

# BS374-15 Modern Approaches to Human Disease

**23/24**

**Department**

Life Sciences

**Level**

Undergraduate Level 3

**Module leader**

Philip Young

**Credit value**

15

**Module duration**

10 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

The module cannot provide exhaustive coverage of these medical specialties: these will be used to exemplify the importance of evidence and ethics in medicine. However, to provide the appropriate context, there will be accounts of the nature of the disorders of these systems and how they are dealt with.

The module will be introduced by lectures on the concepts of evidence-based medicine and medical ethics. What do we mean by "evidence-based medicine"?

The concept of evidence-based medicine has developed over the last few years as a means of formalising decisions concerning health care. The most important tools are the randomised controlled trial, in which two alternative treatments are compared in an objective manner, and the systematic review, in which all the evidence (e.g. derived from trials) relating to a clinical issue is assessed in an objective manner to allow a definitive conclusion on the issue. Go to the Cochrane Library to read more on evidence-based medicine and to view systematic reviews.

What do we mean by "medical ethics"?

The fundamental concept here is the autonomy of the individual. Only I can make decisions about my well-being. It follows that in medicine the physician advises the patient on what is the best course of action, but it is the patient who decides. It follows that treatment can only be given if the patient consents

## Module aims

This module aims to combine several different, but related, disciplines to the study of important human disorders. In particular to give an understanding of how science is combined with medicine to provide the modern treatment regimes used today. The module will cover the clinical situation of disorders (symptoms, causes, treatment) and combine that with lectures on the underlying science including: genetics, physiology, immunology, epidemiology, current research etc. The module will start with an introduction to drug design, phase 1, 2, 3, clinical trials, using spinraza and spinal muscular atrophy as a vehicle to demonstrate how compounds are taken from basic research into clinical practice. These techniques will then be applied to several common disorders, including Parkinson's disease, Alzheimer's disease and reproductive medicine.

## 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.

The module will start with an introduction to drug discovery (and design), testing new drugs, treatments, using clinical trials (trial design), the different phases of drug introduction etc The module will then examine a small number of important disorders as example conditions.

These could include: Mental health, for example schizophrenia Medical aspects of the conditions, presenting symptoms, causes, treatment etc. Current research, animal models of the diseases, current theories of disease, causes and new treatments.

Reproduction Infertility, treatment, causes, genetics.

Metabolic diseases; diabetes, obesity Clinical situation, scientific background, current research etc Each of the 4 areas would have around 5 lectures associated with them.

It would be possible to have similar combinations with other medical areas such as transplantation, pain management and heart disease. The exact conditions covered would depend on who is available to teach and their research interests. We plan to have a clinician or clinical scientist associated with each section together with Biological Sciences staff.

## Learning outcomes

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

- Advanced understanding of evidence based medicine and how it is used to improve clinical practice
- Advanced understanding of the methods used to evaluate medicines in humans
- Advanced understanding of current research in example medical conditions
- Advanced understanding of the physiology and pathophysiology of example medical conditions
- Advanced understanding of current therapeutic strategies and clinical management of example medical conditions
- Advanced understanding of the importance of animal models for example medical conditions
- Advanced understanding of clinical trials using examples from specific medical conditions

## Indicative reading list

Students will be directed to current review articles in the literature as well as up-to-date research articles where appropriate. Their second year core Physiology texts will continue to be useful. Pocock and Richards Human Physiology: the Basis of Medicine (2006) Widmaier, Raff and Strang. Vander's Human Physiology (2006)

## Subject specific skills

- a. Demonstrate clear understanding of the scientific topics
- b. Contain evidence of extended reading and lateral integration of material not covered in the lectures
- c. Demonstrate independent thought and deep understanding
- d. Specifically answer the set question using information from multiple lectures and sources
- e. Be structured and formatted in a way that demonstrates understanding and logical flow
- f. Use multiple sources to construct complex scientific arguments and integrating these to build and develop the student's own scientific conclusions.

## Transferable skills

1. Critical appraisal of source material
  2. Self directed learning
  3. Adult learning
  4. Professionalism
  5. Information literacy
  6. Digital literacy
  7. Problem solving
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## Study

### Study time

Type	Required
Lectures	20 sessions of 1 hour (15%)
Private study	110 hours (85%)
Total	130 hours

### Private study description

110 hrs of self-study and directed reading to prepare for the open book assessment

## Costs

No further costs have been identified for this module.

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## Assessment

You must pass all assessment components to pass the module.

### Assessment group A1

	<b>Weighting</b>	<b>Study time</b>
Open Book Assessment	100%	20 hours

Final assessment for the module will be on open book assessment. This is an essay based assessment consisting of 8 questions- students need to answer 2. The essays cannot be answered using lecture notes alone- students will need to perform background research and essays will need to be fully referenced.

### Feedback on assessment

Individual written feedback

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## Availability

### Courses

This module is Core for:

- UBSA-C1B9 Undergraduate Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
  - Year 3 of C1A3 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- Year 3 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year

This module is Core optional for:

- Year 3 of UIPA-C1L8 Undergraduate Life Sciences and Global Sustainable Development
- Year 4 of UIPA-C1L9 Undergraduate Life Sciences and Global Sustainable Development (with Intercolated Year)

This module is Optional for:

- Year 3 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 3 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 3 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)
- Year 4 of ULFA-B141 Undergraduate Neuroscience (with Placement Year) (BSc)