Biochemistry is an expanding area and graduates have no difficulty in finding employment at the end of their course. You may embark on a research career by studying for a higher degree and almost half our students take this route, often having been encouraged to do so. Alternatively, you can enter industry, the health service, or the scientific civil service. However, the course also provides a broad intellectual training. You emerge with some familiarity with mathematical methods and quantitative reasoning, and a proper understanding of rigorous scientific method. These skills are of great value in jobs that are not necessarily directly related to biochemistry. Our students find posts in accountancy, printing, publishing, journalism, marketing, the civil service, teaching and many other areas. The Careers Service offers helpful guidance.

Admissions
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Open Days
There’s no better way to find out what Oxford is really like than to visit us. Many colleges and departments welcome arrangements for visits throughout the year but our University open days remain the most popular time to visit. Explore colleges and departments and find out what teaching takes place. For details, please see: www.admissions.ox.ac.uk/open-days

Research in the Department
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Department of Biochemistry
South Parks Road
Oxford
OX1 3QZ
Telephone +44 (0)1865 613277

www.bioch.ox.ac.uk
How is the course structured?

The course takes four years and has an intake of about 100 students per year. It is divided into three sections:

1. The Cell and Its Environment
2. Body Systems
3. Regulation and Control

Knowledge gained in the first year will be built upon in the second year. Practicals will be introduced to give you more experience of a laboratory environment, to work with field leaders and to make a significant contribution to research at an early career stage. I highly recommend the course!

Teaching at Oxford University

Lectures

There are usually about 10 lectures a week held in and around the Department. The lecture material defines the course, and forms the basis of our examinations.

The course is kept under constant review by a Liaison Committee which contains representatives of the student body as well as members of the academic staff. In this way new developments in the subject, and requests from students for teaching in particular areas, can be incorporated into the course.

Practical Classes

These are run throughout the course in parallel with lectures. Some are lab based, some practical, which introduces you to the basic techniques used in research laboratories; others involve computer-based work e.g. on manipulation of databases and interpretation of experimental data. For these you will be allocated a partner. But in later years longer practicals allow you to develop your computing skills further. The experience gained and the extra industry acquired during the fourth year are much valued by employers, and you will also have the opportunity to devise and complete more challenging projects which may lead to a short thesis.

The Research project

Carried out in the fourth year and under the supervision of the group leader, you will be able to design your own experiments, and learn to plan a research programme and present your results and ideas to others in the form of a scientific poster and a scientific dissertation – write them up in a form which has been peer reviewed. The experience gained and the extra industry acquired during the fourth year are much valued by employers, and you will also have the opportunity to reflect on your aptitude and enthusiasm for a research career.

Tutorials

Tutorials allow you to study individual topics in more depth and also to clarify lecture topics in small group discussions. Four college tutors will arrange at least one tutorial a week for you (normally with a partner). This may be with your personal tutor, or with other tutors to learn about their specialist area. For a tutorial, you are given a reading list in advance; this reading then forms the basis for discussion in which you will be expected to show that you understand the topic in question and the experimental evidence that underpins it.

The Research project
How is the course structured?

The course takes four years and has an intake of about 100 students per year. It is divided into three sections:

- **Part I: Examinations**
  - **Cellular Chemistry**
  - **Physical Biochemistry**
  - **Mechanistic Biochemistry**

- **Part II: Assessment**
  - **Quantiative Biochemistry**
  - **Molecular Biochemistry**
  - **Cellular Biochemistry**

- **Research Project**
  - Carried out in the fourth year and under the supervision of a group leader.

Teaching at Oxford University

**Lectures**

There are usually about 10 lectures a week held in and around the Department. The lecture material defines the course, and forms the basis of our examinations. The course is kept under constant review by a Liaison Committee, which contains representatives of the student body as well as members of the academic staff. It is in this way that new developments in the subject, and requirements of students for teaching in particular areas, can be incorporated into the course.

**Practical Classes**

These are run throughout the course in parallel with lectures. Some are lab based (e.g. practicals, which introduce you to the basic techniques used in research laboratories); some involve computer-based work (e.g. manipulation of databases or simulation exercises), and some are designed to introduce you to the principles of the experimental design and interpretation of experimental data. For some experiments you work in small groups, but in later years longer practicals allow you to develop complete experiments challenging in their own right. The experience gained and the extra maturity acquired during the fourth year are much valued by employers, and will stand you in good stead if you wish to pursue a career in the more independent research you will carry out in your fourth year.

**Tutorials**

Tutors allow you to study individual topics in more depth and also to clarify lecture topics in small group discussions. Four college tutors will arrange at least one tutorial a week for you (normally with a partner). This may be with your personal tutor, or with other tutors to learn about their specialist area. For a tutorial, you are given a reading list in advance; this reading then forms the basis for discussion in which you will be expected to show that you understand the topic in question and the experimental evidence that underlies it.

**The Research Project**

Carried out in the fourth year and under the supervision of the group leader, you will be able to design your own experiments, and will learn to plan a research programme and present your results and ideas to others in a seminar or in a written dissertation – write up a form which has been approved by your supervisor. The experience gained and the extra maturity acquired during the fourth year are much valued by employers, and will stand you in good stead if you wish to pursue a career in the more independent research you will carry out in your fourth year.

Department of Biochemistry

The Department was established over 90 years ago. Centered on a new award winning building, it houses over 45 independent research groups, each with a wide range of disciplines which include genetics, computational biology, atomic resolution structure determination and glycobiology. The collective research arms are at the forefront of understanding the chemistry and diversity of molecules that allow all cells to relate to the physiology and development of multicellular organisms. These research goals are facilitated by close links with other Departments in Oxford, including Chemistry, Biology, Physiology, Pathology, Pharmacology, Physics and Molecular Medicine. According to the 2014 Research Excellence Framework assessment, 93% of Oxford’s Biological Sciences research, of which we are part, was rated as internationally excellent or world leading in terms of significance, rigour and originality. Three Nobel Prize-winners (Hans Eyring, Rodney Porter and Paul Nurse) have been members of the Department.

What is Biochemistry?

Biochemistry, the study of life at the molecular level, continues to undergo rapid expansion and development. Powerful new techniques, for example in molecular genetics and structure determination, enable us to analyse biological phenomena in more and more precise molecular terms. Biochemistry gives us ever increasing insight into topics as various as the origin of life, the nature of disease and the development of organisms from a single to a assembly of specialised cells. As well as answering fundamental questions it has also led to commercial success, with valuable developments in industrial, medical, environmental sensing and many other areas. The powerful tools developed for biochemical studies have been adopted by many other disciplines including medicine and evolutionary biology.

Why study Biochemistry at Oxford?

Our 4-year integrated Masters course, taught both in the Department and College, gives a comprehensive introduction to the subject. The course is well established and has been thoroughly revised over the years. It is certified to provide biologi-complex level 7 qualifications. There is a coherence and sense of community in the Department, as well as high quality interdisciplinary research expertise, that helps us provide a flexible, efficient and cutting-edge course.

Training in Biochemistry is invaluable because it plays an important role in many areas, including health, the environment and agriculture. The level of employment for Biochemistry graduates is high – our graduates find places in a wide range of industries, in medical research, in agriculture, in education, and in patent law to name but a few.

"The Oxford Biochemistry course not only inspired me to go on to research but also gave me an excellent basis in the skills and knowledge required to take this career path. The course initially covers a range of topics, and then permits specialization depending on personal interests. Moreover, the Part II research project provides a first rate opportunity to experience a laboratory environment, to work with field leaders and to make a significant contribution to research at an early career stage. I highly recommend the course!"

Dr Louise Blamey

I owe a lot to the Oxford Biochemistry course, which provided me with both an understanding of the fundamental processes behind biological phenomena and with an organied analytical approach to reasoning which has been invaluable in my work for the world’s largest pharmaceutical companies, which I joined immediately after finishing the course in 2010. I would thoroughly recommend the biochemistry course to anyone with an interest in the field!"

Dr Dan Hudson is a business development manager in the biotech sector.
How is the course structured?

The course takes four years and has an intake of about 100 students per year. It is divided into three sections:

- **FIRST YEAR**:
  - **Cellular and Molecular Biology**
  - **Physical Chemistry**
  - **Quantitative Biology**

- **SECOND & THIRD YEAR**:
  - **Cellular Chemistry**
  - **Biochemistry**

- **FOURTH YEAR**:
  - **The Cell and Its Environment**
  - **Toolbox for Research**
  - **Informatics**
  - **Molecular Processes in the Cell**
  - **Research Project**

Teaching at Oxford University

Lectures

There are usually about 10 lectures a week held in and around the Department. The lecture material defines the course, and forms the basis of our examinations. The course is kept under constant review by a Lestring Committee which contains representatives of the student body as well as members of the academic staff. In this way new developments in the subject, and requests from students for teaching in particular areas, can be incorporated into the course.

Practical Classes

These are run throughout the course in parallel with lectures. Some are lab based (e.g. cell biology), which introduce you to the basic techniques used in research laboratories, and involve computer work (e.g. on manipulation of databases). Others are more problem based (e.g. the basic principles of the immune response) and involve interpretation of experimental data. For this reason, the lectures tend to be less practical, and it is hoped that in later years longer practical classes allow you to develop more advanced challenging practicals. In these years when you are more independent research you will carry out in your fourth year.

Tutorials

Tutorials allow you to study individual topics in more depth and also to clarify lecture topics in small group discussions. Four college tutors will arrange at least one tutorial a week for you, normally with a partner. This may be with your personal tutor, or with other tutors to learn about their specialist areas. For a tutorial, you are given a reading list in advance; this reading then forms the basis for discussion in which you will be expected to show that you understand the topic involved and the experimental evidence that underlies it.

The Research project

Carried out in the fourth year under the supervision of the group leader, you will be able to design your own experiments, and will learn to plan a research programme and present your results and ideas to other workers in the field. A written dissertation – write them up in a form suitable for publication. The experience gained and the extra maturity acquired during the fourth year are thus used to aid you in the transition to the more independent research you will carry out in your fourth year.

How is Biochemistry?

Biochemistry, the study of life at the molecular level, continues to undergo rapid expansion and development. Powerful new techniques, for example in molecular genetics and structure determination, enable us to analyse biological phenomena in more and more precise molecular terms. Biochemistry gives us ever increasing insight into topics as various as the origin of life, the nature of disease and the development of organisms from a single cell to a complex assembly of specialised cells. As well as answering fundamental questions it has also led to considerable developments in the treatment or prevention of many diseases, environmental sensing and many other areas. The powerful tools developed for biochemical studies have been adopted by many other disciplines including medicine and evolutionary biology.

Why study Biochemistry at Oxford?

Our 4-year integrated Masters course, taught both in the Department and College, gives a comprehensive introduction to the subject. The course is well established and has been run for over 40 years. It is certificated to provide biology compliant level 7 qualifications. There is a coherence and sense of community in the Department, as well as a high quality interdisciplinary research environment, that helps us provide a flexible, efficient and cutting-edge course.

Training in Biochemistry is valuable because it plays a vital role in many areas, including health, the environment and agriculture. The level of employment for Biochemistry graduates is high – our graduates find places in a wide range of industries, in medical research, in agriculture, in education, and in patent law to name but a few.
Biochemistry is an expanding area and graduates have no difficulty in finding employment at the end of their course. You may embark on a research career by studying for a higher degree and about half our students do so. Alternatively you can enter industry, the health service, or the scientific civil service. However, the course also provides a broad intellectual training. You emerge with some familiarity with mathematical methods and quantitative reasoning, and a proper understanding of rigorous scientific method. These skills are of great value in jobs that are not necessarily directly related to biochemistry. Our students find posts in accountancy, banking, computing, advertising, and management or other scientific services, teaching and many other areas. The Careers Service offers helpful guidance.

Biochemistry (C700)

Roles of the Department and Colleges

Oxford is a collegiate university, which means that all students are admitted to, and become members of, a college. The biochemistry courses are organized and largely taught by the Department. Lectures, classes, practicals, research projects and exams are all provided centrally. The undergraduate admissions process is also centrally coordinated by the Department. This means that your choice of getting an offer is of a place and the education that you receive after you have been domiciled depends entirely on the college in which you are placed. Most students happily end up at a college different to the one they originally applied to.

Full details on the Departmental website: www.bioch.ox.ac.uk

What qualifications will I need?

Typical offer for successful candidates: A levels: A*A*A including Chemistry and another science or Maths, with the A in Maths, Physics, Chemistry or Biology (or a very closely related subject). Advanced Highers: AA/AAB. IB: 39 including core points. Advanced Highers: AA/AAB. IB: 39 including core points. Or any other equivalent.

What can I do after I finish my degree?

Biochemistry is a fundamental subject and all branches of biochemistry have important applications throughout life sciences. From its very early days it has been recognized that a basic science is needed to support the integrated and closely related sciences of medicine and agriculture. As these sciences have developed, so has the role of biochemistry.

Get in touch...

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Research in the Department

This course is about biological molecules and how they assemble to make living cells and organisms. It illustrates how modern techniques, and the information acquired, are fundamental for studying most branches of life sciences.

Biochemistry (C700)

www.bioch.ox.ac.uk

MBiochem BIOCHEMISTRY

www.bioch.ox.ac.uk

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Research in the Department

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