

# LF211-15 Epidemiology and Public Health

**21/22**

**Department**

Life Sciences

**Level**

Undergraduate Level 2

**Module leader**

Daniel Franklin

**Credit value**

15

**Module duration**

5 weeks

**Assessment**

Multiple

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

The aim of this module is to introduce students to two of the fundamental processes that underpin epidemiology. Epidemiology explains the population biology of pathogens and applies this to public health decision-making to explain current policy in regards to immunisation, sexually transmitted infections and alcohol consumption.

### Module aims

By the end of the module the students should have a good understanding of how evidence is used to assign causes to different diseases, and the underlying theory for the design of public health interventions.

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Concepts and examples of epidemiology and public health will span human and animal diseases,

infectious and non-infectious diseases (although with emphasis on infectious diseases). There are three equally weighted areas:

- Assessing the Evidence: Introduction to the concepts of measurement and causality.
- Predicting the Dynamics: Development of the concepts of non-linearity in infectious disease dynamics.
- Protecting the Population Health: Introduction to the concepts of public health.

## **Learning outcomes**

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

- Level 5 understanding of research techniques used to study and model epidemiological issues
- Level 5 understanding of measurement and causality
- Level 5 understanding of concepts of how infectious diseases are dynamic and how individual risk depends on the epidemic within the population
- Level 5 understanding of the concepts of public health, indirect benefits of interventions and policy design

## **Indicative reading list**

Coggon, D., Rose, G. and Barker, D. J. P. (eds). *Epidemiology for the Uninitiated*, 5th Ed. (BMJ Publishing Group, 2003). ISBN 0-7279-1604-1. Contains 80 pages.

Keeling, M. J. and Rohani, P. *Modeling Infectious Diseases in Humans and Animals* (Princeton University Press, 2008). ISBN13: 978-0-691-11617-4

## **Subject specific skills**

Understand how important the balance of the immune system is what happens when the normal status quo is disrupted in disease examples

Interpret and weigh the evidence for and against disease causality, diagnosis and screening.

Emphasise the individual / population differences in disease, diagnosis and pathogen ecology, and explain that most disease comes from small, common risks.

Explain the ideas of non-linear dynamics inherent in transmission dynamics of infectious disease, and the concept of transmission routes of infectious disease.

Show, by example, how public health policy in the UK is based on our current understanding of causality and dynamics.

Integrate all aspects of the module and have a coherent understanding of the complex interactions between the disease causing agent, the host immunological response and population biology and public health.

## **Transferable skills**

Quantitative understanding of data, independent learning / self-directed learning, adult learning

and understanding source material

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## Study

### Study time

Type	Required
Lectures	15 sessions of 1 hour (10%)
Practical classes	6 sessions of 1 hour (4%)
Private study	129 hours (86%)
Total	150 hours

### Private study description

129 hrs self-study and directed reading is expected

### Costs

No further costs have been identified for this module.

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## Assessment

You do not need to pass all assessment components to pass the module.

### Assessment group D

	Weighting	Study time
Computer Based Practical Assessment 6 x 1 hr practical sessions- students will need to build an epidemiological model that will be assessed.	30%	30 hours
Online Examination 1.5 hr end of year exam- 45 min SAQs / 45 min Essay based	70%	45 hours

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- Online examination: No Answerbook required

### Assessment group R

**Weighting****Study time**

In-person Examination - Resit  
45 min SAQ paper / 45 min essay paper

100%

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- Answerbook Green (8 page)
  - Students may use a calculator

**Feedback on assessment**

Pastoral meetings with tutors

[Past exam papers for LF211](#)

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**Availability****Courses**

This module is Core for:

- UBSA-C1B9 Undergraduate Biomedical Science
  - Year 2 of C1B9 Biomedical Science
  - Year 2 of C1B9 Biomedical Science
  - Year 2 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
  - Year 2 of C1A3 Biomedical Science
  - Year 2 of C1B9 Biomedical Science
- Year 2 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
  - Year 2 of CB18 Biomedical Science with Placement Year
  - Year 2 of CB18 Biomedical Science with Placement Year
  - Year 2 of CB18 Biomedical Science with Placement Year

This module is Optional for:

- Year 2 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 2 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 2 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 2 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)