

# 2005/06 Taught Postgraduate Module Catalogue

## **BIOL5222M**

Cytogenetics

**10 credits**

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**Taught** Semester 1 [View Timetable](#)

**Year running** 2005/06

### **Pre-requisite qualifications**

BSc or equivalent.

### **Co-requisites**

BIOL5221M as a corequisite only if no previous equivalent.

**Module replaces** BLGY5035M

**This module is not approved as an Elective**

### **Objectives**

On completion of this module, students should:

- be able to understand the reasons why certain methodologies are used to study chromosomes and have knowledge of the different types of samples analysed in cytogenetic laboratories;
- be able to understand the processes of cell division, gametogenesis and sex determination;
- be able to appreciate the different types of structural and numerical chromosome rearrangements and the effects these have on human survival and disease;
- have knowledge of the facts to be considered for the prenatal diagnosis of disease;
- understand the skills needed in the identification of normal and abnormal karyotypes;
- be able to critically assess a range of scientific literature, using their theoretical and practical knowledge and understanding of Human Cytogenetics;
- be able to present their understanding of Human Cytogenetics to peers and tutors whilst demonstrating verbal and written communication skills.

### **Syllabus**

Chromosome structure, composition and nomenclature. Chromosome banding and FISH. Mitosis and meiosis. Cell cycle and gametogenesis. Sex

determination and X-inactivation.

Structural chromosome rearrangements. Sex chromosome rearrangements. Segregation of chromosome rearrangements. Types and origins of numerical chromosome abnormalities.

Phenotype/karyotype correlations. Genomic imprinting and uniparental disomy. Chromosome mosaicism. Cytogenetics of leukaemia. Cytogenetics of solid tumours.

Techniques and considerations for prenatal diagnosis. Physical mapping.

Future developments in cytogenetics.

### **Teaching methods**

Lectures: 17 x 1 hour;

Seminars: 1 x 1 hour;

Tutorials: 2 x 1 hour;

Practical classes: 1 x 2 hours 'dry' practical.

### **Private study**

2 hours reading per lecture: 34 hours;

Seminar preparation: 5 hours;

3 hours preparation per tutorial: 6 hours;

7.5 hours preparation per essay/ practical write-up: 15 hours;

Data analysis: 18 hours.

### **Progress monitoring**

1 x 1000-word essays;

Write-up of 'dry' practical.

### **Methods of assessment**

Data analysis: 40%;

1 essay: 30%;

Write-up of 'dry' practical: 30%.

### **Reading list**

The [reading list](#) is available from the Library website