

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
Year 1		
Autumn session		
MATH 1014	Mathematics 1A	10
NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10
PHYS 1002	Physics 1	10
Credit Points		40
Spring session		
PHYS 1006	Physics 2	10
MATH 1015	Mathematics 1B	10
CHEM 1012	Essential Chemistry	10
BIOS 1012	Cell Biology	10
Credit Points		40

Year 2

Autumn session

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

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
Credit Points		40

Year 3

Autumn session

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

Spring session

PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
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.

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

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
Credit Points		40
Year 3		
Autumn session		
PHYS 3006	Classical Physics	10
NATS 3015	Field Project 1	10
Choose two electives		20
Credit Points		40
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
Total Credit Points		240

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

PHYS 2004	The Cosmos in Perspective: Information and Life	10
NATS 2001	Advanced Science Project A	10
Choose one elective		10
Credit Points		40
Spring session		
PHYS 3007	Quantum Physics	10
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
Credit Points		40
Year 3		
Autumn session		
PHYS 3006	Classical Physics	10
NATS 3015	Field Project 1	10
NATS 3043	Advanced Science Research Project C	10
Choose one elective		10
Credit Points		40
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
NATS 3043	Advanced Science Research Project C	10
Choose one elective		10
Credit Points		40
Total Credit Points		240

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
Year 1		
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
Credit Points		90
Year 2		
Autumn session		
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
Credit Points		40
Spring session		
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	
Credit Points		40
Year 3		
Autumn session		
PHYS 3006	Classical Physics	10
NATS 3015	Field Project 1	10
Choose two electives		20
Credit Points		40
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
Total Credit Points		250

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
Year 1		
Autumn session		
MATH 1014	Mathematics 1A	10
NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10
PHYS 1002	Physics 1	10
Credit Points		40
Spring session		
PHYS 1006	Physics 2	10
MATH 1015	Mathematics 1B	10
CHEM 1012	Essential Chemistry	10
BIOS 1012	Cell Biology	10
Credit Points		40
Year 2		
Autumn session		
MATH 2001	Advanced Calculus	10
PHYS 2004	The Cosmos in Perspective: Information and Life	10
Choose two electives		20
Credit Points		40
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
Credit Points		40
Year 3		
1H session		
NATS 3055	Practicum 1	10
Credit Points		10
Autumn session		
PHYS 3006	Classical Physics	10
Choose two electives		20
Credit Points		30
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
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/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.

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

PHYS 2004	The Cosmos in Perspective: Information and Life	10
Choose two electives		20
Credit Points		40
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
Credit Points		40
Year 3		
1H session		
NATS 3055	Practicum 1	10
Credit Points		10
Autumn session		
PHYS 3006	Classical Physics	10
Choose two electives		20
Credit Points		30
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
Total Credit Points		240

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
Year 1		
Autumn session		
MATH 1014	Mathematics 1A	10
NATS 1019	Scientific Literacy	10
CHEM 1008	Introductory Chemistry	10
PHYS 1002	Physics 1	10
Credit Points		40
Spring session		
PHYS 1006	Physics 2	10
MATH 1015	Mathematics 1B	10
CHEM 1012	Essential Chemistry	10
BIOS 1012	Cell Biology	10
Credit Points		40
Year 2		
Autumn session		
MATH 2001	Advanced Calculus	10
PHYS 2004	The Cosmos in Perspective: Information and Life	10
NATS 2001	Advanced Science Project A	10
Choose one elective		10
Credit Points		40
Spring session		
PHYS 3007	Quantum Physics	10
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
Credit Points		40
Year 3		
1H session		
NATS 3055	Practicum 1	10
Credit Points		10
Autumn session		
PHYS 3006	Classical Physics	10
NATS 3043	Advanced Science Research Project C	10
Choose one elective		10
Credit Points		30
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
NATS 3043	Advanced Science Research Project C	10
Choose one elective		10
Credit Points		40
Total Credit Points		240

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
Year 1		
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
Credit Points		90
Year 2		
Autumn session		
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
Credit Points		40
Spring session		
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	
Credit Points		40
Year 3		
1H session		
NATS 3055	Practicum 1	10
Credit Points		10
Autumn session		
PHYS 3006	Classical Physics	10
Choose two electives		20
Credit Points		30
Spring session		
PHYS 3001	Astroinformatics	10
PHYS 3008	Biomedical Physics	10
Choose two electives		20
Credit Points		40
Total Credit Points		250

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/>)