire design and qualitative data collection. Some additional reading is also required.

LEARNING TIME

Total learning time is 65 hours, of which contact time = 25 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

ROBUST STATISTICAL METHODS (2475)

ORGANISER: Dr Constantinos Kallis

**TIMETABLE SLOT: Term 1
Thursday am Weeks 6-10**

AIM

To introduce the basic principles of robust statistical methods.

OBJECTIVES

By the end of this module students should be able to:

- (i) understand when it is, and when it is not, appropriate to use robust methods;
- (ii) understand the strengths and limitations of a range of robust methods;
- (iii) apply these techniques appropriately in a number of simple settings.

CONSTITUENCY

This module is compulsory for the MSc course in Medical Statistics.

CONCEPTUAL OUTLINE

This module will include an introduction to randomisation and permutation procedures, rank based tests (including Wilcoxon and Mann-Whitney tests and Spearman rank correlation), the Bootstrap and Sandwich style estimators of error.

TEACHING STRATEGY

Learning will generally be based on a lecture followed by a relevant practical with some practicals involving the use of computers. Assignments will be given as part of the practical work. A little over half the contact time will be spent in the form of practicals.

LEARNING TIME

Total learning time is 30 hours, composed of: contact time=13 hours; self-directed learning time=10 hours; assignment time=7 hours.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.

STATISTICS FOR EPH (2021)

**ORGANISERS: Dr George Ploubidis
Phil Edwards**

**TIMETABLE SLOT: Term 1 Dr
Weeks 2-6; 8-12**

Dr Emily Webb

Tues (pm) & Fri (am)

AIM

To introduce the basic statistical methods used in medical and public health research, and to help students develop the skills needed to apply them using the STATA statistical software.

LEARNING OUTCOMES

By the end of this teaching module, students should be able to:

- (i) describe and apply statistical methods in epidemiology and population health, and in their own disciplines;
- (ii) demonstrate skills in handling data on a computer and otherwise, and in deriving and presenting quantitative results using appropriate tables, figures and summaries;
- (iii) explain the nature of sampling variation and the role of statistical methods in quantifying it, and be able to calculate confidence limits and evaluate hypotheses;
- (iv) identify the key features of the normal and binomial distributions;
- (v) identify the key features of methods appropriate for sampling surveys;
- (vi) select appropriate statistical methods for the analysis of simple data sets and apply them on computer using STATA statistical software;
- (vii) accurately interpret and assess the output from statistical analyses carried out on a computer in relation to research and other questions being asked;
- (viii) present and discuss the findings from statistical analyses in a clear, concise and logical manner.

CONSTITUENCY

This is a core module for the MSc courses in: Epidemiology, Demography & Health, Public Health in Developing Countries, Reproductive & Sexual Health Research, Public Health Nutrition, and Veterinary Epidemiology. It does not assume any previous knowledge of statistics and is a pre-requisite for the more advanced statistical courses taught in Term 2.

CONCEPTUAL OUTLINE

1. Basic methods of presenting data
2. Sampling variation, estimation and hypothesis testing
3. Regression analysis
4. Survey sampling

Interpretation of data analysis will be a central theme throughout the module.

TEACHING STRATEGY

Teaching will be carried out in a mixture of lectures and practical sessions. Practicals will involve 'pen & paper' exercises working in small groups, or computer exercises mainly working in pairs. The emphasis will be on making appropriate tabulations and graphical displays of data and appreciating their meaning, selecting and applying appropriate methods for statistical inference, and correctly interpreting the results. All methods will be illustrated using data from medical studies in developed and developing countries.

LEARNING TIME

Total learning time is approximately 100 hours, comprising 48 hours contact time and 52 hours private study.

ASSESSMENT

For Term 1 modules, occasional students will not take any formal assessments for these modules.