Materials Science Information Sheet for entry in 2017

Materials Science is an interdisciplinary subject, spanning the physics and chemistry of matter, engineering applications and industrial manufacturing processes.

Modern society is heavily dependent on advanced materials: lightweight composites for faster vehicles, optical fibres for telecommunications and silicon microchips for the information revolution. Materials scientists study the relationships between the structure and properties of a material and how it is made. They also develop new materials and devise processes for manufacturing them. Materials Science is vital for developments in nanotechnology, quantum computing and nuclear fusion, as well as medical technologies such as bone replacement materials.

This diverse programme spans the subject from its foundations in physics and chemistry to the mechanical, electrical, magnetic and optical properties of materials, and the design, manufacture and applications of metals, alloys, ceramics, polymers, composites and biomaterials. This work is supported by excellent laboratory and teaching facilities.

In a course taught partly by the Saïd Business School, the programme also offers an opportunity to develop an introductory understanding of entrepreneurship (learning how to write a business plan, raise capital and start a company). There are also voluntary options to learn a language through Oxford's Language Centre.

The Oxford Materials degree includes in its fourth year the special feature of an eight-month full-time research project, when you join a research team here at Oxford in one of the strongest Departments of Materials in the UK or, occasionally, at an overseas university or in an industrial laboratory (additional costs may be associated with a project outside Oxford). You will learn how to break down a complex problem, design an experiment or model, manage a project and communicate your results. These research skills are transferable to many career paths and are valued highly by employers.

The current MEng degree is accredited by the Institute of Materials, Minerals and Mining (IOM3) on behalf of the UK Engineering Council, towards the achievement of Chartered Engineer status.

Work placements/international opportunities

Students are encouraged to undertake a voluntary summer project in industry or a research laboratory. Recent locations for overseas summer projects have included Beijing, Tokyo, Bochum, Krakow, Santa Barbara and Boston. The Department is able to offer partial financial support for a small number of overseas summer projects each year, in connection with exchange schemes we run in most years with universities in the cities named above.

A voluntary industrial tour to an overseas destination is organised in most Easter holidays. Recent destinations include China, California, Italy, Poland and Ontario. Places are limited to approximately twenty, and in recent years this number has roughly matched demand.

Years 1–3

There are three terms in the Oxford academic year, each eight weeks long. Students usually arrive a week early in the first term of their first year for welcome and induction activities. During years 1 and 2, the work is divided between lectures (about ten a week), tutorials/classes (about two a week), and practicals (two or three afternoons a week). Typically the work for each tutorial or class is expected to take six to eight hours.

Year 3 starts with a two-week design project, and about eight lectures and two classes/tutorials a week for the first two terms. Another two weeks of year 3 are devoted to a coursework-based module chosen from two options: Characterisation of Materials or Introduction to Materials Modelling. Most of the third term is set aside for revision. [Proposals are under discussion which may lead, for the 2017 entry cohort, to the Introduction to Materials Modelling module becoming a compulsory element of the programme and there being an additional year 3, two-week, coursework-based module chosen from two or three options including: Characterisation of Materials or Atomistic Materials Modelling]

Year 4: Extended terms

The fourth year is entirely devoted to research - a special feature of the Oxford course - consisting of a full-time research project under the supervision of a member of staff. This final year has three extended terms of 11 to 13 weeks each and is 37 weeks in total. You will learn how to break down a complex problem, design an experiment or model, manage your time and project, maintain systematic records, present your work orally and write a substantial report. These research skills are transferable to many career paths and are valued highly by employers.

Outline of the Programme Content, Assessment and Key Progression Criteria for the M.Eng in Materials Science

1st year

Courses

Directly examined

- Structure of materials
- Properties of materials
- Transforming materials
- Mathematics for materials

Continual assessment

- Practical work
- Crystallography classes

Additional elements

- Engineering drawing and CAD classes
- IT skills
- Industrial visits (optional)
- Career planning
- Foreign language (optional)
- Introduction to errors in measurement

Assessment

First University examinations ('Prelims'): Four written papers; continual assessment components equivalent to a fifth paper. Resit for written papers available in September.

Progression

Normally, students are required to achieve an overall mark of at least 40% in the first year examination in order to progress to Year 2.

(The 'prelims' mark does not contribute to the final degree classification upon graduation.)

2nd year	
Courses Directly examined • Structure and transformation of materials • Electronic properties of materials • Mechanical properties • Engineering applications of materials • Foreign language (optional) • Supplementary subject (optional) Continual assessment • Practical work • Industrial visits • Entrepreneurship course Additional elements • Mathematics • Industrial talks • Communication skills	

3rd year	
Courses **Directly examined** • Options courses in Materials. For further information about the options courses we offer at present please see our Lecture Course Synopses at www.materials.ox.ac.uk/teaching/ug/uglectures.html. Please note that the specific options lecture courses available may differ from year to year, although we anticipate the majority of those listed in the current synopses will remain on offer in the academic year 2019/20. **Continual assessment** • Team design project, assessed by written report and oral presentation Characterisation of Materials or Materials Modelling module (At the start of Year 3 it is possible to transfer to a 3-year BA degree in Materials Science, graduating at the end of Year 3. A student opting to do this takes a smaller set of materials option lecture courses and carries out a literature-based research module. This option is intended for the occasional student who may change their mind about their career path while following our M.Eng programme. The BA degree is not accredited by the IOM3 / UK Engineering Council.)	**Assessment** Final University examinations, Part I: Six written papers; continual assessment components equivalent to a further two papers. Resit available one year later. **Progression** Normally, students are required to achieve an overall mark of at least 50% in the Part I assessment in order to progress to Part II)

4th year	
Research Research project (full-time). See examples of previous projects at www.materials.ox.ac.uk/teaching/part2/pt2previousprojects.html. (Students are required to achieve 50% minimum in the Part I assessment in order to progress to Part II.) Additional elements • Presentation skills • Project management skills • Industrial visits • Careers events • Information skills & Reference Management • Writing skills and IPR • Foreign language option • Technology transfer (to be confirmed) • Workshop skills • Lab VIEW .	**Assessment** Final University examinations, Part II (equivalent to 4 papers): Project dissertation submitted and assessed; Oral examination of project dissertation. No resit.

The University will seek to deliver the programme in accordance with the descriptions set out above. However, there may be situations in which it is desirable or necessary for the University to make changes in course provision, either before or after registration. For further information, please see the University's Terms and Conditions.

Fees

Oxford University is committed to recruiting the best and brightest students from all backgrounds. We offer a generous package of financial support to Home/EU students from lower-income households. (UK nationals living in the UK are usually Home students.)

These annual fees are for full-time students who begin this undergraduate course here in 2017.

Fee Status	Tuition fee	College fee	Total annual fees
Home/EU	£9,250	£0	£9,250
Islands (Channel Islands & Isle of Man)	£9,250	£0	£9,250
Overseas	£23,190	£7,350	£30,540

Information about how much fees and other costs may increase is set out in the University's Terms and Conditions.

Additional Fees and Charges Information for Materials Science

The fourth year is entirely devoted to research - a special feature of the Oxford MEng in Materials Science programme - consisting of a full-time individual research project under the supervision of a member staff. This final year has three extended terms of 12 to 13 weeks and is 37 weeks in total so you will need to budget for higher living costs in the final year, as you will be required to be in Oxford for longer than the standard terms. (See the likely range of living costs for an additional month in Oxford.) During the project you will learn how to break down a complex problem, design an experiment or model, manage your time and project, maintain systematic records, present your work orally and write a substantial report. These research skills are transferable to other career paths and are valued highly by employers.

Living Costs

Your living costs will vary significantly dependent on your lifestyle. These are estimated to be between £1,002 and £1,471 per month in 2017-18. Undergraduate courses usually consist of three terms of eight weeks each, but as a guide you may wish to budget over a nine-month period to ensure you also have sufficient funds during the holidays to meet essential costs.

Living costs breakdown

	Per month		Total for 9 months	
	Lower range	Upper range	Lower range	Upper range
Food	£250	£350	£2,250	£3,150
Accommodation (including utilities)	£538	£619	£4,844	£5,569
Personal items	£115	£255	£1,035	£2,295
Social activities	£40	£119	£358	£1,073
Study costs	£38	£83	£338	£743
Other	£22	£45	£196	£407
Total	**£1,002**	**£1,471**	**£9,021**	**£13,237**

29 September 2016