Jesus College, Oxford

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 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 transfer 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 still highly coveted and 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 (one each in physics and in mathematics). First, second and third year tutorials are in pairs or trios, and sometimes you 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 external tutors to cover all the main branches of modern physics. The benefit is that most Jesus physics tutorials are given by a familiar College Tutors, who knows the students personally and is interested in their progress and welfare. This has helped Jesus College students achieve excellent results, amongst the very best in the University. Because the tutorials are given to just one or two undergraduates at a time, they can be matched to the individual student’s interests and needs. Their purpose is to guide you through the course, to ensure that you are making the progress of which you are capable, and to help you enjoy your academic emergence and the widest choice of professional career.

Typically, your tutor will set you work to do one week in advance to be handed-in and discussed during the next tutorial. You are encouraged to bring any problems that you have encountered, any points from lectures or books that are obscure, topics that particularly interest you. Your tutor is, of course, also there to help during stressful times and talk though choices related to the University course and beyond.

*Joint Schools*

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

*Admissions*

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.

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.

**Written test:** All candidates must take the Physics Aptitude Test (PAT) in school on **Thursday 2 November 2017**. This test is administered by the Admissions Testing Service and registration must have been completed by **15 October 2017**.

*Please note that the format of the Physics Aptitude Test has evolved. In 2017 multiple choice questions will be re-introduced and the physics and maths sections will be mixed up with one another rather than being two distinct sections.*

For more information about the PAT, and how to register for it, please see the following link: [www.patoxford.org.uk](http://www.patoxford.org.uk)

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:

- [http://www2.physics.ox.ac.uk/study-here/undergraduates/applications/physics-aptitude-test-pat](http://www2.physics.ox.ac.uk/study-here/undergraduates/applications/physics-aptitude-test-pat)
Offers: In the annual Jesus College entry of about 100 undergraduates, 8 are offered places to read physics. Conditional offers made to pre-A level candidates will be A*AA at A2 level, including grade A in Physics and grade A in Mathematics. The A* must be in either Physics or Mathematics. We do not require a grade A in Further Maths if taken, although many of our applicants will achieve this. Offers to post-A level candidates will be unconditional. 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.

Deferred Entry: Applications for deferred entry to Jesus College are welcomed. 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 or two deferred places 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; please read your offer carefully. 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. The following postgraduate degrees are offered:

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

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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