

## **What makes the best learning experience for a materials student?**

***Patricia McAfee, 3<sup>rd</sup> year undergraduate at Queens University Belfast***

At the age of 17 deciding what course to undertake at university is a daunting experience since your future career is heavily dependent on the choice made. Preferably we all hope for a degree that is interesting and challenging, has good career prospects, yet most importantly is an enjoyable learning experience. For me, a career in materials stood out, due to the chance of learning about revolutionary new materials that can be applied to a range of applications. Whether it is developing high strength to weight ratio alloys for use in the aerospace industry or discovering new biocompatible materials for use in medical devices, the opportunities seemed to be exciting and rewarding.

In practice, however, the experience is not always so exciting and enjoyable. Endless boring theoretical lectures that would de-motivate even the most enthusiastic materials expert are most definitely not what I pictured as I filled in the UCAS form. Granted, knowledge of the theory is required, but can't this be done in a more interesting way than listening to a lecturer reel notes out of a book? Lecturers who make the effort to bring in visual aids and encourage class involvement help to keep everyone enthused in the subject. For me introducing a practical aspect into the theoretical learning is a much more beneficial method of learning. Often including assignments at every major part of the course, which will involve using calculations in a practical application, gives a much greater understanding of that topic.

The problems faced by many students in an undergraduate degree are the large class groups as compared to school. Since much of the material is new and quite complex, a more supportive learning environment is required. Smaller tutorial classes where individual concerns can be addressed are very helpful to gain a grasp of new theoretical concepts.

Throughout a materials degree I think it is necessary to understand how the theory learned is applied in a practical situation, and the best way to do this is to partake in projects which collaborate with industry. This is an enjoyable learning experience, as not only can you see the benefit of your work but you also gain an insight into a professional working environment.

Since materials are always developing and improving, it is important that as an undergraduate you learn about such cutting-edge science as biomaterials and polymer processing. This gives graduates the chance to be at the forefront of materials innovation when they search for jobs. The fact that the knowledge gained from a materials degree can be used in such a wide range of disciplines from medicine to automotive to sports materials ensures a wide range of exciting opportunities.

To conclude I believe that a materials degree is the key to an exciting, challenging and rewarding career. In order to gain the best experience from the degree, I believe the traditional methods of learning from indifferent lecturers need to be improved. Personally I think the most beneficial methods of learning include smaller tutorial classes especially in complex theoretical subjects, practical problem solving assignments that make use of this theory, and industrial visits to understand the application of materials in practical engineering. Learning about state of the art materials and material processes is fundamental to keeping updated and enthused in the subject.