

3.3 Other admissions requirements (for MSc applicants only)

- **English language requirement:** applicants whose first language is not English are usually required to provide evidence of proficiency in English at the higher level required by the University. See <http://www.ox.ac.uk/admissions/graduate/applying-to-oxford/application-guide>.
- **Whether or not an applicant has secured funding** is not taken into consideration in the decision to make an initial offer of a place, but this offer will not be confirmed until the College to which you applied or are assigned is satisfied that you have sufficient funding to cover the fees and living costs for the standard period of fee liability for your course.

3.4 Disability, health conditions, and specific learning difficulties

Students are selected for admission without regard to gender, marital or civil partnership status, disability, race, nationality, ethnic origin, religion or belief, sexual orientation, age, or social background. Decisions on admissions are based solely on the individual academic merits of each candidate and the application of the selection criteria appropriate to the programme of study. Further information on how these matters are handled during the admissions process is available at the following websites:

<http://www.ox.ac.uk/admissions/graduate/applying-to-oxford/applicants-with-disabilities>,

4 Suggested academic background

While there are no formal pre-requisites beyond the admissions criteria listed above, those applicants whose undergraduate degree programmes have optional components may wish to receive some guidance as to how best to prepare themselves for the MMathPhys/MSc programme. Below we give some suggestions for the Oxford students intending to apply to the MMathPhys. These suggestions might inform your choice of optional courses during the first three years of your undergraduate course. Equivalents might be available to MSc applicants at their own universities.

Note that in some cases, it might be useful to take a course early instead of waiting for the MMathPhys year (for example, some Part B Mathematics courses that are relevant for certain paths or general interests). If an overlap occurs between courses you have taken previously and some of the courses in this programme, you will have the flexibility and opportunity to explore another area, which you otherwise might not have had time for.

4.1 Suggestions for physics students (MPhys)

Parts A and B of the MPhys only have a small optional component consisting of Short Options. We consider the first three years of the MPhys to be adequate preparation for the MMathPhys. This said, if you are thinking of taking up the MMathPhys option in your 4th year, you may wish to consider the following Short Options:

- *All students:* S01 Functions of Complex Variables, S07 Classical Mechanics
- *Students interested in specialisations involving Quantum Field Theory and related topics (e.g., Teorica Universalis, Geometra, Particulata, Supercordula, Condensata, and Duracella example pathways in Appendix B):* S18 Advanced Quantum Mechanics
- It is possible within the MPhys to take Mathematics courses en lieu of Short Options. If you decide to do this, some of the suggestions for the Mathematics students in Section 4.3 may prove useful to you (we particularly recommend Part B Numerical Solutions to Differential Equations I, II).

4.2 Suggestions for Physics & Philosophy Students (MPhysPhil)

Part B of the MPhysPhil has an optional physics component. We recommend that you consider the following Part B papers:

- *All students:* B7 Classical Mechanics
- *Students interested in specialisations involving relativistic Quantum Field Theory, General Relativity, Cosmology, etc. (e.g., Teorica Universalis, Geometra, Particulata, Supercordula, Condensata, Duracella, Astra-Stella, and Cosmicosmica example pathways in Appendix B):* B2 Symmetry and Relativity, B3 General Relativity and Cosmology
- *Students interested in specialisations involving physics of continuous media of various kinds (e.g., Applicata, Continua, Condensata, Mollis, Complicata, Astra-Stella, Cosmicosmica, Gaia, and Plasma example pathways in Appendix B):* B1 Fluctuations, Flows and Complexity

4.3 Suggestions for Mathematics Students (MMath)

Both Parts A and B of the MMath have a large number of options. Here are some general recommendations to help the students interested in the MMathPhys make an informed choice.

- *All students:* We recommend the following courses that will teach you the basic mathematical and numerical techniques common to most areas of Theoretical/Mathematical Physics and Applied Mathematics: Part A: Numerical Analysis; Part B: Techniques of Applied Mathematics, Applied Partial Differential Equations, Numerical Solutions to Differential Equations I, II.

We also recommend recommend that you consider some of the suite of courses that cover the foundations of modern physics: Part A: Quantum Theory, Special Relativity, Fluids and Waves; Part B: Classical Mechanics, Quantum Mechanics, Electromagnetism (note: these three courses are in the process of being approved).

Some of these will be more important than others depending on the specialisation that you might choose in the MMathPhys (see example pathways in Appendix B and consult your tutor in the first instance if in doubt as to what courses might be relevant).

- *Students interested in specialisations involving physics of continuous media of various kinds (e.g., Applicata, Continua, Condensata, Mollis, Complicata, Astra-Stella, Cosmicosmica, Gaia, and Plasma example pathways in Appendix B):* Part B Viscous Flow, Waves and Compressible Flow, Nonlinear Systems are cross-listed as part of the MMathPhys programme, but if you take them early, this will allow you the time to explore more advanced topics. The same consideration applies to Numerical Solutions to Differential Equations I, II, which are especially important for these specialisations.
- *Students interested in mathematical physics specialisations that involve a substantial amount of modern geometry and algebra (e.g., Geometra, Particulata and Supercordula example pathways in Appendix B):* There are a number of pure mathematics options that may prove useful, e.g., Part A Group Theory, Projective Geometry, Topology; Part B Geometry of Surfaces, Algebraic Curves, Introduction to Representation Theory, Group Theory and an Introduction to Character Theory, Topology and Groups. Consult your tutor for further advice.