Educate North's University of the Year 2017

Students and staff at Liverpool John Moores University have much to celebrate. Not only is it our 25th anniversary but we've also won **Educate North's University of the Year 2017**. LJMU was awarded the top accolade at a glittering ceremony in Manchester, beating off competition from the University of Newcastle and the University of Liverpool.

UNIVERSITY OF THE YEAR 2017
WINNER

The **Mathematics Lecturing Team won the 2016 Vice Chancellor's Teaching and Learning Excellence Award** at the University's teaching and learning conference.

Innovative teaching such as the introduction of credit bearing tutorial work, the development of integrative modules to teach critical thinking skills, the design of leading-edge computer-aided assessment and the integration of the undergraduate student conference have led to a **significant and sustained positive impact that has been recognised by students and external examiners**.

Teaching and Learning Awards 2016

Maths Field Trip

In Feb 2017, we ran a **Maths Field Trip** in which we took the learning outside the lecture theatre into the Anglesey countryside. The field trip was hosted by the Anglesey Outdoor Centre and consisted of a mixture of entertaining maths talks, interactive quizzes, socializing and down-time. It was an opportunity for students to take advantage of a wide range of adventurous activities - Coasteering, Climbing, Abseiling, Orienteering - and socialize with students across all year groups.

theguardian

Mathematics at LJMU in the top 20 Maths Pop Quiz 2017

The Mathematics programme was ranked 17 from 66 Departments nationally, from 20th and 21st in the previous two academic years in the Guardian League Table.

Maintaining this high ranking among all Mathematics Departments in the country, beating many Russell group universities, shows the consistency of quality teaching and student support as well as research in the Department.

LJMU Mathematics Society

The **LJMU Mathematics Society** aims to support students working on the Mathematics courses at John Moores University. The society organises study sessions, careers talks and social events involving all years of the course. The society will also be able to provide a stable support network to the members throughout the duration of their course. This includes assisting students with objectives such as getting work placements, and eventually graduate jobs. The society also meets every two weeks for socials.

Maths Support Centre

This is a University wide service to support any student experiencing a "mental block" with a particular mathematics or statistics problem, or even if more regular support is required. We offer one-to-one support, as well as targeted support for small groups. This service is used by a diverse range of students from: Nursing, Sports Science, Engineering, Mathematics and many other programmes and from all years. Although initially set up to assist struggling students who were in danger of failing, over the years the Maths and Statistics Support Centre's remit has expanded and they now provide support to many students who are doing well but want to do even better. The University is dedicated in supporting all students doing mathematics at whatever level to reach their full potential.

Maths Pop Quiz 2017

LJMU once again hosted and sponsored the **Liverpool Mathematical Society's Pop Maths Quiz**. Held this year on Saturday 11th March 2017, the event attracted 123 sixth-formers in 32 teams from 11 schools/colleges supported by LJMU Maths students and PGCE trainees plus Liverpool Maths Society members.

Each team consists of 4 students (under 19 years) who, during the Quiz, work as a team to attempt to solve a number of questions on a wide range of mathematical topics. The winners were: 1st prize Carmel College team 3; 2nd prize Runshaw College team 1; 3rd prize West Kirby Grammar School team 1; 4th prize Runshaw College team 2.
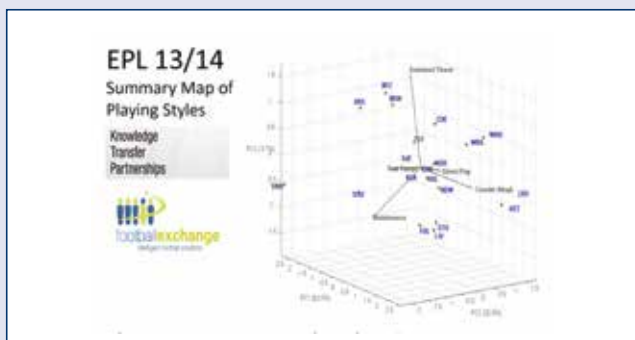
Amazing Course Rep

The LiverpoolSU Amazing Teaching Awards celebrate the people who make the student experience at LJMU worthwhile and inspiring.

There are a number of categories which work to recognise the outstanding contributions of individuals and teams to the teaching and learning experience at LJMU. At this year's event, as well as a number of staff nominations from the Mathematics team in the categories of Amazing Teacher, Tutor and Supervisor and student nominations for Course Reps (Philippa McCabe and Rachel Lavery), Mathematics second year student Sammie Cresswell won Amazing Course Rep 2017 for her outstanding contribution and time given to support her fellow students' experience at LJMU.

Research within the Department

The Department of Applied Mathematics now has three research specialisms - **Machine Learning**, **Mathematical Biology** and **Data Science**. Although our areas of expertise are diverse, ensuring our research has **real-world application** is a fundamental priority for all our work. In the latest research assessment (Research Excellence Framework 2014) 80% of our research impact was rated as being **international level**.

To enhance our research, the Department works closely with local, regional and national Universities and industries through consultancy and knowledge transfer partnerships.
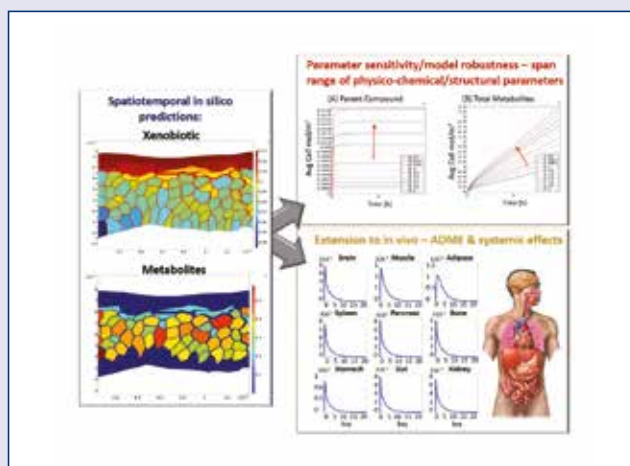
The **Mathematical Biology Group** is highly interdisciplinary with members from mathematics, chemistry and the biomedical sciences, as well as links with a number of cosmetic, agrochemical and pharmaceutical industries. The key research questions relate to problems in adverse drug reactions, developmental problems, cancer and drug delivery via the skin, approached using a variety of Mathematical and Statistical tools, e.g. *(fig right)*

shows how the group are using mathematics to understand how drugs can be delivered via creams or ointments across the skin.

The **Data Science Research Group** combines expertise from across the University. The Centre builds on 25 years of research expertise with a significant

component of real-world applications. The Centre has research expertise in advanced methods with real-world applications to Digital Marketing, Profiling and Inference in Public Health, Clinical Decision Support and Human Resources Analytics, Sports Analytics, e.g. *(fig left)* shows the mean season long playing styles for EPL teams. Each individual possession is mapped onto playing styles with proprietary algorithms.

Postgraduate study

The Department is keen to offer opportunities to students to study for a postgraduate degree of Doctor of Philosophy (PhD) as well as the degree of Master of Science (MSc), in the newly formed Data Science Masters.

The Department currently has eight PhD students researching on subjects ranging from data analytics to designing optimal treatments for drug overdose and, already, their research is gaining award winning success! Many congratulations to:

Chantelle Mason

Research fellowship from the In Vitro Toxicology Society; LJMU International Mobility award; best early career presentation from the In Vitro Toxicology Society; best poster at the Faculty research week

Darren Conway

Travel bursary award from the In Vitro Toxicology Society; international training bursary

Jade Hind

2nd place in best poster competition at the Faculty research week

Sean Cashman

Previous Maths Undergrad, now Engineering PhD student at LJMU; won 3rd for best potential impact of research at the Faculty research week

Mathematics Student Conference

The culmination of a year's effort saw final year Mathematics students deliver talks and present posters on their final year projects at the Mathematics Student Conference. During this annual undergraduate conference, now in its fourth year, LJMU students are challenged to present their project findings in three minutes in a plenary session, followed by a one-to-one question and answer session on their poster.

The prize for best poster, on 'Evaluating the Use of Poisson Regression for Predicting Premier League Match Outcomes', went to **Natalie Allerton** (right). The prize for best talk, on 'An Analysis of Spread Betting Applied to Entertainment Shows and Arbitrage Spotting' went to **James Cooper** (left).

SIGMA: Mathematics Support

SIGMA: a network for excellence in Mathematics and Statistics support The Department maintain close links with **Sigma**, a network for excellence in mathematics and statistics support.

Sigma have established UK-wide and international dissemination activity to benefit those providing maths support in other HEIs.

Their expertise and success was recognised by the 2011 Times Higher Education Award for Outstanding Student Support. The **Sigma** Network also organizes regular networking meetings and events where people working in maths support centres can share ideas and collaborate on the development of best practice.

Undergraduate Student Awards

The Department strives to provide a stimulating and challenging programme where our students can gain mathematical understanding and analytics skills.

The Undergraduate Prizes are designed to recognise students who have performed well in their studies but also contributed to student life within the department, allowing us to celebrate some of the many outstanding students in the Department. **The 2017 prize winners are:**

First Year

Outstanding Achievement in Mathematics

- **Charlotte Powell**
- **Elliot Briggs**
- **Lauren Coan**

David Wynne Prize

- **Molly Hawker**

Second Year

Outstanding Achievement in Mathematics

- **Emma Fell**
- **Ryan Bellfield**
- **Annie Kinane**

Outstanding Contribution to the Mathematics Student Community

- **Cat Thomson**

Third Year

Institute of Mathematics and its Applications (IMA) Award

- **Joe Steging**
- **Sarah Cahill**

Tom McClennan Prize

- **Adam Mitchinson**

For more information about our teaching and research see our Departmental web-page:

www.ljmu.ac.uk/about-us/faculties/faculty-of-engineering-and-technology/department-of-applied-mathematics