



Subject Notes: PHYSICS

The Tutorial Fellows

Dr John Magorrian is a fellow and tutor in physics, teaches advanced mathematics, quantum mechanics, flows, and general relativity. His research focuses on astrophysics, specifically galaxy dynamics, supermassive black holes and the interstellar medium.

Professor Yulin Chen is a fellow and tutor in physics whose teaching focuses on statistical mechanics. His research interests are in the development of photoemission spectroscopy to study the electronic structure of new types of quantum matter.

Dr Malcolm John is a fellow and tutor in physics who teaches mathematics, relativity and particle physics. He works in particle physics, specialising in studies of CP violation and the search for new physics effects in heavy mesons.

The Course and the College

At Oxford, academic responsibilities are divided between the University and the College; in this respect, physics is like other subjects at Oxford. The lectures are arranged by the University's Physics Department and students from the different Colleges attend them together. Similarly, the examinations and laboratory work are University activities. On the other hand, weekly tutorials are a College matter and over the years you are likely to grow stimulating academic relationships with your tutors.

Your accommodation is arranged through the College, and most students take their meals in the College's 17th century Hall. Your immediate social circle will probably be centred around the College and your friends will have a wide variety of academic interest, not be restricted to your own pursuit. The College has a wide variety of sports and activities, mirroring those organised at a University level. A distinguishing feature of Jesus College is its proud support of students' extra-curricular activities and boasts a tradition of providing bursaries for small research projects, community initiatives and even adventurous travel ideas.

Physics at Oxford

There are two physics degree courses at Oxford: a three year BA and a four year MPhys. The first two years are common to both but students wishing to continue with a career in physics after their undergraduate degree are expected to complete the four-year course. From the very beginning, you will be a physicist and must demonstrate on a daily basis intelligence and self-motivation, problem solving and apply critical reasoning. If you wish to study physics to the highest level, Oxford has a huge amount to offer you.

You will receive a world-class grounding in the foundations of modern physics, guided by leaders of world-class research. The physics course contains several options in the later years, and so you can tailor your University experience towards the aspects of physics that particularly interest you. MPhys students who are primarily interested in the more mathematical and theoretical aspects of physics can apply to the MMathPhys course at the end of their third year; it is not possible to apply to enter this course directly.

Preliminary University examinations are taken at the end of the first year. They do not count towards your final classification but a distinction in the first year is well regarded by research groups and employers offering summer internships. Final examinations, which count towards your degree classification, are taken at the end of the second, third and fourth years. In addition, project work undertaken during the final year is assessed as part of

your Finals mark. **It is on the basis of your Finals result alone that you obtain your Honours Degree.** The second and third years are weighted roughly 41%: 59% for BA candidates. For the MPhys candidates, the second, third and fourth years weights are approximately 23%: 35%: 42%.

Tutorials

Every student has at least one tutorial a week and in the first year there are two tutorials each week. Tutorials may be in pairs or small groups, but sometimes you will have tutorials on your own. Such close attention to your academic success is one of the great advantages of studying at Oxford. The fourth year needs highly specialist teaching so the Physics Department arranges classes with experts.

At Jesus College there are three permanent physics fellows who are regularly joined by two or three extra tutors to cover all the main branches of modern physics. Most physics tutorials are given by the familiar College Tutors, who knows the students personally and are invested in their progress. This has helped Jesus College students achieve excellent results, amongst the very best in the University. Their purpose is to guide through the course, to ensure that each student is advancing at the pace at which they are capable, and to help them enjoy their academic emergence into the widest possible choice of professional career.

Typically, the tutor will set work one week in advance, to be handed-in and discussed during the next tutorial. Students are encouraged to bring to the tutorial any problems that have been encountered. Furthermore, the tutor is there to help during stressful times and talk through choices and decisions as they present themselves.

Joint Schools

There are no Joint Schools for Physics offered at Jesus College.

Admissions

In the annual Jesus College entry of about 100 undergraduates, 8 are offered places to read physics. Candidates are selected on performance in a written test (PAT) and interview if shortlisted, as well as on the basis of academic record (e.g. GCSEs) and potential, as shown by their UCAS reference. Jesus College physics students consistently perform at an excellent standard and we look forward to continuing this tradition, welcoming new students of the highest calibre.

Academic requirements: Offers made to candidates will be conditional upon A-level results (A*AA including Mathematics and Physics. The A* must be in Mathematics, Physics or Further Mathematics) or equivalent qualifications. As there is a strong bias towards mathematics in the course, it is essential to study both physics and mathematics to A2 level. The majority of successful students have also taken further mathematics at A2; but although this is highly desirable, it is not essential. Mechanics and statistics modules are the most helpful if you have the choice.

Written test: All candidates must take the **Physics Aptitude Test (PAT)** in school on **4 November 2020**. This test is administered by Cambridge Assessment Admissions Testing and registration must have been completed by **15 October 2020**. Further information about the PAT, and how to register for it, can be found using the following link: <http://www.ox.ac.uk/admissions/undergraduate/applying-to-oxford/tests/pat>.

It cannot be stressed enough how important it is to prepare for the PAT by doing many past papers, which can be found on the physics department website using this link: <http://www2.physics.ox.ac.uk/study-here/undergraduates/applications/physics-aptitude-test-pat>

Written work: Candidates are **not** asked to submit written work as part of the admissions process.

Deferred Entry: Applications for deferred entry to Jesus College are accepted. You must apply for deferred entry at the time of application: you cannot change your mind after an offer has been made. You should be aware that applicants who are offered places for deferred entry will be among the strongest of the applicants. We only accept a deferral for one year and are unlikely to offer more than one deferred place per subject in order not to disadvantage the following year's candidates. In some cases, an applicant for deferred entry may be offered a place for non-deferred entry instead. If you require any further advice, please contact the Admissions Officer via admissions.officer@jesus.ox.ac.uk

Postgraduate Studies and Careers

Research in the Department of Physics is organised in six sub-departments:

- Astrophysics
- Atmospheric, Oceanic & Planetary Physics
- Atomic and Laser Physics
- Condensed Matter Physics
- Particle Physics
- Theoretical Physics

They organise D.Phil recruitment directly. All Oxford physics graduates either go onto further study (at Oxford or elsewhere) or find immediate employment in an enormous variety of careers. About 40% continue with higher degrees and Oxford physicists are in strong demand in almost all professions that require numerate problem-solving skills (IT, finance, technical industry, consultancy, etc.).

The College's friendly atmosphere ensures that new students meet and network with those in higher years as well as the graduate students that are hosted by the College. Graduate students conduct research in the Physics Department in preparation for their doctorate degrees in physics. Many of these graduate students were Jesus College undergraduates so can be an excellent source of experience and advice.

Further Information

General Information about admissions to Physics at Oxford is at:
<http://www.ox.ac.uk/admissions/undergraduate/courses-listing/physics>

Contact details

If you have any questions about our entrance requirements, or about applying to study at Jesus College, please contact the Admissions Officer:

Tel: 01865 279721
Email: admissions.officer@jesus.ox.ac.uk
Web: www.jesus.ox.ac.uk/study-here

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