



### About the Tutor

Guy Sutton's primary research interests are the genetics of neural development and the interactive nature of biological, behavioural and genetic factors in disease processes.

He is Honorary (Consultant) Assistant Professor in the Division of Psychiatry at University of Nottingham and has held previous academic appointments at Manchester, Manchester Metropolitan and Cambridge Universities. Guy has lectured in neuroscience and genetics to a range of undergraduate and postgraduate students, including medical, biological and psychologists. He has conducted research projects and data analysis for various organisations, including the Department of Health and the Medical Research Council. In addition to presenting research at various international conferences and writing for academic publications, Guy has talked about the theoretical and clinical aspects of his research on television and radio. He sat on the advisory board for the Wellcome Trust's 2013 'Inside The Brain' publication. Recent articles include 'Methods For Exploring The Brain' and 'The Epigenetic Brain' in *Psychology Review*, and 'Crime and The Brain' in *Catalyst*.

He has tutored on 'A' level reading parties for students and teachers for several years. He is an associate tutor with Villiers Park Educational Trust, Cambridge and has written and delivered courses for Young, Gifted & Talented.

### About MBI

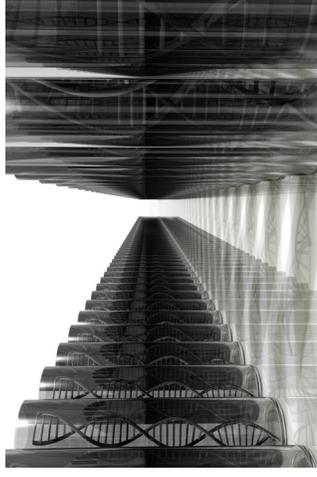
MBI (Medical Biology Interactive) delivers one-day and half-day courses, seminars and tutorials in epidemiology, occupational health and the human sciences to the health service, industry and education. All MBI seminars are written and run by academics and health specialists, each of whom has considerable experience in research and its practical applications. Seminars are delivered at the hospital, workplace or school, based on cutting-edge research and current practice benchmarks, and tailored to the needs and concerns of the client.

For further information and full programmes, please refer to the contact details on the back of this pamphlet.



PRESENTS

# GENETICS FOR PSYCHOLOGISTS



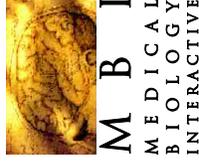
*A Half-Day Tutorial  
On The Genetics  
of Brain Function -  
Delivered At Your School*

TUTOR:

**Dr. Guy M. Sutton**

Director, MBI &

Honorary (Consultant) Assistant Professor,  
University of Nottingham Medical School



**Seminars & Tutorials For The  
Health Service, Industry & Education**

Director Dr. Guy Sutton

7 Gloucester Road  
Wallasey  
Wirral  
CH45 3JS

Tel. 07941 039670

Web site: [www.medicalbiology.co.uk](http://www.medicalbiology.co.uk)

Email: [gmsutton@mbi-consultancy.co.uk](mailto:gmsutton@mbi-consultancy.co.uk)

## WHY A DNA MORNING?

This is the simple truth. Any 21st century psychology student must have a working knowledge of how genes are involved in behaviour. It has become abundantly clear that genes are not only involved in many psychological and cognitive functions, but that they interact with the environment to influence the way we behave. And as we elucidate the ways in which genes work, we begin to understand how they involved in many neurological and psychiatric disorders. However, genetics is a big and complex field and psychology students - in particular those with no biological background - can often struggle with terms and mechanisms.

Enter a half-day tutorial on genetics for psychologists. In this tutorial, we not only introduce students to the way in which genes work in a comprehensible way but, like all MBI tutorials, we stretch and extend students beyond A-level pushing into degree-level material at appropriate points. Thus, the tutorial will deal with the nature of DNA and genes, but we will develop students' knowledge, filling in the gaps. How do genes influence brain development? Why do genes influence our behaviour and susceptibility to certain disorders? Do we really have "a gene for this and a gene for that" or can we justifiably say, "actually, I think you'll find it's a little more complex than that..."

## WHICH STUDENTS WILL BENEFIT?

This tutorial is designed primarily for very able A-level psychology students but will also be useful to:

- any A-level biology students with an interest in the nature of genetics and the relationship of genes to brain development and function.
- those students considering a university degree and/or career in the following subjects:

**Psychology**      **Philosophy**      **Medicine**  
**Neuroscience**      **Life Sciences**      **Genetics**

## AIMS OF THE TUTORIAL

There are three main aims to this tutorial:

- to provide the student with an overview of the structure and nature of DNA, together with an understanding of elementary genetic principles such as gene expression and protein coding.
- to consider the role of genes in brain development and cognitive function, to explore exactly how and why changes to genes can lead to diseases and disorders.
- to consider modern epigenetic theories of how genes and environment interact to influence typical and atypical behaviour, with applications to attachment and bonding.

## TOPICS TO BE COVERED

A variety of topics and issues relating to genetics will be covered. The tutorial can be tailored to your specific requirements; an exemplar programme is provided below:

- 9.00-9.10: **Aims & Introduction**
- 9.10-10.00: **Introduction to Genetics**  
So why do psychologists need to know about genetics? What is DNA and what are genes? An introduction to some basic chemistry (but don't be scared!) Long genes and short genes. Gene expression and its control.
- 10.05-10.40: **DNAWeb 1**  
Internet-based session exploring genetics. Explore A Stretch of DNA: Chromosome mapping, Epigenetics and the brain.
- 11.00-11.40: **Genes & Brain Development**  
How does a brain develop prenatally and postnatally? What is the relative influence of genetic and environmental factors? Hox genes, pax genes and nerve cell migration. What happens when key genes are not expressed at the right time? Neurodevelopmental disorders: holoprocencephaly and anencephaly. Epigenetics of brain development.
- 11.40-12.00: **DNAWeb II**  
From genes to cognition. Genes, chromosomes and psychiatric disorders.
- 12.00-12.25: **Genes & Brain Function**  
Genes and cognitive function: how can genes possibly be linked to psychological function? Dynamin1 and genes linked to synaptic function. The genetics of intelligence. Genes and GCSE performance. Gene-environment interaction.

## 12.20-12.55: Genes, Brain Disorders & Psychiatric Illness

Are genes linked to all brain disorders and illnesses? Mutation, epigenetics, copy number variation and reitrotransposons: taking it to degree level. The genetics of Alzheimer's. The genetics and epigenetics of autism and schizophrenia.

- 12.55-1.00: **Conclusions**

## FORMAT

The tutorial is delivered in your school and runs throughout the school morning. Tutorial date can be arranged by contacting MBI. Format is varied, with interactive, multimedia lectures, computer-based work and group discussions.

Each school receives a comprehensive pdf tutorial school together with DNA & The Brain software, designed to complement material and issues introduced in the tutorial.

MBI, Medical Biology Interactive, 2017.

## WHAT PEOPLE SAY ABOUT DNA A.M.

"An excellent tutorial.

Our girls thoroughly enjoyed and appreciated the experience."

Mrs Vandervord,  
Colchester County High School for Girls

"Thank you for planning and delivering such a wonderful day. The student evaluations show just how much the students appreciated all your hard work and enthusiasm."

Ms S. Brady,  
Villiers Park Educational Trust, Cambridge

"Thanks! A fantastic session thoroughly enjoyed by our students. They were inspired by the material you covered and continue to talk about it."

Mr I. Smith,  
St Anselm's College, Wirral

"Thanks for the session you did with the girls the feedback as always was excellent, really positive and a great incentive to them just before they go off to university."

Mrs J. Stubbs,  
Loughborough Endowed Schools

"A brilliant day which was very interesting to me too. I would definitely recommend this day to other schools."

Ms T. Wilkinson,  
The Oldershaw School