BSc SPORTS AND MATERIALS SCIENCE (CF62)

Course outline
Sports and Materials Science

Our Sports and Materials Science degree is the longest running programme of its type. It was founded in 1998 with the purpose of broadening students’ understanding of the factors that affect sports performance. Our programme philosophy is based on the idea that the role of materials science in sport cannot be ignored, as it so often underpins sports performance.

The high profile sport of Formula 1 Grand Prix is a good example of this idea in action. While the human elements are important in this sport, performance is underpinned by developments in engineering and materials technology. For example, decreases in record lap times can be directly correlated with reductions in the weight of the car components. Developments like carbon fibre composite bodyshells and suspension systems, hardened titanium alloy gears and cast aluminium engines have all contributed to lighter cars, enhanced fuel efficiency and increased speed. You can also explore many other sports such as pole vault and tennis in the same way.

Structure
The course is a joint honours degree: it is split equally between Sport, Exercise and Rehabilitation Sciences and Materials Science and Engineering. The main academic themes in the sports half of the programme focus on the human factors such as biomechanics, physiology, biochemistry and psychology. There are extensive final year options in the sports half of the programme that aim to develop a deeper understanding of the key elements of the subject.

The materials themes aim to introduce and develop knowledge in polymers, advanced composites, high performance metallic alloys, materials selection and design. The final year project in the materials half of the programme is an opportunity to gain high-level research skills in materials science.

The sport and materials themes are carefully integrated in the form of sports equipment case studies which take place in each year of the programme. In these case studies, an item of sports equipment is examined in detail in order to facilitate a critical analysis of its design and the materials selections that have been made by the manufacturers.

Key features and facilities
- Small cohort size of typically 15 students
- Taught by two internationally leading schools
- Summer internships in our research laboratories for eligible students
- High calibre, internationally outstanding members of academic staff
- World class research facilities
- Transferable skills for a wide range of career opportunities
- New ways of learning – case studies on equipment
- Individual materials research project
- A range of sports skills
- Enjoy life on a scenic campus in the rejuvenated and dynamic city of Birmingham

Many students join the programme with three A-levels, typically, Sports Science/PE, Biology and Psychology. However, an increasing number of students join us with Physics, Chemistry and/or Maths in their A-level subject combination. The typical offer is AAB.

‘It’s absolutely brilliant – the course is exactly what I wanted to do. I wanted to combine physical science and sport. I love the case studies; for example we did one on tennis rackets and not only did we look at the materials in the racket but also all the marketing aspects of the product.’

RUTH DEAVILLE, SPORTS AND MATERIALS SCIENCE GRADUATE

The Sports and Materials Science degree is accredited by the Institute of Materials, Minerals and Mining (IoM3) which is a vital step towards the professional qualification of Chartered Engineer.
Scholarships

The School offers scholarships based on entry grades including: £3,500 for A*A*A and £2,500 for A*AA with the A* in mathematics and/or a numerate science (Physics, Chemistry or Biology). We also offer scholarships of £1,500 for the top five AAA students based on UCAS tariff and performance at applicant visit days. For international students, we offer £3,000 for students with A*AA or AAAA and £1,500 for students with AAA. In addition, applicants can also apply for University-wide scholarships, such as those for music and sports.

‘Having joined the course through my interest in sports science, I found myself increasingly involved in the materials side of the degree. The support and guidance from the staff in the department is second to none, and I ended up doing aerospace research for my dissertation with BAE Systems. I found the experience so rewarding, I stayed on in the department for postgraduate study on the MRes course.’

MALCOLM MCCAROLE, SPORTS AND MATERIALS SCIENCE GRADUATE

SHONA MURPHY, SPORTS AND MATERIALS SCIENCE GRADUATE

I chose to study this course because of my passion for sports science, however, I wanted to stand out from the thousands of students graduating with a single honours sports science degree. There are only a few Universities offering this course in the UK and its unique nature appealed to me. The smaller course size means you get treated as an individual and the support I received throughout my time at University of Birmingham was really excellent.

For my final year project I chose to study and characterise a biodegradable polymer that can be used in medical and environmental applications for the benefit of society. This research was subsequently published in a scientific journal. I graduated from this course with a first class honours degree and I enjoyed the research so much I continued on to complete a Master of Research (MRes) in the Science and Engineering of Materials. Working with a European project, this involved collaborations with companies across Europe with occasional travel to Italy.

Inspired by my previous studies, I was excited to be offered the opportunity to extend my research to PhD level. My thesis focused on the blending of two biodegradable polymers. This used unique methods in order to enhance their properties, thereby broadening their potential for commercial applications. I was delighted at the opportunity to present this work at a major polymer processing conference in Thailand.

I am now working for a leading global solutions provider for scientific instruments – Malvern Instruments. I am a Product Technical Specialist in Rheology. This role provides me with the opportunity to travel to countries all over the world.
Entry requirements and the applicant visit day

Typical offer: AAB. Subject requirements apply. Please contact the Admissions Tutor or check online at www.birmingham.ac.uk/CF62

Applicants who receive an offer will be invited to an Applicant Visit Day (AVD) which is held in the School of Metallurgy and Materials. The AVDs take place throughout the admissions cycle and are designed to provide you with a clear idea of what the degree programme entails and focuses on the materials half of the programme due to its novelty at this stage of your studies.

"The Sports Materials students brought an impressive breadth of knowledge to their third year projects and worked on some novel corrosion testing techniques with real potential for further development.

This will enable us to improve our accelerated corrosion tests and contribute directly to a superior product at a lower cost."

ANDREW TARPEY, SENIOR ENGINEER (MATERIALS ENGINEERING), JAGUAR CARS LTD