

Curriculum Transformation: Phase 2

Drafting template: Undergraduate course structure



Full Course title(s)	BSc Mathematics and Physics
Duration of full-time course	3 years
State if coexistent M-level course	
Approving body and date of approval	For completion after approval

Year 1		(for implementation with effect from 2023/24)							
Weighting within course		[Part 1 Stage 1] 0% (see note 4)							
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
1	1		AY	Foundations of Physics 1	C	20	Y		
			AY	Mathematics & Physics Skills 1	C	10	Y		
			S1	Core Mathematics 1A (PH)	C	15		Y (MA)	
			S2	Core Mathematics 1B (PH)	C	15		Y (MA)	

Year 2		(for implementation with effect from 2024/25)							
Weighting within course		[Part 2 Stage 2] 32% (see note 4)							
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
2	2		AY	Foundations of Physics 2	C	20	Y		
			AY	Mathematics & Physics Skills 2	C	10	Y		
			S1	Differential Equations & Vector Calculus	C	10		Y (MA)	
			S1	Algebra 2A	C	5		Y (MA)	
			S2	Partial Differential Equations	C	5		Y (MA)	
			S2	Algebra 2B	O	10		Y (MA)	Optional: Select 10 credits
			S2	Numerical Analysis	O	10		Y (MA)	

Year 3		(for implementation with effect from 2025/26)							
Weighting within course		[Part 3 Stage 3] 68% (see note 4)							
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
3	3		AY	Final Year Project	O	15	Y		Optional: Select 15 credits
			AY	Industry Team Project	O	15	Y		
			AY	Communicating Physics Project	O	15	Y		
			S1	Self-directed Learning	C	5			Block A: Optional: Select a minimum of 0 and a maximum of 5 credits from this block.
			S1	Contemporary Physics	O	5			
			S1	Computational Physics (5 credits)	O	5			
			S1	Data Analysis & Research Methods for Observational Astronomy	O	5			
			S1	Advanced Quantum Mechanics	O	5			Block B: Optional: Select a minimum of 0 and a maximum of 20 credits from the combination of Blocks A and B. You must choose 20 credits from the combination of Blocks
			S1	Electronic & Optical Properties of Matter	O	5			
			S1	Nonlinear Physics	O	5			
			S1	Statistical Physics & Soft Matter	O	5			

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	S1	Fluid Dynamics in Physics & Astrophysics	O	5			A, B and C. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
	S1	Medical Physics	O	5			
	S1	Stars & Stellar Evolution	O	5			
	S1	Photonics	O	5			
	S1	Environmental Physics	O	5			
	S1	Science Education 1	O	5		Y (ED)	
	S1	Director of Studies Approved Unit	O	5		Y	
	S1	Numbers & Codes	O	5		Y (MA)	Block C: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
	S1	Fluid Dynamics	O	10		Y (MA)	
	S1	Numerical Linear Algebra	O	10		Y (MA)	
	S1	Differential Geometry of Curves & Surfaces	O	5		Y (MA)	
	S1	Projective Geometry	O	5		Y (MA)	
	S1	Dynamics & Chaos	O	5		Y (MA)	
	S1	Control Theory	O	5		Y (MA)	
	S1	Mathematical Biology 1	O	5		Y (MA)	Block D: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
	S2	Laser Physics	O	5			
	S2	Advanced Classical Mechanics	O	5			
	S2	Networks & Quantum Information	O	5			
	S2	Symmetry & Topology	O	5			
	S2	General Relativity	O	5			
	S2	Galaxies & Introduction to Cosmology	O	5			
	S2	Magnetism & Superconductivity	O	5			Block E: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
	S2	Sustainable Energy Technologies	O	5			
	S2	Science Education 2	O	5		Y (ED)	
	S2	Director of Studies Approved Unit	O	5		Y	
	S2	Methods for Differential Equations	O	10		Y (MA)	
	S2	Groups And Their Representations	O	10		Y (MA)	
	S2	Mathematical Biology 2	O	5		Y (MA)	
	S2	Complex Analysis	O	5		Y (MA)	
	S2	Mathematics of Planet Earth	O	5		Y (MA)	
	S2	Advanced Dynamical Systems (MA3)	O	5		Y (MA)	
	S2	Numerical Solution of Elliptic PDEs (MA3)	O	5		Y (MA)	
	S2	Inverse Problems & Numerical Optimisation (MA3)	O	10		Y (MA)	
	S2	Graph Theory	O	5		Y (MA)	

Curriculum Transformation: Phase 2

Drafting template: Undergraduate course structure



Full Course title(s)	BSc Mathematics and Physics with placement
Duration of full-time course	4 years with work placement
State if coexistent M-level course	
Approving body and date of approval	For completion after approval

Year 1				(for implementation with effect from 2023/24)					
Weighting within course				[Part 1 Stage 1] 0% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
1	1		AY	Foundations of Physics 1	C	20	Y		
			AY	Mathematics & Physics Skills 1	C	10	Y		
			S1	Core Mathematics 1A (PH)	C	15		Y (MA)	
			S2	Core Mathematics 1B (PH)	C	15		Y (MA)	

Year 2				(for implementation with effect from 2024/25)					
Weighting within course				[Part 2 Stage 2] 32% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
2	2		AY	Foundations of Physics 2	C	20	Y		
			AY	Mathematics & Physics Skills 2	C	10	Y		
			S1	Differential Equations & Vector Calculus	C	10		Y (MA)	
			S1	Algebra 2A	C	5		Y (MA)	
			S2	Partial Differential Equations	C	5		Y (MA)	
			S2	Algebra 2B	O	10		Y (MA)	Optional: Select 10 credits
			S2	Numerical Analysis	O	10		Y (MA)	

Year 3				(for implementation with effect from 2025/26)					
Weighting within course				[Part 2 Stage 3] 0% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
2	3		AY	Professional Placement	C	60			



Year 4		(for implementation with effect from 2026/27)							
Weighting within course		[Part 3 Stage 4] 68% (see note 4)							
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
3	4		AY	Final Year Project	O	15	Y		Optional: Select 15 credits
			AY	Industry Team Project	O	15	Y		
			AY	Communicating Physics Project	O	15	Y		
			S1	Self-directed Learning	C	5			Block A: Optional: Select a minimum of 0 and a maximum of 5 credits from this block.
			S1	Contemporary Physics	O	5			
			S1	Computational Physics (5 credits)	O	5			
			S1	Data Analysis & Research Methods for Observational Astronomy	O	5			Block B: Optional: Select a minimum of 0 and a maximum of 20 credits from the combination of Blocks A and B. You must choose 20 credits from the combination of Blocks A, B and C. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S1	Advanced Quantum Mechanics	O	5			
			S1	Electronic & Optical Properties of Matter	O	5			
			S1	Nonlinear Physics	O	5			
			S1	Statistical Physics & Soft Matter	O	5			
			S1	Fluid Dynamics in Physics & Astrophysics	O	5			
			S1	Medical Physics	O	5			
			S1	Stars & Stellar Evolution	O	5			
			S1	Photonics	O	5			
			S1	Environmental Physics	O	5			
			S1	Science Education 1	O	5		Y (ED)	Block C: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S1	Director of Studies Approved Unit	O	5		Y	
			S1	Numbers & Codes	O	5		Y (MA)	
			S1	Fluid Dynamics	O	10		Y (MA)	
			S1	Numerical Linear Algebra	O	10		Y (MA)	
			S1	Differential Geometry of Curves & Surfaces	O	5		Y (MA)	
			S1	Projective Geometry	O	5		Y (MA)	
			S1	Dynamics & Chaos	O	5		Y (MA)	
			S1	Control Theory	O	5		Y (MA)	
			S1	Mathematical Biology 1	O	5		Y (MA)	
			S2	Laser Physics	O	5			Block D: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S2	Advanced Classical Mechanics	O	5			
			S2	Networks & Quantum Information	O	5			
			S2	Symmetry & Topology	O	5			
			S2	General Relativity	O	5			
			S2	Galaxies & Introduction to Cosmology	O	5			
			S2	Magnetism & Superconductivity	O	5			
			S2	Sustainable Energy Technologies	O	5			
			S2	Science Education 2	O	5		Y (ED)	
			S2	Director of Studies Approved Unit	O	5		Y	
			S2	Methods for Differential Equations	O	10		Y (MA)	Block E: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S2	Groups And Their Representations	O	10		Y (MA)	
			S2	Mathematical Biology 2	O	5		Y (MA)	
			S2	Complex Analysis	O	5		Y (MA)	
			S2	Mathematics of Planet Earth	O	5		Y (MA)	
			S2	Advanced Dynamical Systems (MA3)	O	5		Y (MA)	
			S2	Numerical Solution of Elliptic PDEs (MA3)	O	5		Y (MA)	
			S2	Inverse Problems & Numerical Optimisation (MA3)	O	5		Y (MA)	
			S2	Graph Theory	O	5		Y (MA)	

Curriculum Transformation: Phase 2

Drafting template: Undergraduate course structure



Full Course title(s)	BSc Mathematics and Physics with study year abroad
Duration of full-time course	4 years with study placement
State if coexistent M-level course	
Approving body and date of approval	For completion after approval

Year 1				(for implementation with effect from 2023/24)					
Weighting within course				[Part 1 Stage 1] 0% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
1	1		AY	Foundations of Physics 1	C	20	Y		
			AY	Mathematics & Physics Skills 1	C	10	Y		
			S1	Core Mathematics 1A (PH)	C	15		Y (MA)	
			S2	Core Mathematics 1B (PH)	C	15		Y (MA)	

Year 2				(for implementation with effect from 2024/25)					
Weighting within course				[Part 2 Stage 2] 32% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
2	2		AY	Foundations of Physics 2	C	20	Y		
			AY	Mathematics & Physics Skills 2	C	10	Y		
			S1	Differential Equations & Vector Calculus	C	10		Y (MA)	
			S1	Algebra 2A	C	5		Y (MA)	
			S2	Partial Differential Equations	C	5		Y (MA)	
			S2	Algebra 2B	O	10		Y (MA)	Optional: Select 10 credits
			S2	Numerical Analysis	O	10		Y (MA)	

Year 3				(for implementation with effect from 2025/26)					
Weighting within course				[Part 2 Stage 3] 0% (see note 4)					
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
2	3		AY	Study Year Abroad	C	60			



Year 4		(for implementation with effect from 2026/27)							
Weighting within course		[Part 3 Stage 4] 68% (see note 4)							
Part	Stage	Unit code (see note 5)	Normal period of study for this Mode	Unit title (see note 6)	Unit status	Credits	DEU status	Unit from outside department	Other information (see note 8)
3	4		AY	Final Year Project	O	15	Y		Optional: Select 15 credits
			AY	Industry Team Project	O	15	Y		
			AY	Communicating Physics Project	O	15	Y		
			S1	Self-directed Learning	C	5			Block A: Optional: Select a minimum of 0 and a maximum of 5 credits from this block.
			S1	Contemporary Physics	O	5			
			S1	Computational Physics (5 credits)	O	5			
			S1	Data Analysis & Research Methods for Observational Astronomy	O	5			Block B: Optional: Select a minimum of 0 and a maximum of 20 credits from the combination of Blocks A and B. You must choose 20 credits from the combination of Blocks A, B and C. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S1	Advanced Quantum Mechanics	O	5			
			S1	Electronic & Optical Properties of Matter	O	5			
			S1	Nonlinear Physics	O	5			
			S1	Statistical Physics & Soft Matter	O	5			
			S1	Fluid Dynamics in Physics & Astrophysics	O	5			
			S1	Medical Physics	O	5			
			S1	Stars & Stellar Evolution	O	5			
			S1	Photonics	O	5			
			S1	Environmental Physics	O	5			
			S1	Science Education 1	O	5		Y (ED)	Block C: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S1	Director of Studies Approved Unit	O	5		Y	
			S1	Numbers & Codes	O	5		Y (MA)	
			S1	Fluid Dynamics	O	10		Y (MA)	
			S1	Numerical Linear Algebra	O	10		Y (MA)	
			S1	Differential Geometry of Curves & Surfaces	O	5		Y (MA)	
			S1	Projective Geometry	O	5		Y (MA)	
			S1	Dynamics & Chaos	O	5		Y (MA)	
			S1	Control Theory	O	5		Y (MA)	
			S1	Mathematical Biology 1	O	5		Y (MA)	
			S2	Laser Physics	O	5			Block D: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S2	Advanced Classical Mechanics	O	5			
			S2	Networks & Quantum Information	O	5			
			S2	Symmetry & Topology	O	5			
			S2	General Relativity	O	5			
			S2	Galaxies & Introduction to Cosmology	O	5			
			S2	Magnetism & Superconductivity	O	5			
			S2	Sustainable Energy Technologies	O	5			
			S2	Science Education 2	O	5		Y (ED)	
			S2	Director of Studies Approved Unit	O	5		Y	
			S2	Methods for Differential Equations	O	10		Y (MA)	Block E: Optional: Select a minimum of 0 and a maximum of 20 credits from this block. You must choose 20 credits from the combination of Blocks D and E. You must choose a maximum of 20 credits from the combination of Blocks A, B and D. You must choose a minimum of 20 credits and a maximum of 40 credits from the combination of Blocks C and E.
			S2	Groups And Their Representations	O	10		Y (MA)	
			S2	Mathematical Biology 2	O	5		Y (MA)	
			S2	Complex Analysis	O	5		Y (MA)	
			S2	Mathematics of Planet Earth	O	5		Y (MA)	
			S2	Advanced Dynamical Systems (MA3)	O	5		Y (MA)	
			S2	Numerical Solution of Elliptic PDEs (MA3)	O	5		Y (MA)	
			S2	Inverse Problems & Numerical Optimisation (MA3)	O	5		Y (MA)	
			S2	Graph Theory	O	5		Y (MA)	



Notes for completion

1. A separate course structure table is required for each variant of the course, including ordinary 'thick sandwich' variants (i.e. those with an additional non-mandatory course year for work or study placement, where the units taken in other course years are identical), or where external activity replaces study at Bath.
2. As applicable, differentiated course structure tables should be used to show your transitional plans for delivering courses with placement or study abroad variants, where students on a sandwich year who start in 2022/23 (on the existing course) will reach their final year at the same time as students who start in 2023/24 (on the transformed course) and do not take a sandwich year.
3. Credit values must be given in ECTS.
4. The 'weighting within course' is included in the digital prospectus. It should be the same weighting as applies on the current course. If a change to the current weighting is proposed, this will require specific approval.
5. The unit code column is for completion after approval.
6. Ensure that the unit title stated here matches that appearing on the relevant unit summary template (QA-CT: Phase 2, Annex 7). If your unit title may not uniquely identify the individual unit (e.g. 'Research Methods', 'Project', 'Dissertation', 'Placement', etc) then please state additional identifiers here **in brackets** to enable the information provided in this document to be matched to the correct unit information e.g. 'Final year project (MEng Civil Engineering courses)'. The text in brackets is not part of the official unit title.
7. There must be no progression requirements within an undergraduate course year. Please refer to provisions of the 2021 [academic framework](#) for all design parameters.
8. The 'Other Information' column should be used to specify:
 - a. how option choice works (e.g. 'Choose 1 optional unit from List A...');
 - b. any units that are cross-departmental units (currently 'XX-' units)
 - c. any units that are Director of Studies Approved units (currently 'ZZ-' units). Director of Studies Approved units may be used as an optional unit, but must only be agreed, for a student, after the timetable has been finalised.
 - d. any units that are semester-long placement or study abroad units.

HoD endorsement

HoD endorsement Where units are delivered by another department, as identified in the course structure tables above, confirmation that this is endorsed by the delivering HoD and Faculty. Please confirm for all applicable departments.	
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