

# APPLIED PHYSICS, TESTAMUR MAJOR (T078)

Western Sydney University Major Code: T078

Previous Code: MT3047.1

Available to students in other Western Sydney University programs?

No

This major is available as an elective in Bachelor of Science 3754, and an elective major option in Bachelor of Medical Science 3755. See the related programs tab for more information.

Please note, the BSc Major Environmental Health T076, BSc Adv 3757, Bachelor of Science (Pathway to Teaching Primary/Secondary) 3756 & BMedSc Adv 3758, do not have sufficient Flexible space to accommodate a second/elective Major.

Applied Physics uses the principles and tools of physics to understand and manipulate the world around us, and covers fields as diverse as astrophysics, biophysics, magnetic resonance (i.e., NMR and MRI), medical physics, remote sensing, semiconductor physics, space science and much more. In this major, the core principles of physics, mathematics and computing are taught and used to study specific applications of physics. Students have access to world class facilities (e.g. telescopes and onsite ultra-high field MRI), and the expertise of international researchers. Graduates of this major possess skills in problem-solving and critical thinking together with deep knowledge of Physics. This flexible set of skills, applied across many disciplines, enables students to seek career opportunities confidently in teaching, research or industry, in diverse fields such as medical physics, materials science, energy, geoscience, aerospace, data science, finance and more.

## Location

Campus	Mode	Advice
Campbelltown Campus	Internal	science@westernsydney.edu.au

## Recommended Sequence 2023

Select the link for your program below to see details of the major

### Bachelor of Science

Qualification for the award of Bachelor of Science with a major in Applied Physics requires the successful completion of 240 credit points as per the recommended sequence below.

Course	Title	Credit Points	Credit Points
<b>Year 1</b>			
<b>Autumn session</b>			
MATH 1014	Mathematics 1A	10	
NATS 1019	Scientific Literacy	10	
CHEM 1008	Introductory Chemistry	10	
PHYS 1002	Physics 1	10	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>
<b>Spring session</b>			
PHYS 1006	Physics 2	10	
MATH 1015	Mathematics 1B	10	
CHEM 1012	Essential Chemistry	10	
BIOS 1012	Cell Biology	10	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>
<b>Year 2</b>			
<b>Autumn session</b>			
MATH 2001	Advanced Calculus	10	
PHYS 2004	The Cosmos in Perspective: Information and Life	10	
Choose two electives		20	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>

### Year 2

#### Autumn session

MATH 2001	Advanced Calculus	10
PHYS 2004	The Cosmos in Perspective: Information and Life	10
Choose two electives		20
		<b>Credit Points</b>
		<b>40</b>

#### Spring session

PHYS 3007	Quantum Physics	10
Choose one of		10
NATS 3044		Complex Case Studies in Science
NATS 3045		Work Internship for Science Professionals
Choose two electives		20
		<b>Credit Points</b>
		<b>40</b>

### Year 3

#### Autumn session

PHYS 3006	Classical Physics	10
NATS 3015	Field Project 1	10
Choose two electives		20
		<b>Credit Points</b>
		<b>40</b>

#### Spring session

PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
		<b>Credit Points</b>
		<b>40</b>
		<b>Total Credit Points</b>
		<b>240</b>

## Bachelor of Science (Pathway to Teaching Primary/Secondary)

Qualification for the Bachelor of Science (Pathway to Teaching Primary/Secondary) with a major in Applied Physics requires the successful completion of 240 credit points as per the recommended sequence for the Bachelor of Science with a major in Applied Physics, given above.

Course	Title	Credit Points	Credit Points
<b>Year 1</b>			
<b>Autumn session</b>			
MATH 1014	Mathematics 1A	10	
NATS 1019	Scientific Literacy	10	
CHEM 1008	Introductory Chemistry	10	
PHYS 1002	Physics 1	10	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>
<b>Spring session</b>			
PHYS 1006	Physics 2	10	
MATH 1015	Mathematics 1B	10	
CHEM 1012	Essential Chemistry	10	
BIOS 1012	Cell Biology	10	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>
<b>Year 2</b>			
<b>Autumn session</b>			
MATH 2001	Advanced Calculus	10	
PHYS 2004	The Cosmos in Perspective: Information and Life	10	
Choose two electives		20	
			<b>Credit Points</b>
		<b>40</b>	<b>40</b>

<b>Spring session</b>		<b>Credit Points</b>	<b>Credit Points</b>	<b>Credit Points</b>
PHYS 3007	Quantum Physics			
Choose one of		10	10	10
NATS 3044	Complex Case Studies in Science			
NATS 3045	Work Internship for Science Professionals			
Choose two electives		20		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Year 3</b>				
<b>Autumn session</b>				
PHYS 3006	Classical Physics	10		
NATS 3015	Field Project 1	10		
Choose two electives		20		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Spring session</b>				
PHYS 3001	Astroinformatics	10		
PHYS 3008	Biomedical Physics	10		
Choose two electives		20		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
	<b>Total Credit Points</b>	<b>240</b>	<b>Credit Points</b>	

**In addition, all students must complete a mandatory 40 credit point minor in Education Studies. Students must choose one of:**

Education Studies – Primary Teaching, Minor (0296) (<https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/education-studies-primary-teaching-minor/>)

Or

Education Studies - Secondary Teaching, Minor (0267) (<https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/education-studies-secondary-teaching-minor/>)

Students must meet this requirement by choosing subjects from the selected Education Studies minor as electives within their Bachelor of Science program.

## Bachelor of Advanced Science

Qualification for the award of Bachelor of Advanced Science with a major in Applied Physics requires the successful completion of 240 credit points as per the recommended sequence below.

Course	Title	Credit Points		
<b>Year 1</b>				
<b>Autumn session</b>				
MATH 1014	Mathematics 1A	10		
NATS 1019	Scientific Literacy	10		
CHEM 1008	Introductory Chemistry	10		
PHYS 1002	Physics 1	10		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Spring session</b>				
PHYS 1006	Physics 2	10		
MATH 1015	Mathematics 1B	10		
CHEM 1012	Essential Chemistry	10		
BIOS 1012	Cell Biology	10		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Year 2</b>				
<b>Autumn session</b>				
MATH 2001	Advanced Calculus	10		

<b>Spring session</b>		<b>Credit Points</b>	<b>Credit Points</b>	<b>Credit Points</b>
PHYS 3007	Quantum Physics			
NATS 2002	Advanced Science Project B	10		
Choose one of				10
NATS 3044	Complex Case Studies in Science			
NATS 3045	Work Internship for Science Professionals			
Choose one elective				10
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Year 3</b>				
<b>Autumn session</b>				
PHYS 3006	Classical Physics	10		
NATS 3015	Field Project 1	10		
NATS 3043	Advanced Science Research Project C	10		
Choose one elective				10
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
<b>Spring session</b>				
PHYS 3001	Astroinformatics	10		
PHYS 3008	Biomedical Physics	10		
NATS 3043	Advanced Science Research Project C	10		
Choose one elective				10
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	
	<b>Total Credit Points</b>	<b>240</b>	<b>Credit Points</b>	

## Diploma in Science/Bachelor of Science

Qualification for this award requires the successful completion of 250 credit points which include the subjects listed in the recommended sequence below.

Course	Title	Credit Points
<b>Year 1</b>		
Preparatory subject:		
CHEM 0001	Chemistry (WSTC Prep)	10
8 University Level subjects comprising:		
BIOS 1014	Cell Biology (WSTC)	10
CHEM 1013	Essential Chemistry (WSTC)	10
NATS 1020	Scientific Literacy (WSTC)	10
CHEM 1009	Introductory Chemistry (WSTC)	10
BIOS 1003	Biodiversity (WSTC)	10
BIOS 1034	Management of Aquatic Environments (WSTC)	10
ENVL 1007	Environmental Health Issues and Solutions (WSTC)	10
MATH 1027	Quantitative Thinking (WSTC)	10
	<b>Credit Points</b>	<b>90</b>
<b>Year 2</b>		
<b>Autumn session</b>		
MATH 2001	Advanced Calculus	10
PHYS 2004	The Cosmos in Perspective: Information and Life	10
PHYS 1002	Physics 1	10

MATH 1014	Mathematics 1A	10	NATS 3045	Work Internship for Science Professionals	
	<b>Credit Points</b>	<b>40</b>	Choose two electives		20
<b>Spring session</b>				<b>Credit Points</b>	<b>40</b>
PHYS 3007	Quantum Physics	10	Year 3		
PHYS 1006	Physics 2	10	1H session		
MATH 1015	Mathematics 1B	10	NATS 3055	Practicum 1	10
Choose one of		10		<b>Credit Points</b>	<b>10</b>
NATS 3044	Complex Case Studies in Science		<b>Autumn session</b>		
NATS 3045	Work Internship for Science Professionals		PHYS 3006	Classical Physics	10
	<b>Credit Points</b>	<b>40</b>	Choose two electives		20
<b>Year 3</b>				<b>Credit Points</b>	<b>30</b>
<b>Autumn session</b>			<b>Spring session</b>		
PHYS 3006	Classical Physics	10	PHYS 3001	Astroinformatics	10
NATS 3015	Field Project 1	10	PHYS 3008	Biomedical Physics	10
Choose two electives		20	Choose two electives		20
	<b>Credit Points</b>	<b>40</b>		<b>Credit Points</b>	<b>40</b>
<b>Spring session</b>				<b>Total Credit Points</b>	<b>240</b>
PHYS 3001	Astroinformatics	10			
PHYS 3008	Biomedical Physics	10			
Choose two electives		20			
	<b>Credit Points</b>	<b>40</b>			
	<b>Total Credit Points</b>	<b>250</b>			

## Recommended Sequence 2024

Select the link for your program below to see details of the major

### Bachelor of Science

Qualification for the award of Bachelor of Science with a major in Applied Physics requires the successful completion of 240 credit points as per the recommended sequence below.

Course	Title	Credit Points			
<b>Year 1</b>					
<b>Autumn session</b>					
MATH 1014	Mathematics 1A	10	Or		
NATS 1019	Scientific Literacy	10	Education Studies - Secondary Teaching, Minor (0267) ( <a href="https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/education-studies-secondary-teaching-minor/">https://hbook.westernsydney.edu.au/archives/2023-2024/majors-minors/education-studies-secondary-teaching-minor/</a> )		
CHEM 1008	Introductory Chemistry	10	Students must meet this requirement by choosing subjects from the selected Education Studies minor as electives within their Bachelor of Science program.		
PHYS 1002	Physics 1	10			
	<b>Credit Points</b>	<b>40</b>			
<b>Spring session</b>			<b>Course</b>	<b>Title</b>	<b>Credit Points</b>
PHYS 1006	Physics 2	10	<b>Year 1</b>		
MATH 1015	Mathematics 1B	10	<b>Autumn session</b>		
CHEM 1012	Essential Chemistry	10	MATH 1014	Mathematics 1A	10
BIOS 1012	Cell Biology	10	NATS 1019	Scientific Literacy	10
	<b>Credit Points</b>	<b>40</b>	CHEM 1008	Introductory Chemistry	10
<b>Year 2</b>			PHYS 1002	Physics 1	10
<b>Autumn session</b>				<b>Credit Points</b>	<b>40</b>
MATH 2001	Advanced Calculus	10	<b>Spring session</b>		
PHYS 2004	The Cosmos in Perspective: Information and Life	10	PHYS 1006	Physics 2	10
Choose two electives		20	MATH 1015	Mathematics 1B	10
	<b>Credit Points</b>	<b>40</b>	CHEM 1012	Essential Chemistry	10
<b>Spring session</b>			BIOS 1012	Cell Biology	10
PHYS 3007	Quantum Physics	10		<b>Credit Points</b>	<b>40</b>
Choose one of		10	<b>Year 2</b>		
NATS 3044	Complex Case Studies in Science		<b>Autumn session</b>		
			MATH 2001	Advanced Calculus	10

PHYS 2004	The Cosmos in Perspective: Information and Life	10	Choose one of NATS 3044 Complex Case Studies in Science NATS 3045 Work Internship for Science Professionals	10
Choose two electives		20		
	<b>Credit Points</b>	<b>40</b>	Choose one elective	10
<b>Spring session</b>				<b>Credit Points</b>
PHYS 3007	Quantum Physics	10	<b>Year 3</b>	
Choose one of		10	<b>1H session</b>	
NATS 3044	Complex Case Studies in Science		NATS 3055	Practicum 1
NATS 3045	Work Internship for Science Professionals			<b>Credit Points</b>
Choose two electives		20	<b>Autumn session</b>	
	<b>Credit Points</b>	<b>40</b>	PHYS 3006	Classical Physics
<b>Year 3</b>			NATS 3043	Advanced Science Research Project C
<b>1H session</b>			Choose one elective	10
NATS 3055	Practicum 1	10		<b>Credit Points</b>
	<b>Credit Points</b>	<b>10</b>	<b>Spring session</b>	
<b>Autumn session</b>			PHYS 3001	Astroinformatics
PHYS 3006	Classical Physics	10	PHYS 3008	Biomedical Physics
Choose two electives		20	NATS 3043	Advanced Science Research Project C
	<b>Credit Points</b>	<b>30</b>	Choose one elective	10
<b>Spring session</b>				<b>Credit Points</b>
PHYS 3001	Astroinformatics	10		<b>Total Credit Points</b>
PHYS 3008	Biomedical Physics	10		<b>240</b>
Choose two electives		20		
	<b>Credit Points</b>	<b>40</b>		
	<b>Total Credit Points</b>	<b>240</b>		

## Bachelor of Advanced Science

Qualification for the award of Bachelor of Advanced Science with a major in Applied Physics requires the successful completion of 240 credit points as per the recommended sequence below.

Course	Title	Credit Points		Credit Points
<b>Year 1</b>			<b>Year 1</b>	
<b>Autumn session</b>			Preparatory subject:	
MATH 1014	Mathematics 1A	10	CHEM 0001 Chemistry (WSTC Prep)	10
NATS 1019	Scientific Literacy	10	8 University Level subjects comprising:	
CHEM 1008	Introductory Chemistry	10	BIOS 1014 Cell Biology (WSTC)	10
PHYS 1002	Physics 1	10	CHEM 1013 Essential Chemistry (WSTC)	10
	<b>Credit Points</b>	<b>40</b>	NATS 1020 Scientific Literacy (WSTC)	10
<b>Spring session</b>			CHEM 1009 Introductory Chemistry (WSTC)	10
PHYS 1006	Physics 2	10	BIOS 1003 Biodiversity (WSTC)	10
MATH 1015	Mathematics 1B	10	BIOS 1034 Management of Aquatic Environments (WSTC)	10
CHEM 1012	Essential Chemistry	10	ENVL 1007 Environmental Health Issues and Solutions (WSTC)	10
BIOS 1012	Cell Biology	10	MATH 1027 Quantitative Thinking (WSTC)	10
	<b>Credit Points</b>	<b>40</b>		<b>Credit Points</b>
<b>Year 2</b>			<b>Year 2</b>	
<b>Autumn session</b>			<b>Autumn session</b>	
MATH 2001	Advanced Calculus	10	MATH 2001 Advanced Calculus	10
PHYS 2004	The Cosmos in Perspective: Information and Life	10	PHYS 2004 The Cosmos in Perspective: Information and Life	10
			PHYS 1002 Physics 1	10
			MATH 1014 Mathematics 1A	10
	<b>Credit Points</b>	<b>40</b>		<b>Credit Points</b>
<b>Spring session</b>			<b>Spring session</b>	
PHYS 3007	Quantum Physics	10	PHYS 3007 Quantum Physics	10
NATS 2002	Advanced Science Project B	10	PHYS 1006 Physics 2	10
	<b>Credit Points</b>	<b>40</b>	MATH 1015 Mathematics 1B	10
<b>Spring session</b>			Choose one of	10
PHYS 3007	Quantum Physics	10		
NATS 2002	Advanced Science Project B	10		

NATS 3044	Complex Case Studies in Science	
NATS 3045	Work Internship for Science Professionals	
	<b>Credit Points</b>	<b>40</b>
<b>Year 3</b>		
<b>1H session</b>		
NATS 3055	Practicum 1	10
	<b>Credit Points</b>	<b>10</b>
<b>Autumn session</b>		
PHYS 3006	Classical Physics	10
Choose two electives		20
	<b>Credit Points</b>	<b>30</b>
<b>Spring session</b>		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
	<b>Credit Points</b>	<b>40</b>
	<b>Total Credit Points</b>	<b>250</b>

#### Related Programs

Bachelor of Advanced Science (3757) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-advanced-science/>)

Bachelor of Science (3754) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science/>)

Bachelor of Science (Pathway to Teaching Primary/Secondary) (3756) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science-pathway-teaching-primary-secondary/>)

Bachelor of Science/Bachelor of Arts (3763) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science-bachelor-arts/>)

Bachelor of Science/Bachelor of Business (4748) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science-bachelor-business/>)

Bachelor of Science/Bachelor of International Studies (3764) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science-bachelor-international-studies/>)

Bachelor of Science/Bachelor of Laws (2743) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/bachelor-science-bachelor-laws/>)

Diploma in Science/Bachelor of Science (6043) (<https://hbook.westernsydney.edu.au/archives/2023-2024/programs/diploma-science-bachelor-science/>)