**A-Z COURSES**

**Analysing biological data by model fitting in GraphPad Prism**

In this tutorial, we explain how to statistically compare multiple treatment curves directly, without the need for repeated measurements, and highlight the utility of the procedure in revealing mechanistic insights. No prior knowledge of mathematical modelling or statistics will be assumed and discussion will be restricted to tools available in Graphpad Prism.

*This course is scheduled in Michaelmas and Hilary term.*

**Beginners guide to R programming for Cytometry analysis**

Recent developments in technology have enabled the exploration of complex biological systems at the single cell level, leading to new insights in the way the immune system is regulated in conditions such as cancer or auto-immune disorders. One of these technologies, mass cytometry, is now being applied in the context of clinical trials as a way to gain insights into the mechanism of action of treatments, as well as to unravel determinants of patient response. These new applications pose significant challenges for data analysis, and in this workshop employing interactive tutorials we will cover issues such as quality control, batch correction and single cell differential analysis, and the computational solutions that have been developed to address them. By the end of this workshop participants will be capable of generating their own analytical pipeline for single-cell analysis.

*This course is scheduled in Michaelmas and Hilary term.*

**Careers in Medical Communications**

This event introduces attendees to opportunities in the Medical Communications Industry. Researchers coming to the end of their DPhil and those considering a career outside the lab that will draw on their science background are strongly encouraged to take advantage of the networking opportunities at this event.

*This course is scheduled in Hilary term.*

**Computational Biochemistry**

Computational methods are providing increasing amounts of insight into fundamental properties of molecular interactions. This course provides an introduction to some of these computational methods. The emphasis is on learning how to actually perform some of these methods and whilst it is not possible to become an instant expert, attendees should, at the end of the course, be in a better position to know what in principle is possible and where to seek further information*.*

*This course is scheduled in Michaelmas term.*

**CYTOF: an introduction to cytometry**

Suitable for absolute beginners, this workshop provides an introduction to cell identification using flow and mass cytometry (CyTOF) with an overview of the technologies themselves, including a visit to the Helios within the Mass Cytometry facility, and interactive sessions where participants will design cytometry panels and interpret cytometry data. By the end of this workshop participants will have a basic foundation in cytometry enabling them to interpret cytometric data and confidently consider cytometry as a potential research tool.

*This course is scheduled in Michaelmas and Hilary term.*

**Designing Reproducible Research: Clinical Science**

A series of talks and activities addressing the fundamentals of planning and conducting a reproducible clinical research project to provide a grounding in the key steps and methods to ensure your clinical research project is relevant, rigorous, and reproducible.

*This course is scheduled in Michaelmas and Hilary term.*

**Developing Learning and Teaching**

The DLT Programme is designed for anyone new to teaching in higher education who wishes to learn how to take a more effective, inclusive and evidence-informed approach to teaching and learning in the sciences. Graduate research students with teaching responsibilities and postdoctoral researchers with an interest in an academic career may find it particularly useful to develop their teaching skills and gain a portable qualification to enhance future employability.

*This course is scheduled in Michaelmas and Hilary term.*

**Electron Cryo Microscopy in Structural Biology**

This course is designed to introduce the principles of the microscope and preparation of cryo and negative staining samples, image formation and image processing, reconstructing 3D density maps from 2D images, fitting and building atomic models and understanding cryo-EM literature.

*This course is scheduled in Michaelmas term.*

**Experimental Design: the good, the bad and the ugly**

This course addresses some of the fundamental issues underpinning designing good experiments (focusing on pre-clinical experiments exclusively), the bedrock of reproducible science. Arguably, all good experiments start with a good experimental design. Experimental design in the Biomedical Sciences is mostly about logic, common sense and the systematic application of relatively simple techniques to produce unbiased experimental results and reduce variation. This is good news because this should be relatively straightforward. Yet this is where the biggest blunders continue to be made, including by experienced biologists, with demonstrably expensive consequences on results. The course will deal with those concepts, their links with statistical analyses generally and some of the traps that we have all fallen into. We will also address statistical issues relevant to animal research depending on the composition of the audience, in a session where the words “enjoyment” and “statistics” can hopefully share the same sentence.

*This course is scheduled each term.*

**Introduction to Research Ethics**

This course encourages participants to articulate and reflect on the ethical concerns faced by researchers. Participants will leave with a general grasp of the kinds of reasoning that is involved in the ethical consideration of research involving human beings. Although it is not the primary focus of the session, there will be some discussion of the structures and procedures in place in the University and the NHS for the scrutiny of research. Researchers carrying out research involving humans are encouraged to attend one of these introductory sessions.

*This course is scheduled each term.*

**Introduction to Statistics**

This course provides researchers with a basic introduction to statistics, to ensure an understanding of the concepts of statistics that form the basis of computer statistics software, offering a stepping stone to attending more advanced statistics courses.

*This course is scheduled in Michaelmas and Hilary term.*

**Large Group & Lecturing**

This two-day programme is one of our most highly rated courses and looks at how to become a good lecturer and teacher. During the course you will find out how to ensure that your lecturing and teaching is engaging, effective and enjoyable for both you and your students. You will also find out how to develop critical thinking and how to develop a more natural and creative lecturing and teaching style.

*This course is scheduled each term.*

**Managing Your Supervisor**

The seminar helps students to understand the role of their supervisors, how to manage expectations, how to overcome any problems and get the most from their supervision.

*This course is scheduled each term.*

**Micron Advanced Microscopy**

The Micron Advanced Microscopy Course is for researchers and students to gain both theoretical and practical understanding of how bright field and fluorescence microscopes should be used. The course introduces core principles of bright field and fluorescence microscopy, and moves onto biological applications of imaging approaches and introduces super-resolution techniques.

*This course is scheduled in Hilary term.*

**How and why to undertake a systematic review**

This workshop outlines the key principles of how to perform a systematic review and the basic principles of meta-analysis.

*This course is scheduled in Trinity term.*

**Hugh Kearns**

Hugh Kearns is recognised internationally as a public speaker, educator and researcher. His areas of expertise include self-management, positive psychology, work-life balance, learning and creativity. He draws on over twenty five years of experience as a leading training and development professional within the corporate, financial, education and health sectors in Ireland, Scotland, North America, New Zealand and Australia. He has coached individuals, teams and executives in a wide range of organisations in the public and private sectors.

*Two half day sessions are scheduled in Hilary term.*

**NMR**

The course focuses on the application of solution-state NMR to the study of different types of biomolecules. The emphasis is on solution-state NMR studies of proteins but applications to nucleic acids and oligosaccharides is also presented. In addition, more advanced topics including residual dipolar couplings, dynamics, solid-state biomolecular NMR and protein-ligand interactions are introduced.

*This course is scheduled in Hilary term.*

**Poster Production**

This course is designed to assist researchers in the design and production of conference posters, using PowerPoint.

*This course is scheduled in Hilary and Trinity term.*

**Preparing for Learning and Teaching at Oxford**

This course is designed to help you apply fundamental principles of learning to your teaching, find teaching opportunities in the University, design and consider different ways of delivering small group teaching, provide high quality feedback to your students and evaluate the effectiveness of your teaching. PLTO is a requirement for teaching in many departments in MSD.

*This course is scheduled each term.*

**Presentation Skills**

This course provides guidance on planning and delivering an oral presentation, including slide preparation and an opportunity to deliver a short presentation and receive constructive feedback on delivery technique.

*This course is scheduled each term.*

**Public Speaking Workshop**

This course offers participants the opportunity to work with Nigel Gregory, who is a top professional voice coach in presentation and actor trained at the London Academy of Music and Dramatic Art. He will teach participants to develop the range and technique of their voice and communication skills, explore the demands on the individual to talk about their work and themselves in different situations (such as at interview, or in other pressure situations), discover more about planning a verbal presentation and how to be assertive, and develop the voice as an instrument in ‘colour’ and quality to be more appealing to the listener.

*This course is scheduled in Trinity term.*

**Research Techniques Day**

This one day lecture series provides an introduction to a variety of research techniques used across the Medical Sciences Division. Companies will be present to exhibit products relevant to the techniques being discussed.

*This course is scheduled in Hilary term.*

**RNA-Seq Data Analysis**

This two day course is aimed at those who would like to learn how to process and analyse RNA-Seq data. It will include overview lectures and the majority of the time will be devoted to practical sessions to develop hands-on bioinformatics skills using example RNA-Seq datasets. Emphasis is placed on the need for careful evaluation of data and choosing and setting up an appropriate analysis model, as well as common pitfalls when using R to handle and analyse large-scale datasets.

*This course is scheduled in Michaelmas term.*

**Scientific computing in MATLAB**

This six week online course gives students a good understanding of the MATLAB programming language, and the use of MATLAB in data analysis, numerical calculus, linear algebra and the solution of ODEs. Where applicable, a revision of elements of A-level mathematics needed for these areas is provided. Elements of software engineering are covered to give students the ability to write well-structured code, as well as how to use MATLAB to present their work using movies or Graphical User Interfaces (GUIs).

*This course is scheduled in Trinity term.*

**Transfer of Status Assessment Workshop**

This workshop is designed to make sure students understand transfer of status formalities and University regulations. Students are provided with assistance with their transfer of status preparations. They also get to hear the opinions of transfer of status assessors and previous students.

*This course is scheduled each term.*

**Viva Preparation**

This workshop is designed to make sure students are fully aware of examination formalities and University regulations, and to assist students in examination preparations and them to hear the opinions of examiners and previous students who have gone through the viva process.

*This course is scheduled each term.*

**Writing and Publishing Research Papers**

This course will help you write medical journal papers and get them published in the most effective way. You will get insider insights from an expert trainer who knows journals from many angles. It will be most useful if you have already made a start at writing papers, and will be helpful even if you have published lots already. It will be most useful if you have already got some results and are thinking about writing them up, so it is less suitable for those in the first year of their PhD.

*This course is scheduled each term.*

**Writing a medical conference abstract**

Presenting your work at a conference can be a great way to communicate your protocol and results, get feedback on your study and get the prestige of being picked to present a poster or talk. But the first step towards this, constructing an abstract, can be daunting, especially if it will be judged. This workshop will help you construct your conference abstract to give it the best chance of success.

*This course is scheduled in Trinity term.*

**When science goes bad - A look at Scientific misconduct (how to avoid it)**

What kind of scientist are you? Are you dodgy and deceptive, with a sense of entitlement and runaway ambition leading you to fudge data, hack p-values and regard publication by any means as more valuable than the scientific truths of the universe!?

Or, would you describe yourself as an honest, open and accountable researcher with high standards and a disinterested approach, entirely motivated by your small contribution to collective knowledge? Whoever you are, you are welcome to this workshop which uses short presentations and interactive sessions to examine examples of bad research design, shoddy results and scientific misconduct giving you the opportunity to consider day to day scientific methods through a critical lens. By the end of the workshop you will be equipped with the means to identify quality science and conduct your own research with integrity.

*This course is scheduled in Michaelmas and Hilary term.*

**Writing a thesis**

This workshop helps you develop the skills and knowledge you need to confidently write your thesis, with the support of your supervisor(s) and peers. By the end of this workshop, we expect you to have developed a first chapter-outline of your thesis for discussion with your supervisor, feel ready to set and stick to a writing timetable, and be confident in editing and applying feedback.

*This course is scheduled each term.*

**Writing a transfer report**

This workshop helps you develop the skills and knowledge you need to confidently write your transfer report, with the support of your supervisor(s) and peers. By the end of this workshop, we expect you to have developed a first outline of your transfer report for discussion with your supervisor, feel ready to set and stick to a writing timetable, and be confident in editing and applying feedback.

*This course is scheduled each term.*

**X-Ray Crystallography**

Macromolecular crystallography has become the pivotal tool in establishing the mechanisms that underlie biological phenomena. It has further established itself at the heart of the modern drug discovery process. This course introduces students to the theory underlying crystallographic methods and provides students with the capability to apply these methods to their own research.

*This course is scheduled in Trinity term.*