Introduction
Global Health is a relatively recent area of scholarship that focuses on the increasing interconnectedness of health and its determinants. Major socioeconomic, environmental and technological changes are producing new challenges, ranging from the global epidemic in obesity through to the emergence and rapid spread of new infectious diseases. These new problems compound existing inequalities in health that are experienced within and between countries. At the same time we are witnessing major scientific and medical advances that hold the promise of solving many of these problems given the necessary leadership and commitment to ensure equitable implementation.

This course will comprise a two week introductory foundation course followed by three 5-week taught modules and either a research project or a specialist course (two 5-week modules).

Why Imperial College?
Imperial College is already a world leader in public and international health, with major research programmes in the UK and overseas tackling key issues such as emerging infectious diseases, obesity epidemic, and climate change and health (together with the Grantham Institute).

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Course overview

Part A (Introductory Module)
Module Leader
Professor Helen Ward h.ward@imperial.ac.uk

Aim: To provide a broad overview including the scope of global health, the range of disciplines contributing to global health scholarship, and to introduce the basis of research methods and the role of research in Global Health.

Part B (Modules 1, 2 and 3)
Aim: To explore the range of disciplines contributing to global health scholarship, and introduce the global burden and distribution of diseases (Modules 1 and 2). To understand how these are related to broader determinants of health including the process of globalisation. The research methods theme, started in the introductory module, is developed further through each of the Part B modules. There will be a student-led debate at the end of each module.
Course structure and dates 2015-2016

Part A: Mon 28 September – Fri 9 October 2015

Part B: Module 1 Mon 12 October – Fri 13 November
       Module 2 Mon 16 November – Fri 18 December
       Module 3 Mon 4 January – Fri 5 February

Part C: Module 4-5 Mon 29 Feb – Fri 13 May 2016

Reading list

Introductory course book for Research Methods;
- Neil Pearce, Handbook of Epidemiology - can be downloaded free
  http://publichealth.massey.ac.nz/publications/introepi.pdf

Generic Global Health Texts:
- Richard Skolnik. Essentials of Global Health, Jones and Bartlett, 2007 and an
  accompanying set of case studies?
The case studies are available at: www.cgdev.org/section/initiatives/_active/millionssaved

Health Policy Text:

Education 2012. (available as an eBook via IC Library Catalogue)

Other useful resources

Kelley Lee and Jeff Collin. Global Change and Health, OUP, 2005
Lindstrand, Bergstrom, Rosling et al Global health, an introductory textbook.
Studentlitteratur, 2008

Global Health Watch 2 (2008) : a radical critique of current global health policies and
institutions - can be downloaded free http://www.ghwatch.org/ghw2/ghw2_report.php
2007.

Commission on Social Determinants of Health (2008) Final Report: Closing the gap in a
generation: Health equity through action on the social determinants of health. Geneva,

Colin Butler (Ed.): HEALTH OF PEOPLE, PLACES AND PLANET. ANU Press, The Australian
National University. Acton ACT 2601, Australia

Course Outline

Part A
Introductory Module (2 weeks):
- Global health: an introduction to the field of study.
- Research methods: Critical Appraisal skills, Systematically reviewing the literature,
  Introduction to research in the Global Health context; Research strategies and
design; Sampling, Bias and confounding, Basic risk measurement; Tests of
significance; Association and causation; Ethics. This theme will continue through part
B.
  - Plagiarism training.

There will be a small group formative assignment at the end of the first week to consolidate students’ learning on research methods.

Sessions include lectures, seminars, and a field visit (in London).

**Module leader**
Prof Helen Ward

**Part B**
These 3 modules will provide a broad overview including an introduction to the global burden and distribution of disease, approaches to prevention and control of diseases, health system approaches and an overview of the contributions from a range of disciplines within the global health scholarship. We will also continue the research methods theme started in the Introductory Module. Module 1 and 2 include a few Joint teaching sessions with the Master in Public Health students (Global Health stream).

**Module 1: Infectious diseases new and old: major threats, transmission, molecular epidemiology, control**

**Directors**
Dr Graham Cooke

**Content:** Global burden and surveillance of infectious disease, including methods for describing and comparing; emerging infectious disease, introduction to modelling, vaccination, antibiotic resistance; Control of Schistosomiasis and other neglected tropical diseases: experience of the SCI; Current topics in HIV, TB and malaria; anthropology; STI, migration and health; Refugees and migrants.

**Module 2: The challenges of new epidemics: obesity, diabetes, tobacco and environmental hazards; from discovery of causes to governance.**

**Director**
Professor Paolo Vineis

**Content:** Global burden of non-infectious diseases, including methods for describing and comparing; descriptive epidemiology by geographic area, ethnicity; rates in migrants; temporal trends; the epidemics of obesity and diabetes; nutritional epidemiology and the metabolic syndrome; malnutrition; tobacco-related diseases and tobacco control; environmental exposures in developed and developing countries; climate change and its effects on health; adaptation to climate change; the interplay between genes and the environment; globalization and epigenetics; preventive strategies and policies.
Module 3: Global health in context: Poverty, Health Systems and Governance

Director
Dr Mariam Sbaiti

Content: Interpretation and critical assessment of evidence in global health, health needs assessment, social epidemiology in the context of global health, heterogeneity in health systems world-wide (organisation, governance, financing and equity issues in access); multidisciplinary approaches and ethical issues in research in resource-poor countries, global health actors, governance and architecture; health and international development; poverty and migration; the role of science and technology development; the pharmaceutical industry and access to medicines.

Teaching Methods
In each of the modules teaching will be through lectures and practicals, student-led seminars, and case studies. Students will be encouraged to take part in the lively internal seminar programme in the School of Public Health.

Assessment

Part A assessment
The Introductory Module assessment will be a written summary of a research publication for a lay audience. This is a Pass/Fail assessment which needs to be passed in order to proceed to Part B of the course.

Part B assessment:

Each Module is assessed with 2 in-course assessment and with Final Part B written examinations (February). In-course assessments for each module include:
  - a written in-class test (either data interpretation, or critical appraisal).
  - a 2500 word essay

Module 1
Essay on global health topic (15%)

Students will provided with an essay title before end of the first week of the module. The title will be chosen to reflect a major issue on the control of infectious diseases and give the students the opportunity to draw in information from a range of sources, not just taught material in the course. One of the key learning objectives of setting an essay is to give students practice at essay writing, with essays forming a key part of the final examination.

Critical Appraisal of papers (15%)

There will be a taught session within the module on how to approach critical appraisal of a new paper in a structured way. The second in course assessment will be a critical appraisal project. Candidates will be presented with the first half of a paper including introduction, methods and results. They will be asked to interpret the data and write a brief discussion on the findings. This will provide some preparation for the final exam which has a data handling question.
Module 2

Country health profile (15%)

Students should individually submit on-line an independent written essay on the country profile of their choice. Country profiles refer to the main health indicators for a country, or a more specific topic such as recent changes in disease rates (e.g. cardiovascular disease in Russia), or peculiarities in disease occurrence (e.g. obesity in Tonga).

Data interpretation exercise (15%)

Each student will receive a simple set of data and (s)he will be required to describe and interpret them in a written form

Module 3

Essay (15%): individual essay – the title will be circulated in the early weeks of the Module and will relate to a Health System or Trade-related issue of relevance to Global Health. Students will be required to work individually and produce a Commentary addressing the question, and supporting arguments with evidence and references from a wide range of literature.

Critical Appraisal of a Systematic Review (15%): in-class test during which students will be given an unseen Systematic Review. The CASP Review Checklist will be given as a structure to answer questions relating to the critical appraisal of this paper.

Part C

Each student will undertake an individual project or take one of the specialist BSc courses (Medical Humanities, History of Medicine or Death, Autopsy and the Law). The projects will give the students the opportunity to undertake a piece of individual research. Projects will be able to address any question in global or environmental health. The topic can be selected from a range offered by teaching staff (some of whom collaborate with external organisations such as Médecins Sans Frontières) or may be one suggested by the student. Projects may be

- Literature-based, for example a systematic review and meta-analysis or an evidence-based policy review
- Analysis of an existing data set within one of the many research programmes
- Undertaking the collection of new data, for example a clinical audit, within the context of an existing clinical or research programme

Past BSc Examples of project Titles in Global Health:

- Risk factors for neonatal mortality
- Participation in phase 1 vaccine studies for HIV: a mixed methods study
- Translational research in breast cancer (Literature review and secondary data analysis
- Patient experience in cancer services in the UK – an analysis of inequalities (Clinical Project).
- Chlamydia screening: an international comparison of implementation.
• Evaluation of the Global Fund commitments to PMTCT programmes across the 22 highest HIV burden countries
• Systematic review of how HIV positive individuals change risk behaviour upon learning of their serostatus
• The effect of selective laser trabeculoplasty (SLT) in stabilising intra ocular pressure as measured by the water drinking test (University of Auckland, New Zealand)
• Reviewing the evidence of the population-level impact of HPV vaccination programmes globally
• Climate change in Bangladesh
• High throughput virus neutralisation assay
• Sensing methodology for biomolecular recognition and cell functions
• Analysis of adoption of WHO guidelines
• Systematic review of observational studies on pesticide exposure and childhood cancers
• Systematic review of whether HIV negative individuals increase HIV risk behaviour after testing
• What are the Psychological consequences of separation of children from parents arising from migration.
• Systematic review of Survival benefits from treating HCV in LMIC
• Systematic review of HCV transmission in LMIC
• HIV prevention programmes for sex workers in the Asia Pacific region: legal frameworks, investment and outcomes at the country level
• The case for initiation of life-long antiretroviral therapy because of Pregnancy
• Inequalities in patient experience: the role of ethnicity
• Calculation of cost of production and activity by genotype, for new HCV DAAs'
• Metabolomic analysis of the health impact of disinfection-by products in water
• The exposome of air pollutants
• Adductomics as a tool for exposure assessment in environmental epidemiology
• Epigenetic changes associated with cancer
• Epigenetic changes associated with environmental exposures
• Socio-economic differences, health and intermediate omic biomarkers
• Conditional Cash Transfer as a tool to alleviate the health impact of poverty