

# 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 Current

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
NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10
PHYS 1002	Physics 1	10
	<b>Credit Points</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>

### 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

#### 1H session

NATS 3055	Practicum 1	10
		<b>Credit Points</b>
		<b>10</b>

#### Autumn session

PHYS 3006	Classical Physics	10
Choose two electives		20
		<b>Credit Points</b>
		<b>30</b>

#### Spring session

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

**Total Credit Points** **240**

## 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.

**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/2024-2025/majors-minors/education-studies-primary-teaching-minor/>)

Or

Education Studies - Secondary Teaching, Minor (0267) (<https://hbook.westernsydney.edu.au/archives/2024-2025/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.

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>Year 1</b>		
<b>Autumn session</b>		
MATH 1014	Mathematics 1A	10
NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10
	<b>Credit Points</b>	<b>40</b>

PHYS 1002	Physics 1	10	<b>Year 2</b>	
	<b>Credit Points</b>	<b>40</b>	<b>Autumn session</b>	
<b>Spring session</b>			MATH 2001	Advanced Calculus 10
PHYS 1006	Physics 2	10	PHYS 2004	The Cosmos in Perspective: Information and Life 10
MATH 1015	Mathematics 1B	10	NATS 2001	Advanced Science Project A 10
CHEM 1012	Essential Chemistry	10	Choose one elective	10
BIOS 1012	Cell Biology	10		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	<b>40</b>
<b>Year 2</b>			<b>Spring session</b>	
<b>Autumn session</b>			PHYS 3007	Quantum Physics 10
MATH 2001	Advanced Calculus	10	NATS 2002	Advanced Science Project B 10
PHYS 2004	The Cosmos in Perspective: Information and Life	10	Choose one of	10
Choose two electives		20	NATS 3044	Complex Case Studies in Science
	<b>Credit Points</b>	<b>40</b>	NATS 3045	Work Internship for Science Professionals
<b>Spring session</b>			Choose one elective	10
PHYS 3007	Quantum Physics	10		
Choose one of		10	<b>Credit Points</b>	<b>40</b>
NATS 3044	Complex Case Studies in Science		<b>Year 3</b>	
NATS 3045	Work Internship for Science Professionals		<b>1H session</b>	
Choose two electives		20	NATS 3055	Practicum 1 10
	<b>Credit Points</b>	<b>40</b>		
<b>Year 3</b>			<b>Credit Points</b>	<b>10</b>
<b>1H session</b>			<b>Autumn session</b>	
NATS 3055	Practicum 1	10	PHYS 3006	Classical Physics 10
	<b>Credit Points</b>	<b>10</b>	NATS 3043	Advanced Science Research Project C 10
<b>Autumn session</b>			Choose one elective	10
PHYS 3006	Classical Physics	10		
Choose two electives		20	<b>Credit Points</b>	<b>30</b>
	<b>Credit Points</b>	<b>30</b>	<b>Spring session</b>	
<b>Spring session</b>			PHYS 3001	Astroinformatics 10
PHYS 3001	Astroinformatics	10	PHYS 3008	Biomedical Physics 10
PHYS 3008	Biomedical Physics	10	NATS 3043	Advanced Science Research Project C 10
Choose two electives		20	Choose one elective	10
	<b>Credit Points</b>	<b>40</b>		
	<b>Total Credit Points</b>	<b>240</b>	<b>Credit Points</b>	<b>40</b>
			<b>Total Credit Points</b>	<b>240</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.

### 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>Autumn session</b>				
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>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 2004	The Cosmos in Perspective: Information and Life	10	Choose two electives	20
PHYS 1002	Physics 1	10		
MATH 1014	Mathematics 1A	10		
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	<b>40</b>
<b>Spring session</b>				
PHYS 3007	Quantum Physics	10	PHYS 3007	Quantum Physics 10
PHYS 1006	Physics 2	10	Choose one of	10
MATH 1015	Mathematics 1B	10	NATS 3044	Complex Case Studies in Science
Choose one of		10	NATS 3045	Work Internship for Science Professionals
NATS 3044	Complex Case Studies in Science		Choose two electives	20
NATS 3045	Work Internship for Science Professionals			
	<b>Credit Points</b>	<b>40</b>	<b>Credit Points</b>	<b>40</b>
<b>Year 3</b>				
<b>1H session</b>				
NATS 3055	Practicum 1	10	PHYS 3006	Classical Physics 10
	<b>Credit Points</b>	<b>10</b>	NATS 3015	Field Project 1 10
<b>Autumn session</b>			Choose two electives	20
PHYS 3006	Classical Physics	10		
Choose two electives		20		
	<b>Credit Points</b>	<b>30</b>	<b>Credit Points</b>	<b>40</b>
<b>Spring session</b>				
PHYS 3001	Astroinformatics	10	PHYS 3001	Astroinformatics 10
PHYS 3008	Biomedical Physics	10	PHYS 3008	Biomedical Physics 10
Choose two electives		20	Choose two electives	20
	<b>Credit Points</b>	<b>40</b>		
	<b>Total Credit Points</b>	<b>250</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.

## 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	Course	Title	Credit Points
<b>Year 1</b>					
<b>Autumn session</b>					
MATH 1014	Mathematics 1A	10	MATH 1014	Mathematics 1A	10
NATS 1019	Scientific Literacy	10	NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10	CHEM 1008	Introductory Chemistry	10
PHYS 1002	Physics 1	10	PHYS 1002	Physics 1	10
	<b>Credit Points</b>	<b>40</b>		<b>Credit Points</b>	<b>40</b>
<b>Spring session</b>					
PHYS 1006	Physics 2	10	PHYS 1006	Physics 2	10
MATH 1015	Mathematics 1B	10	MATH 1015	Mathematics 1B	10
CHEM 1012	Essential Chemistry	10	CHEM 1012	Essential Chemistry	10
BIOS 1012	Cell Biology	10	BIOS 1012	Cell Biology	10
	<b>Credit Points</b>	<b>40</b>		<b>Credit Points</b>	<b>40</b>
<b>Year 2</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
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>					
PHYS 3007	Quantum Physics	10	PHYS 3007	Quantum Physics	10
Choose one of		10	Choose one of		10

NATS 3044	Complex Case Studies in Science	Choose one elective	10
NATS 3045	Work Internship for Science Professionals		40
Choose two electives	20		
	<b>Credit Points</b>	<b>40</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>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>240</b>	
<b>In addition, all students must complete a mandatory 40 credit point minor in Education Studies. Students must choose one of:</b>			
Education Studies – Primary Teaching, Minor (0296) ( <a href="https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/education-studies-primary-teaching-minor/">https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/education-studies-primary-teaching-minor/</a> )			
Or			
Education Studies - Secondary Teaching, Minor (0267) ( <a href="https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/education-studies-secondary-teaching-minor/">https://hbook.westernsydney.edu.au/archives/2024-2025/majors-minors/education-studies-secondary-teaching-minor/</a> )			
Students must meet this requirement by choosing subjects from the selected Education Studies minor as electives within their Bachelor of Science program.			
<b>Bachelor of Advanced Science</b>			
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.			
<b>Course</b>	<b>Title</b>	<b>Credit Points</b>	<b>Credit Points</b>
<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>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>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	
	<b>Credit Points</b>	<b>40</b>	
<b>Spring session</b>			
PHYS 3007	Quantum Physics	10	

## 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>		
<b>Autumn session</b>		
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
	<b>Credit Points</b>	<b>40</b>
<b>Spring session</b>		
PHYS 3007	Quantum Physics	10

PHYS 1006	Physics 2	10
MATH 1015	Mathematics 1B	10
Choose one of		10
NATS 3044	Complex Case Studies in Science	
NATS 3045	Work Internship for Science Professionals	
	<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>
	<b>Total Credit Points</b>	<b>250</b>

## Related Programs

Bachelor of Advanced Science (3757) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-advanced-science/>)

Bachelor of Science (3754) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science/>)

Bachelor of Science (Pathway to Teaching Primary/Secondary) (3756) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science-pathway-teaching-primary-secondary/>)

Bachelor of Science/Bachelor of Arts (3763) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science-bachelor-arts/>)

Bachelor of Science/Bachelor of Business (4748) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science-bachelor-business/>)

Bachelor of Science/Bachelor of International Studies (3764) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science-bachelor-international-studies/>)

Bachelor of Science/Bachelor of Laws (2743) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/bachelor-science-bachelor-laws/>)

Diploma in Science/Bachelor of Science (6043) (<https://hbook.westernsydney.edu.au/archives/2024-2025/programs/diploma-science-bachelor-science/>)