

## Speaker pool: previous RSS Guy Lecturers

The RSS William Guy Lecturer is a prestigious volunteer role, and is intended to recognise Fellows with a successful track record in undertaking school outreach activities. We give the RSS William Guy Lecturer support to deliver the RSS William Guy Lecture to school students in the UK each academic year.

The following lecturers appointed in previous years are willing to consider requests for talks in schools, colleges and at events. Please contact [education@rss.org.uk](mailto:education@rss.org.uk) and we will relay your request.

**Dr Lee Fawcett**  
**University of Newcastle**

**Guy Lecturer 2018-2019**

### **The storm of the century! Using data to anticipate extreme climate events**

Can we use data to estimate the probability of an event more extreme than we have observed before? When Hurricane Katrina made landfall at Grand Isle Louisiana, it brought storm tides exceeding 14 feet. The maximum hourly storm tide ever observed at this location, before Katrina, was just over 13 feet. So how could Katrina's storm tide have ever been anticipated? And why was Katrina dubbed "The Storm of the Century"? We aim to answer both of these questions, and more.

Starting with a demonstration of the flaws of simple approaches, we will explore together, using pencil-and-paper and a web-based app, how well we can fit an extreme value model to annual maximum storm tides at Grand Isle. The talk is suitable for a range of secondary school students from ages 12 to 18, and will be adjusted appropriately.

**Professor Christl A Donnelly**  
**Imperial College London**

**William Guy Lecturer 2016-2017**

### **Statistics and epidemiology: How numbers help control diseases**

The Ebola and Zika epidemics have brought infectious disease outbreaks and their control into everyone's consciousness. The media images are of doctors and nurses in full body protection treating patients. But there are also important roles for statisticians and epidemiologists analysing the data collected about the patients, including when they got sick, who they contacted and where they live.

I explain epidemic growth – how diseases spread if each person infects two others, for example. I explain why Ebola is seen by many as a bigger global threat than malaria, despite the fact that many more people die of malaria each year. I also explain why some diseases are easier to control than others (comparing SARS to influenza).

The talk will be filled with examples of diseases I have worked on including: BSE/vCJD, bovine TB, foot-and-mouth disease, SARS, influenza, dengue, MERS, Ebola and Zika.



Dr Jennifer Rogers CStat  
University of Oxford

Guy Lecturer 2013-2014

### **Making life saving decisions in clinical trials: how much evidence do we need?**

Evidence based medicine is key in the success of modern healthcare. Doctors and regulators need the results of clinical trials in order to make important decisions about treatments. But just how much evidence do we need to be able to make these informed decisions? This talk will outline how clinical trials are carried out and examine how statistics are used to assess how good a new treatment is. But statistics aren't just used to make decisions about new treatments, they are used to measure and make sense of the whole world. We will go on to explore the claims that we see every day and what you can do to ask for evidence!

Stella Dudzic  
MEI

Guy Lecturer 2012-2013

### **Measuring Inequality**

In 2012, the final report of the Riots, Communities and Victims panel said that "over half of respondents to the Panel's Neighbourhood Survey believe there is a growing gap between rich and poor in their local area."

How can inequality be measured? Is inequality growing? How does the UK compare to other countries? Stella's talk will look at how statistics can be used to help answer these questions. This will include consideration of how to compare data from different countries and different times in a standard way that makes it easier to see what is going on.

Dr Paul D Baxter CStat  
University of Leeds

Guy Lecturer 2011-2012

### **Are large databases good for your health?**

The big increase in computing power over recent years has made it possible to routinely record large volumes of information about our daily lives (and especially our health) – as an example see [data.gov.uk](http://data.gov.uk). Statistics is the essential tool for making sense of the huge quantities of data available. There are many exciting challenges – often the data that is missing or poorly recorded is at least as informative as the data that is present. The real strength of such databases comes when they are linked together to see the bigger picture, but how do we do this, and should we worry that our privacy is being invaded? In this talk we look at these issues through examples ranging from goals in world cup football to survival following a heart attack.

Keith Parramore

Guy Lecturer 2009-2010

### **The Bottle Factory – Order from Chaos**

Keith's lecture deals with what is meant by "random selection".



What does "random" mean? Chaotic? "Pernicious"? Is random selection fair or do we empathise with the following quotation, heard on Radio 4? "Well, fairer in the sense that everyone's got an equal chance, but not fair in the sense that, well, it is literally a lottery".

Here's another quotation from Radio 4, from 'Material World', in which an 'expert' was trying to justify the need for the enormous computing power available from networked super computers: "We build mathematical models and then (need to) throw trillions of numbers at them". What is this all about?

In the lecture, Keith examines and develops the concept of randomness and then uses random numbers to drive a simulation to solve an industrial problem.

## Phil Woodward

Guy Lecturer 2008-2009

### Experimental Design: Good experimental design is about clear thinking

Experimental design is the process of identifying the specific questions that an experiment is intended to answer before carrying it out. This is to ensure that the data from the experiment answer our questions as clearly and efficiently as possible.

Methods developed by statisticians from replication, to randomisation, blocking or factorial experiments, have revolutionised the scientific process by which knowledge is obtained, and statisticians have become highly influential in the research and development of new products.

Phil will discuss examples ranging from simple clinical trials to complex engineering experiments to illustrate how statistical ideas have helped scientists and engineers develop and improve the products we use every day.

## Neil Sheldon CStat

Guy Lecturer 2007-2008

### Statistics and stories: insight, not numbers

At an elementary level, statistics seems to be mainly about collecting data and drawing diagrams. At a higher level, statistics seems to be mainly about significance tests. Actually, statistics is really about understanding the world around us.

In this talk, Neil will show, through a series of illustrations, how data can be properly understood only if we know the stories behind the statistics. Who collected the figures and why? What assumptions were made and are they valid? What do we know already that can help us to check the data for plausibility? What conclusions can we draw and how sure can we be?

Understanding the world around us is vital to playing a full part in society - and so is statistics.

## Dr John Haigh

Guy Lecturer 2005-2006

### Taking chances

Notions involving probabilities are often misunderstood. This is not surprising, as the answers can be counter-intuitive. During this talk, we will look at a number of different topics, such as sport, simple games, legal matters, and television, seeking to show how a logical approach can aid understanding (as well as getting the right answer).



John's research interests have been in the applications of probability in different fields, including biology and finding the best strategies in games of chance. Audience participation during this talk will be invited; no money will change hands.

Students studying Mathematics or Statistics at GCSE, AS or A2 levels will find this lecture very accessible. It will be of particular interest to year 11 students thinking of studying Mathematics in the 6th form and 6th form students who intend to study a subject with statistics content at university. The event is also aimed at teachers who may wish to accompany parties from their school or attend individually. Students' parents are also very welcome to participate.

## History of the lecture

The first Guy Lecture, named in honour of former RSS president William Augustus Guy (1810-1885), was given by Adrian Smith on 29 April 1999 – 'Statistics and statisticians: the good guy's answer to lying figures and figuring liars'. Adrian Bowman gave the second lecture in 2000. Interest from schools and colleges encouraged us to expand the Guy Lecture scheme. We tended to refer to the lecture as the RSS Schools Lecture with the title Guy Lecturer retained for each year's lecturer. In 2016, following a review of the programme by our Education Committee, the name was revised to the William Guy Lecturer, delivering the William Guy Lecture.

