PARTNERS ACADEMIC SUMMER SCHOOL 2026
Syllabus for Maths, Stats & Physics

Subject Area
This syllabus is for PARTNERS applicants seeking to progress to the degrees of:

- F300 BSc Hons Physics
- F303 MPhys Hons Physics
- F304 BSc Hons Physics with Foundation Year
- F344 MPhys Hons Theoretical Physics
- F345 BSc Hons Theoretical Physics
- F3F5 BSc Hons Physics with Astrophysics
- F3FM MPhys Hons Physics with Astrophysics
- G100 BSc Hons Mathematics
- G101 BSc Hons Mathematics and Statistics with Foundation Year
- G103 MMath Hons Mathematics
- G1N3 BSc Hons Mathematics with Finance
- G1N4 BSc Hons Mathematics with Business
- G200 BSc Hons Data Science
- GG13 BSc Hons Mathematics and Statistics
- GL11 BSc Hons Mathematics and Economics
- NG41 BSc Hons Mathematics and Accounting
- GG40 BSc Hons Computing and Mathematics

Aims
To allow students to demonstrate their potential to succeed in specified degree programmes by showing a grasp of entry-level subject-specific knowledge, understanding, cognitive and subject-specific skills.

Learning Outcomes
A good knowledge and understanding of …

- Mathematics: Algebra, differential calculus, complex numbers, vectors, confidence intervals, problem solving and computational numerical methods.

- Physics: Algebra, differential calculus, complex numbers, astrophysics, computational numerical methods, good experimental practice and laboratory skills.

The ability to apply this knowledge and critical understanding to…

- Assessment completed through Numbas.
- Practice problems to accompany each lecture.
- Completion of worksheets from the computer sessions (maths and physics), laboratory (physics) and problem solving (maths) sessions.

Competence in…

- Mathematics: Mathematics, its language, arguments and implementation. Basic programming, critical analysis and problem solving.
- Physics: Physics concepts, mathematical concepts underpinning physics, good experimental practice and basic programming.

Summer School Syllabus

Monday 29th June and Tuesday 30th June, online sessions over Teams, with delivery of material and example problem(s). Physics and Mathematics strands will take part in the same sessions, joint with Engineering students.

Wednesday 1st July, asynchronous assessment activity and travel, no scheduled academic sessions.

Thursday 2nd and Friday 3rd July, sessions are on-campus with a mix of lectures and practical sessions including computer sessions, experimental labs in the Physics strand and problem solving for the Mathematics strand.

Additionally, there will be some enrichment sessions, including a tour, a Q & A with student ambassadors about studying Maths/Physics at Newcastle and a research seminar.

Activities for Personal Study

Students will be provided with reading and post-Class activities to complete during the Summer School. Reading will be provided via the Library Reading List feature within Canvas; exercise will be posted on Canvas before the Summer School commences.

On-Campus Teaching:
Wednesday 1st (PM), Thursday 2nd & Friday 3rd July

Online Teaching:
Monday 29th & Tuesday 30th June

Formative Assessment Details
A series of online problem-solving exercises and worksheets
More details will be given during the event by your Academic Strand Lead.

Hand-in Method
Digital

Assessment deadline
Friday 10th July, 12pm