

Bachelor of Nanotechnology/Bachelor of Science La Trobe University

STREAMED COURSE STRUCTURE

Course structure

This course is of four years full-time or equivalent part-time duration and requires the completion of a minimum of 545 credit points overall. The course features streams in nanostructured materials and bionanotechnology. These incorporate core studies in Physics, Chemistry or Biochemistry, Biology and Mathematics together with specialized studies in nanotechnology at all year levels; units include nanochemistry, scanning probe microscopies, synchrotron science and technology, imaging and materials characterisation, semiconductor nanotechnology, sensors and devices and a major nanotechnology research project.

First year (130 credit points)

Core units (115 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN1ISA	5
1	Principles of Physics	PHY1SCA	15
1	General Principles of Chemistry	CHE1GEN	15
1	Calculus, Functions and Number Systems	MAT1CNS	15
1	Organisation & Function of Cells & Organisms	BIO1OF	15
			65
2	Issues in Nanotechnology	NAN1ISB	5
2	Principles of Physics	PHY1SCB	15
2	Applications of Chemistry	CHE1APL	15
2	Calculus and Linear Algebra	MAT1CLA	15
	Elective		15
			65

An elective may be chosen from any first-year unit offered by any discipline in the University.

Second year

Nanostructured Materials Stream (145 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN2ISA	5
1	Modern Physics	PHY2MOD	15
1	Optics	PHY2OPT	15
1	Fundamentals of Chemistry	CHE2FND	20
1	Vector Calculus	MAT2VCA	15
			70
2	Issues in Nanotechnology	NAN2ISB	5
2	Linear Algebra	MAT2LAL	15
2	Nanochemistry	CHE2NAN	10
2	Imaging and Materials Characterisation	PHY2IMC	10
2	Electromagnetism and Modern Materials	PHY2EMM	15
2	Developments in Chemistry	CHE2DEV	20
			75

Bionanotechnology Stream (135 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN2ISA	5
1	Modern Physics	PHY2MOD	15
1	Optics	PHY2OPT	15
1	Fundamentals of Chemistry	CHE2FND	20
1	Biochemistry and Molecular Biology A	BCH2BMA	20
			75
2	Issues in Nanotechnology	NAN2ISB	5
2	Nanochemistry	CHE2NAN	10
2	Imaging and Materials Characterisation	PHY2IMC	10
2	Electromagnetism and Modern Materials	PHY2EMM	15
2	Biochemistry and Molecular Biology B	BCH2BMB	20
			60

Third year

Nanostructured Materials Stream (135 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN3ISA	5
1	Synchrotron Science and Technology	PHY3SYN	15
1	Selected Topics for Joint Chemistry Majors	CHE3ADA	30
1	Biochemistry and Molecular Biology A	BCH2BMA	20
			70
2	Issues in Nanotechnology	NAN3ISB	5
2	Scanning Probe Microscopies	PHY3SPM	15
2	Materials & Methods for Joint Chemistry Majors	CHE3ADB	30
2	Mechanics	MAT2MEC	15
			65

Bionanotechnology Stream (145 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN3ISA	5
1	Synchrotron Science and Technology	PHY3SYN	15
1	Biological Macromolecules & Molecular Biology	BCH3BMA	30
1	Vector Calculus	MAT2VCA	15
			65
2	Issues in Nanotechnology	NAN3ISB	5
2	Linear Algebra	MAT2LAL	15
2	Scanning Probe Microscopies	PHY3SPM	15
2	Molecular Cell Biology	BCH3BMB	30
2	Mechanics	MAT2MEC	15
			80

Fourth year (135 credit points)

Core units (120 credit points)

Sem		Unit code	CP
1	Issues in Nanotechnology	NAN3ISC	5
1	Nanomaterials and Fabrication	PHY3NMF	15
1	Physics of Quantum Matter	PHY3PQM	15
1	Atomic and Nuclear Physics	PHY3ANP	15
			50
2	Sensors and Devices	CHE3SEN	15
2	Issues in Nanotechnology	NAN3ISD	5
2	Thermal and Statistical Physics	PHY3TSP	15
2	Electromagnetic Theory and Plasma Physics	PHY3EPP	15
			50
1,2	Elective		15
1,2	Nanotechnology Research Project	NAN3PRJ	20
	<i>NAN3PRJ & the elective may be substituted by:</i>		
1,2	Nanotechnology Extended Research Project	NAN3PRX	40
1,2	NAN3PXA and NAN3PXB		40

Honours (one additional year of study)

Honours students are selected on the basis of their performance in the final year of the pass degree. The honours year and projects are carried out under the auspices of a Department in the Faculty but usually Physics, Chemistry or Biochemistry. Approval must be given by the prospective supervisor and the nanotechnology co-ordinator.