

# GENOMICS OF COMMON AND RARE INHERITED DISEASES

Duration	5 days of face-to-face teaching plus self-directed learning
Cost:	£1250. If you are an NHS employee, full funding is available through Health Education England
Tutors:	Dr Alan Pittman – St George's University of London Genetics Research Centre, Lecturer in Bioinformatics Dr Jordana Bell – King's College London, Head of Epigenomics Research Group
Location:	St George's University of London



**This MSc module uses exemplars of both common and rare disease from across the entire healthcare spectrum to demonstrate the clinical utility of genomic data in the healthcare setting. The module case studies give an insight into how advances in genomic technologies and integration of genomic data into clinical pathways are impacting on the management of patients from the prenatal setting, through paediatrics and into adult medicine and cancer.**

## AIMS

- Provide an introduction to the clinical presentation and manifestations of common and rare inherited diseases.
- Consider the patient and family perspective with respect to the role and impact of genomics, and provide an overview of the approaches used to identify the underlying genes involved.

## LEARNING OUTCOMES

By the end of this module the student will be able to:

- Examine the range of common and rare inherited diseases
- Explain the genetic basis of common and rare inherited diseases
- Critically evaluate traditional and current approaches used to identify new genes for common and rare inherited diseases
- Synthesise information gained from exome / whole genome analysis with patient information / medical records to determine diagnosis, penetrance or prognosis for a number of examples of common and rare inherited diseases using the available evidence base
- Evaluate the use of whole genome sequencing in the clinical management of patients in the NHS, including identifying cases suitable for whole genome sequencing
- Critically evaluate the implications of the clinical use of genomic data in patient care
- Correlate genetic markers to phenotype and interpret output of association studies both for dichotomous and quantitative traits

Teaching methods encompass lectures, and interactive workshops. Teaching sessions are delivered, and led, by clinicians, ethicists and scientists who have an active research or clinical interest in the individual topics.

## ENTRY REQUIREMENTS

Applicants should have a minimum of a lower second class degree (2:2) in a subject that offers an appropriate grounding in science, genetics or healthcare. Alternative professional qualifications may be considered.

## PREREQUISITES

Modules from our genomic medicine portfolio which directly complement this module include The Fundamentals of Human Genetics and Genomics, and Omics Techniques and Technologies and Their Application to Genomic Medicine.

We offer Massive Open Online Courses (MOOCs) which you can study online to deepen your understanding:

The Genomics Era: the Future of Genetics in Medicine

Genomic Technologies in Clinical Diagnostics: Molecular Techniques

Genomic Technologies in Clinical Diagnostics: Next Generation Sequencing

These courses are available at: [www.futurelearn.com/partners/sgul](http://www.futurelearn.com/partners/sgul)

More information at [kcl.ac.uk/genomicmedicine](http://kcl.ac.uk/genomicmedicine)

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