2019

Postgraduate course list

Biological Sciences

Te Kura Mātauranga Koiora

Poor Knight's Sponges. Photo: James Bell.

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WHO TO CONTACT

STUDENT AND ACADEMIC SERVICES—FACULTY OF SCIENCE

Te Wāhanga Pūtaiao
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9.30 am–5.00pm Tuesday

At the Faculty of Science Student Administration Office, student advisers can help with admission requirements, degree planning, changing courses and transfer of credit from other tertiary institutions. They also deal with other aspects of student administration such as enrolment, exams organisation and the maintenance of student records.

Patricia Stein manages all postgraduate students:
patricia.stein@vuw.ac.nz 04-463 5982

Johan Barnard	Manager, Student and Academic Services	04-463 5980
Marc Wilson	Associate Dean (Postgraduate Students)	04-463 5092

Email: all staff can be reached at the address **firstname.lastname@vuw.ac.nz** where first name and last name are as in the list below.

STAFF CONTACTS

STAFF		ROOM	CONTACT
Head of School	Prof Simon Davy	TTR214	463 5573
Deputy Head of School	Prof Kevin Burns	TTR326	463 6873
Postgraduate Programme Coordinators			
Biomedical Science	A/Prof Peter Pfeffer	TTR319	463 7462
Biotechnology	Prof David Ackerley	TTR411	463 5576
Cell and Molecular Bioscience	A/Prof Peter Pfeffer	TTR319	463 7462
Clinical Research	Prof Elaine Dennison		
Clinical Immunology	Prof Anne La Flamme	AM306	463 6093
Conservation Biology	A/Prof Nicola Nelson	TTR406	463 5435
Drug Discovery and Development	Dr Simon Hinkley	Ferrier	463 0052
Ecology and Biodiversity	A/Prof Ken Ryan	TTR333	463 6083
Ecological Restoration	A/Prof Wayne Linklater	TTR337	463 5233 ext 8575
Marine Biology	A/Prof James Bell	TTR409	463 8104
Master of Marine Conservation	A/Prof James Bell	TTR409	463 5233 ext 8104
Molecular Microbiology	Dr Joanna MacKichan	AM304	463 4711

ACADEMIC STAFF	RESEARCH AREAS	ROOM	CONTACT

Prof David Ackerley	*Enzyme engineering, biochemistry*	TTR411	463 5576
Prof James Bell	*Marine Biology, Population Genetics and Conservation*	TTR409	463 5233 Ext 8104
Prof Kevin Burns	*Evolutionary Ecology*	TTR326	463 6873
Dr Davide Comoletti	*Molecular aspects of synaptic adhesion proteins*	KK307	463 6029
Dr Lisa Connor	*Immunology*	AM310	463 7542
Prof Simon Davy	*Marine Symbiosis and Coral Reef Biology*	TTR214	463 5573
Dr Darren Day	*Biochemistry, Molecular Biology*	TTR336	463 6087
Dr Julie Deslippe	*Plant-microbial interactions*	TTR334	463 6084
Prof Jonathan Gardner	*Marine Biology, Population and seascape Genetics, Marine Reserves*	TTR335	463 5574
Dr Monica Gerth	*Microbiology and biochemistry*	TTR316	463 4778
Prof Kevin Gould	*Plant Ecophysiology*	TTR408	463 6649
A/Prof Stephen Hartley	*Conservation and Restoration Ecology*	TTR330	463 5447
A/Prof Ian Hermans	*Vaccine Research*	MIMR	903 3043
A/Prof Bronwyn Kivell	*Physiology and Neurobiology*	TTR317	463 5233 ext 8336
Prof Anne La Flamme	*Immunology and Cell Biology*	AM306	463 6093
Prof Phil Lester	*Insect Ecology*	TTR329	463 5096
A/Prof Wayne Linklater	*Wildlife Biology, Human Dimensions Ecology*	TTR337	463 5233 ext 8575
Dr Melanie McConnell	*Genetics and Cell Biology*	AM309	463 5233 ext 8136
Dr Joanna MacKichan	*Microbiology*	AM304	463 4711
Dr Andrew Munkacsi	*Chemical Genetics*	AM322	463 5171
A/Prof Nicola Nelson	*Conservation Biology*	TTR406	463 5435
Dr Diane Ormsby	*Reproductive and Developmental Biology*	TTR331	463 5271
Dr Jeremy Owen	*Metagenomics*	TTR410	463 5277
A/Prof Wayne Patrick	*Evolution of enzymes, metabolic pathways and antibiotic resistance*	TTR318	463 4779
Dr Lifeng Peng	*Biochemistry, Molecular Biology, Proteomics*	AM302	463 5233 ext 8076
A/Prof Peter Pfeffer	*Developmental and Reproductive Biology*	TTR319	463 7462
A/Prof Nicole Phillips	*Marine Ecology and Larval Biology*	TTR332	463 5233 ext 8049
Dr Janet Pitman	*Reproductive Biology*	TTR320	463 7450
A/Prof Peter Ritchie	*Evolutionary Genetics*	TTR407	463 5233 ext 8105
Dr Alice Rogers	*Climate change impact on fisheries*	TTR325	463 4786
Prof Ashley Rowden	*Marine biodiversity*	TTR322	463 6283
A/Prof Ken Ryan	*Antarctic Biology and Ecophysiology*	TTR333	463 6083
Prof Jeff Shima	*Marine Ecology and Fish Biology*	TTR328	463 6494
A/Prof Paul Teesdale-Spittle	*Biochemistry and Pharmacology*	AM308	463 6094
A/Prof Heiko Wittmer	*Conservation and Restoration Ecology*	TTR323	463 7432
A/Prof Joe Zuccarello	*Molecular Biology and Phycology*	TTR324	463 6414

Adjunct Staff at the Malaghan Institute of Medical Research (MIMR)

Prof Graham Le Gros, Director	*Asthma and Parasitic Diseases*	MIMR	499 6914 ext 822
Prof Mike Berridge	*Cancer Cell and Molecular Biology*	MIMR	499 6914 ext 825
Dr Elizabeth Forbes-Blom	*Gut Inflammation*	MIMR	499 6914 ext 881
Prof Franca Ronchese	*Immune Cell Biology*	MIMR	499 6914 ext 828

Adjunct Academic Staff

Mr Simon Bann	*Oesophagogastric; Laparoscopic and Bariatric Surgeon*	Wakefield	381 8120
Prof Richard Beasley	*Clinical Research*	MRINZ	805 0238
Prof Timothy Blackmore	*Infectious Diseases Physician & Microbiologist*	CCDHB	918 6834
Dr Richard Carroll	*Endocrinologist*	CCDHB	
Prof Brett Delahunt	*Pathology*	Otago	385 5575
Dr Sinead Donnelly	*Palliative Medicine*	CCDHB	
Dr Andrew Fidler	*Molecular and Chemical Ecology*	Cawthron	539 3223
Dr Shane Geange	*Marine Ecology*		
Prof Alexander Garden	*Patient Safety*	CCDHB	
Dr Rosemary Hall	*Endocrinology*	CCDHB	
Prof Scott Harding	*Cardiology and Vascular Immunology*	CCDHB	385 5999
Dr Shaun Holt	*Evidence-Based Medicine*	MRINZ	0292001111
Prof David Lamb	*Radiation Oncology*	Otago	385 5569
A/Prof Peter Larsen	*Cardiology and Vascular Immunology*	Otago	
Dr Pamela Mace	*Fisheries Science*	MPI	0800 00 83 33
Dr Kyle Perrin	*Influenza*	MRINZ	805 0147
Prof Geoff Robinson	*Alcohol & Drug Abuse*	CCDHB	
Dr Kenneth Romeril	*Haematology*	CCDHB	381 5900
Prof Alexander Sasse	*Cardiology & Stem Cell Therapy*	CCDHB	381 8115
Dr Richard Steele	*Pathology*	CCDHB	384 4944
Dr Mike Taylor	*Microbiology of autism spectrum disorder*	Auckland	923 2280
Dr Penny Truman	*Cell Biology*	ESR	914 0761
Dr Erik van Eyndhoven	*Biodiversity Advice*	MPI	0800 00 83 33
Dr Murray Williams	*Ornithology, Conservation Restoration*	KK418	463 6089

Emeritus Professors

Charles Daugherty	*Conservation biology*	TTR213	TBC
Phil Garnock-Jones	*Plant Taxonomy, Phylogeny & Evolution*	TTR213	TBC
Ken McNatty	*Reproductive Biology*	TTR213	TBC
John Miller	*Cell Biology and Physiology*	TTR213	TBC

Administrative Staff

Lesley Thompson	School Manager	TTR212	463 5332
Sonja Hummel	Administration Assistant	TTR206	463 5339
Paul Marsden	Administrator	TTR206	463 5555
Mary Murray	Administrator	TTR206	463 5339
Mark Stephen	Administrator – Postgraduate Students	TTR206	463 5581
Sandra Taylor	Administrator	TTR206	463 5747

Technical Staff

Stephen Meyer	Manager Technical Services	TTR211	463 5579
Dan Crossett	Technical Officer - VUCEL	VUCEL101	470 9257
Mel Dohner	Technical Officer	TTR401	4635580
Craig Doney	Equipment Officer	TTR015	463 4707
Angela Fleming	Technical Officer	TTR401	463 5233 ext 8240
Shaun Graham	Equipment Officer	TTR015	463 5154
Kayla Griffin	Technical Officer	TTR401	463 5233 ext 8240
Derek Heath	Technical Officer	TTR401	463 5580
Neville Higgison	Equipment Officer	TTR015	463 5154
Sue Keall	Senior Technical Officer	TTR401	463 5324
Danyl McLauchlan	Computational Biologist	AM301	463 5735
Daniel McNaughtan	Technical Officer - VUCEL	VUCEL101	470 9257
Dr Lesley Milicich	Technical Officer	TTR401	463 5233 ext 5324
Sushila Pillai	Technical Officer	TTR041	463 5580
Pisana Rawson	Technical Officer	TTR401	463 5580
Paul Roulston	Equipment Officer	TTR015	463 4707
John van der Sman	Technical Officer - VUCEL	VUCEL101	470 9250
Chris Thorn	Technical Officer	TTR401	4635233 ext 8240

QUALIFICATIONS AVAILABLE

The diagram below represents the structure of postgraduate study in science.

The School of Biological Sciences offer's postgraduate degrees at Honours, Master's and PhD levels, as well as graduate and postgraduate certificates and diplomas.

The PhD is the highest degree offered by the School of Biological Sciences. The Faculty of Graduate Research is the initial contact point for all PhD students. Please visit **http://www.victoria.ac.nz/fgr** for all queries, including available funding, the role of a supervisor and the application process.

ENROLLING IN POSTGRADUATE STUDY WITH SBS

Read the course list and visit **www.victoria.ac.nz/sbs/**, and then discuss your interests and options with staff members in the disciplines you're interested in. They'll suggest research topics if applicable (or you can discuss your own ideas with them) and advise you on the courses you should consider taking. Then complete the form at the back of the postgraduate prospectus and hand it to the postgraduate advisor for your subject. **This process is not a substitute for formal pre-enrolment, but we'll notify you if you are provisionally accepted before you have to confirm your enrolment**.

It is recommended that students plan early as some programmes, for example Ecology and Biodiversity and Marine Biology, have summer fieldwork or have seasonal requirements.

Please note also that two of the taught master's courses (MConBio and MMarCon), require participation in a field course (BIOL 424). This course runs in January and intending students must enrol by 15 October for study the following January.

YOUR POSTGRADUATE STUDY OPTIONS

DIPLOMAS AND CERTIFICATES

The School offers a Graduate Diploma in Science (GDipSc), Postgraduate Certificates in Science (PGCertSc), Drug Discovery and Development (PGCertDDD) and Marine Conservation (PGCertMarCon), and Postgraduate Diplomas in Science (PGDipSc), Biomedical Science (PGDipBmedSc), Clinical Research (PGDipClinRes) and Drug Discovery and Development (PGDipDDD).

POSTGRADUATE CERTIFICATE IN SCIENCE

This is a postgraduate programme that can permit the completion of postgraduate study in a focused area within an achievable timeframe while in fulltime work or managing other commitments. The PGCertSc can also provide an earlier exit point from an MSc or BSc(Hons) programme.

The PGCertSc:

- one trimester fulltime or up to two years part-time
- usually consists of all course work (60 points) at PG level
- usually requires a B grade average in related 300-level subjects for admission
- is endorsed in a subject offered for the MSc degree
- can lead to a PGDipSc with 60 further approved points.

POSTGRADUATE DIPLOMA IN SCIENCE

This is a one-year postgraduate programme. The PGDipSc provides an alternative path of postgraduate study for students wanting a coursework postgraduate qualification or for those not admitted to the BSc(Hons) or MSc Part 1 and for those who are not permitted to progress to Part 2 of the MSc but have passed an appropriate 120 points at postgraduate level.

The programme:

- one year fulltime or up to four years part-time
- usually consists of all course work (120 points) at PG level
- usually requires a B grade average in related 300-level subjects for admission
- is endorsed in a subject offered for the MSc degree
- may permit admission to an MSc by research if achieved at a high academic level.

HONOURS AND MASTER'S

HONOURS

The degree is normally undertaken over two semesters and involves 120 points of study, 30 of which come from a research project and requires submission of a thesis.

Prerequisites: An undergraduate degree in the chosen field, with a B+ grade average in relevant 300-level courses.

The school offers programmes as part of the BSc(Hons) with majors in Biotechnology, Cell and Molecular Bioscience, Conservation Biology, Ecology and Biodiversity, Marine Biology and Molecular Microbiology, and a specialist Honours programme in Biomedical Science.

RESEARCH MASTER'S

The degree is normally undertaken over two years (Part 1 and 2). Part 1 involves three courses worth equal marks, plus a research preparation course. Part 2 is full time research.
Prerequisite: An undergraduate degree in the chosen field, with a B+ grade average in relevant 300-level courses.

Entry to Part 2 is dependent on performance in Part 1.
Students with an existing qualification equivalent to Honours may enter directly into Part 2. Under these circumstances the Master's degree is graded Pass, Merit or Distinction and is awarded without Honours. You must have a thesis topic and an agreed supervisor before you can enrol.

TAUGHT MASTER'S

These degrees are normally undertaken over one calendar year and are designed to provide a professional focus in a variety of subject areas including Master of Clinical Immunology (MClinIm), Master of Conservation Biology (MConBio), Master of Drug Discovery and Development (MDDD) and Master of Marine Conservation (MMarCon).
Prerequisite: An undergraduate degree in the chosen field, with a B+ grade average in relevant 300-level courses.

SUBSTITUTION OF COURSES

It is possible to substitute **optional** courses in graduate programmes with courses from other subjects offered at graduate/postgraduate level within the following restrictions: points for the substituted courses are not more than half of those required for the programme; substitute courses are complementary and relevant to the programme; and that no regulations of the Victoria Calendar are broken in so doing. Permission of the Head of School is needed for substitution of courses.

BIOMEDICAL SCIENCE

Entry requirements:

- The requirement for acceptance is to have satisfied the requirements of at least one specialisation of the BBmedSc undergraduate degree, or equivalent. For honours, students must have a B+ grade average in relevant 300-level courses.

BACHELOR OF BIOMEDICAL SCIENCE WITH HONOURS

The degree is normally undertaken over two semesters and involves 90 points worth of courses and a 30-point research project.

Course requirements:

- 30 points chosen from BMSC 401–406; CLNR 413, 414
- 60 points chosen from BIOL 430-432, BMSC 401–499; CLNR 410, 413, 414
- a research project (BMSC 489).

MASTER OF BIOMEDICAL SCIENCE

Part 1 consists of:

- 30 points chosen from BMSC 401–406, CLNR 413, 414.
- 60 points chosen from BIOL 430-432, BMSC 401-499, CLNR 410, 413, 414
- BMSC 580 Research Preparation.

Part 2:

- BMSC 591 (thesis)

The Master's degree in Biomedical Science Part 2 involves a year of full-time work on a research topic in biomedical science. Students must have the equivalent of a BBmedSc(Hons) degree with research experience before enrolling in the programme. Research areas are listed under individual staff interests, and enrolment is only possible after an academic staff member has agreed to act as primary supervisor for the student.

POSTGRADUATE DIPLOMA IN BIOMEDICAL SCIENCE

Before enrolment, a candidate shall have completed a BBmedSc degree or equivalent Bachelor's degree. The personal course of study shall consist of 120 points from BIOL 430-432, BMSC 401–489, CLNR 410 including 30 points from BMSC 401–406, CLNR 413, 414.

BIOTECHNOLOGY

Entry requirements:

- BTEC 301, SCIE 310
- At least 35 points from BMSC 301, BIOL/BMSC 334–354, CHEM 305 or 306 (or equivalent courses subject to approval)
- For honours, the minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

BIOTECHNOLOGY FOR BSC WITH HONOURS

Course requirements:

- BTEC 489, 435
- 75 points from courses BTEC 401–479, BIOL, CHEM or MBIO 400–480 to include at least 15 points from BTEC 401–479
- BTEC 436 strongly recommended.

Substitution of up to two courses from the BSc(Hons) schedule may be made with approval from the Head of School.

BIOTECHNOLOGY FOR MSC

Part 1 consists of:

- BTEC 580, 435
- 75 points from courses BTEC 401–479, BIOL, CHEM or MBIO 400-480 to include at least 15 points from BTEC 401–479.

Part 2:

- BTEC 591 (thesis)

BIOTECHNOLOGY FOR PGDIPSC

The personal course of study shall consist of 120 points from BTEC 401–488, 580, BIOL, CHEM or MBIO 400–480, to include at least 30 points from BTEC 401–479.

CELL AND MOLECULAR BIOSCIENCE

Entry requirements:

- BIOL 340, BMSC 339
- 40 points from BMSC 301, BIOL/BMSC 329–354.

For Honours, the minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

CELL AND MOLECULAR BIOSCIENCE FOR BSC WITH HONOURS

Course requirements:

- CBIO 489
- 90 points in an approved combination from BIOL 430–440, BMSC 433.

CELL AND MOLECULAR BIOSCIENCE FOR MSC

Part 1 consists of:

- CBIO 580
- 90 points in an approved combination from BIOL 430–440, BMSC 433.

Part 2:

- CBIO 591 (thesis)

CELL AND MOLECULAR BIOSCIENCE FOR PGDIPSC

The personal course of study shall consist of 120 points from BIOL 430–440, BMSC 433, CBIO 489, 580

CELL AND MOLECULAR BIOSCIENCE FOR PGCERTSC

60 points from BIOL 430-440, BMSC 433, CBIO 489, 580

CLINICAL IMMUNOLOGY

Entry requirements:

- A Bachelor of Biomedical Science (BBmedSc degree) with a major in Molecular Pathology or an equivalent qualification, with a B grade average or better in the relevant coursework; and
- Acceptance by the Head of School of Biological Sciences as capable of proceeding with the proposed course of study.

MASTER OF CLINICAL IMMUNOLOGY

The Master of Clinical Immunology (MClinIm) is a one-year (full-time) taught Master's programme which combines advanced immunological theory, biostatistics, clinical practice and the opportunity to undertake an individual research project in immunology. Students will be equipped with the skills required to assess, analyse and undertake clinical research in immunology.

While based at Victoria University of Wellington, the programme is delivered by staff at Victoria, the Malaghan Institute of Medical Research, Capital and Coast District Health Board and the Hutt Valley District Health Board.

Students start in Trimester One. Standard trimester closing dates apply.

Part 1 consists of: CLNR 401, 403, 410, 413, 414; 30 points from CLNR 411, 412 or other approved electives.

Part 2: CLNR 510, 511

CLINICAL RESEARCH

Entry requirements:

- All students must apply to be accepted by the Programme Director.
- Those entering the PGDipClinRes will need to have completed a relevant degree in health, medicine, neuroscience, psychology, biomedical science or biostatistics or equivalent (typically with a B+ average in relevant subjects) or demonstrate extensive relevant experience in the field.
- The Master's programme is by thesis only and requires completion of the PGDipClinRes or equivalent. Students with extensive relevant experience directly relevant to the area of their proposed thesis study may also be considered.

POSTGRADUATE DIPLOMA IN CLINICAL RESEARCH

The Postgraduate Diploma in Clinical Research (PGDipClinRes) is a distance taught diploma. It is ideal for people already working in clinical research, or who would like to work in clinical research. It prepares students for undertaking clinical research projects in a professional setting and covers research ethics, statistics, and clinical trial design. The diploma is part of a collaboration with Capital and Coast District Health Board and other medical organisations in the Wellington area, and the teaching staff includes clinicians.

It is offered part time and can be completed over a total of up to four years and consists of all course work (120 points). Students must have a relevant bachelor's degree and/or professional experience for admission.

Course requirements:

- CLNR 401, 402, 403, 404, 405, 580

MASTER OF CLINICAL RESEARCH

The Master of Clinical Research (MClinRes) is a Master's by thesis rather than a taught Master's. Many applicants may choose to undertake this part-time at their place of residence, allowing them to continue work commitments. However, it is important that a potential project and local supervisor have been identified if this route is pursued. An applicant who wishes to relocate to Wellington is invited to discuss potential research projects with the Programme Director. The MClinRes will in many cases lead to an application to undertake a PhD in clinical research.

Course requirements:

- CLNR 591 (thesis)

CONSERVATION BIOLOGY

Entry requirements:

- 60 points in approved BIOL courses numbered 300-399, STAT 193 or equivalent. The minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

CONSERVATION BIOLOGY FOR BSC WITH HONOURS

Course requirements:

- BIOL 420
- 60 points in an approved combination from BIOL 403, 404, 421–424
- Research project (CONB 489)

With permission of the Head of School an approved course may be substituted for one of BIOL 401–440, 510–530, ERES 525–527.

CONSERVATION BIOLOGY FOR PGDIPSC

Course requirements:

- BIOL 420
- 90 points in an approved combination from BIOL 401–440, 519, ERES 525–527 or other approved courses.

MASTER OF CONSERVATION BIOLOGY

The Master of Conservation Biology (MConBio) programme is a professional one year Master's drawing on scientific expertise and its application to conservation throughout New Zealand. The programme is 180 points of study, including three core courses and 90 points of electives within an approved programme of study.

The January/February start to the programme begins with a four-week field course, *New Zealand Conservation Practice* (BIOL 424). Upon return to Wellington, students conduct critical analyses of key management issues, and take two seminar-style courses; *Conservation Ecology* (BIOL 420) and an approved elective. The July start to the programme includes a field based course, *Invasive Species, Biosecurity and the Law* (BIOL 425), and two approved electives. There is potential to include an international post-graduate exchange. There is no thesis component to the MConBio.

Entry requirements:

A Bachelor's degree in a biological or other relevant discipline with a B+ average in relevant 300-level courses, or approval of the Associate Dean (Students).

Course requirements:

BIOL 405, 420, 424 and 90 points in an approved combination from BIOL 401–440, 510–530, ENVI 505, ERES 525–527 or other courses approved by the Head of School.

Application deadline: October 15 in the year prior for studies starting in January, and normal university enrolment dates for a July start.

DRUG DISCOVERY AND DEVELOPMENT

Research in drug discovery and development enables the identification of new drug targets and therapeutics. Postgraduate programmes in Drug Discovery and Development programmes are offered in a collaboration between the Centre for Biodiscovery, the Ferrier Research Institute and the Schools of Biological Sciences and Chemical and Physical Sciences.

These programmes (Postgraduate Certificate, Postgraduate Diploma and Master's) operate on the interface between the fields of chemistry and biological sciences, drawing on the research expertise of the Ferrier Research Institute in drug design and development and on expertise from the Centre for Biodiscovery in the discovery and design of bioactive compounds and the determination of their modes of action.

Students will be provided with a programme of study tailored to their personal skills and interests, with flexibility being offered by the opportunity to undertake directed individual study courses. It uses a mix of academic and practical skills, and is closely aligned to the needs of pharmaceutical industry in the areas of drug design and development, including bioanalytical, chemical and related industries, nutraceuticals and agrichemicals.

For more information see **www.victoria.ac.nz/scps/study/postgraduate-study/drug-discovery-and-development** or contact Dr Simon Hinkley, Programme Director **simon.hinkley@vuw.ac.nz** 04-463 0065

Entry requirements: A Bachelor's degree in a biological or other relevant discipline or approval of the Associate Dean (Students).

POSTGRADUATE CERTIFICATE IN DRUG DISCOVERY AND DEVELOPMENT

The personal course of study shall consist of 60 points including:

- DRDG 401; one of CHEM 421, DRDG 402
- a further 30 points from BMSC 400-441, BTEC 435-441, CHEM 400-441, CLNR 401-405, DRGD 402-403, MBIO 434-440

POSTGRADUATE DIPLOMA IN DRUG DISCOVERY AND DEVELOPMENT

The personal course of study shall consist of 120 points including:

- DRDG 401; one of CHEM 421, DRDG 402
- a further 60 points from BMSC 400-441, BTEC 435-441, CHEM 400-441, CLNR 401-405, DRGD 402-403, MBIO 434-440
- DRDG 580

MASTER OF DRUG DISCOVERY AND DEVELOPMENT

The Master of Drug Discovery and Development (MDDD) is a one-year (full-time) 180-point Master's programme that includes a 60-point research project.

Part 1 consists of:

- DRDG 401; one of CHEM 421, DRDG 402
- a further 60 points from BMSC 400-441, BTEC 435-441, CHEM 400-441, CLNR 401-405, DRGD 402-403, MBIO 434-440

- DRDG 580

Part 2:

- DRGD 561 or 590

The MDDD may be endorsed with one of the following specialisations:

Drug Development: DRGD 401, 402 and 403

Drug Discovery: DRGD 401; one of DRGD 402 or CHEM 421; 15 further points from DRGD 402, CHEM 421, BMSC 432, BTEC 435, MBIO 401

Chemical Biology: DRGD 401, CHEM 421; 15 further points from BMSC 405, 430–433, CHEM 424–425

The option of a thesis is available for suitably qualified students. Students may replace DRGD 580 or 590 with DRGD 595 (Research Thesis) with permission from the Programme Director.

ECOLOGICAL RESTORATION

Entry requirements:

- 60 points in approved BIOL courses numbered 300-399 and STAT 193 or equivalent. The minimum internal requirement for acceptance for both MSc and PGDipSc is a B+ grade average in relevant 300-level courses.

ECOLOGICAL RESTORATION FOR MSC

The Master of Science in Ecological Restoration is a two year programme. For part 1 there are two compulsory courses (ERES 525 and 580) and two other approved courses. Part 2 consists of a research thesis (ERES 591).

Part 1 consists of:

- ERES 525, 526, 580
- 30 points in an approved combination from BIOL 403, 404, 421–440, 519, ENVI 503–529 or other courses approved by the Head of School.

Part 2:

- ERES 591 (thesis)

ECOLOGICAL RESTORATION FOR PGDIPSC

Course requirements:

- ERES 525, 526
- 60 points in an approved combination from BIOL 403, 404, 421–440, ENVI 503–508 or other courses approved by the Head of School.

ECOLOGY AND BIODIVERSITY

Entry requirements:

- 60 points in approved BIOL courses numbered 300-399; STAT 193 or equivalent. The minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

ECOLOGY AND BIODIVERSITY FOR BSC WITH HONOURS

Course requirements:

- EBIO 489, BIOL 403, 422
- 30 points from BIOL 405, 420, 423, 426, 519.

With permission of the Head of School, one of BIOL 427, 428, 430, 440 may be substituted for one course from the second bullet-point above.

ECOLOGY AND BIODIVERSITY FOR MSC

Part 1 consists of:

- BIOL 405 or 422, 580
- 60 points from BIOL 401–440, 519, ERES 525–527 or other approved courses.

Part 2:

- EBIO 591 (thesis)

ECOLOGY AND BIODIVERSITY FOR PGDIPSC

BIOL 405 or 422; 90 points from BIOL 401–440, 519, ERES 525–527 or other approved courses.

MARINE BIOLOGY

Entry requirements:

- 60 points in approved BIOL courses numbered 300-399, STAT 193 or equivalent.
- The minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

MARINE BIOLOGY FOR BSC WITH HONOURS

Course requirements:

- BIOL 422, 423, BMAR 489
- 30 points from (BIOL 403, 405, 410, 416, 417, 420, 421, 426, 519)

MARINE BIOLOGY FOR MSC

Part 1 consists of:

- BIOL 423, 580
- 60 points from BIOL 401–440, 519, ERES 525–527 or other approved courses

Part 2:

- BMAR 591 (thesis)

MARINE BIOLOGY FOR PGDIPSC

Course requirements:

- BIOL 423 and 90 points from BIOL 401–440, 519, ERES 525–527 or other approved courses

MARINE CONSERVATION

Entry requirements:

- 60 points in approved BIOL courses numbered 300-399, STAT 193 or equivalent.
- The minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

MASTER OF MARINE CONSERVATION

The Master of Marine Conservation (MMarCon) is a 12-month 180 point taught professional degree, which can be started in either January or June.

Part 1 (January-June) consists of:

- BIOL 424
- 60 further points from the MMarCon Schedule (e.g. BIOL 405, 416, 417, 420, 422, 423, 436, ERES 526, ENVI 505, MAOR 411)

Part 2 (June-December):

- BIOL 519 and 529,
- 30 further points from the MMarCon Schedule (e.g. BIOL 403, 410, 440, BMAR 580, ERES 526, ENVI 506, MAOR 409, PASI 402–403)

The Trimester 1 start to the programme begins with a four-week field course in January/February, *New Zealand Conservation Practice* (BIOL 424). Upon return to Wellington, students conduct critical analyses of key management issues, and take two seminar-style courses.

Application deadline: October 15 in the year prior for studies starting in Trimester 1, and March 1 for studies starting in Trimester 2.

POSTGRADUATE CERTIFICATE IN MARINE CONSERVATION

The 90-point certificate consists of courses chosen from the Master of Marine Conservation schedule, and includes at least one of BIOL 424, 519 and 529. The certificate is usually completed in six months (full-time) or twelve months (part-time).

MOLECULAR MICROBIOLOGY

Molecular Microbiology is at the forefront of developments in the biosciences. It addresses some of the most pressing biological needs of mankind including the discovery of new medicines to prevent and treat infectious diseases. It examines microbes at the cellular and community levels in a range of environments including humans. It aims to define the molecular basis for important processes such as host-pathogen interactions, antibiotic resistance, and cell-cell communication. Whole genome sequencing has facilitated the identification of stages in the life cycle of microbes that can be targeted with respect to advancing human health or biotechnologies. The School of Biological Sciences, together with its partner research institutes, offers BSc(Hons), MSc and PhD degrees in Molecular Microbiology.

Entry requirements:

- BIOL 340, BMSC 301, BTEC 201
- 20 points from BIOL 236, BMSC 334, BTEC 301, or equivalent

For honours, the minimum internal requirement for acceptance is a B+ grade average in relevant 300-level courses.

MOLECULAR MICROBIOLOGY FOR BSC WITH HONOURS

Course requirements:

- BIOL 430, MBIO 434, 489
- 30 points from (BIOL 400–429, 431–439, MBIO 440)

Substitution of up to two optional courses from the BSc(Hons) schedule may be made with approval from the Head of School.

MOLECULAR MICROBIOLOGY FOR MSC

Part 1 consists of:

- BIOL 430, MBIO 434, 580
- 30 points from BIOL 400–429, 431–439, MBIO 440

Substitution of up to two optional courses from the BSc(Hons) schedule may be made with approval from the Head of School.

Part 2:

- MBIO 591 (thesis)

400 – 500 LEVEL COURSES

The following courses are available for study of Cell and Molecular Bioscience, Ecology and Biodiversity, Marine Biology, and may be applicable to students planning programmes in the subject areas listed from page 26.

Course information index

Course code ↓	Course reference number ↓	Title ↓	Points ↓	Trimester ↓
BIOL 403	**CRN 588**	**EVOLUTION**	**30 PTS**	**2/3**

BIOL 403 CRN 588 EVOLUTION 30 PTS 2/3

Prerequisite: BIOL 329 or permission of the Head of School
Coordinators: Dr Peter Ritchie, A/Prof Joe Zuccarello

The course focuses on the fundamental ideas in evolution reconstruction. There is focus on both the theory and the practice of evolutionary biology, with an emphasis on DNA sequence analysis and using these types of data to interpret the patterns and processes of evolution.

BIOL 405 CRN 29141 INVASIVE SPECIES, BIOSECURITY AND LAW 30 PTS 2/3

Prerequisite: 45 points from an approved combination of 300-level EBIO, BMAR, BIOL, or LAWS courses, or permission of Head of School.
Restrictions: BIOL 425 prior to 2017
Coordinator: Prof Phil Lester and Prof Suzy Frankel (School of Law)

This course will encompass biosecurity management from both biological and legal perspectives, including relevant statutes and key international agreements and related dispute settlement processes. Students in this course will study both national and international law regulating invasive species and biosecurity management. The course will include recent case studies and Maori perspectives on biodiversity and biosecurity.

BIOL 410 CRN 27047 FISHERIES SCIENCE 30 PTS 2/3

Prerequisite: 30 points of statistics at 200-level or above, or permission of Head of School
Coordinator: Dr Alice Rogers

Underlying principles and techniques used in fisheries science. Topics include population responses to exploitation, collection of fish biology and fishery data, statistical data analysis and population models, and the application of science in resource management. The course is interdisciplinary, with a focus on putting theory into practice.

BIOL 414	CRN 27127	ADVANCED ISLAND ECOLOGY AND EVOLUTION - INTERNATIONAL FIELD COURSE	15 PTS	1/3

Prerequisite: 20 points from 300-level Ecology or Evolution, or permission of Head of School
Restriction: BIOL 314
Coordinator: Prof KC Burns
Course costs: Travel, food and accommodation costs will be covered by students (approximately NZ$3,000). Students must also meet Australian travel visa requirements.

This course explores the biology of isolated landmasses. The primary focus of the course is a field trip to Lord Howe Island (LHI). First, students will learn the ecological principles that shape the evolution of island biotas in readings and pre-recorded lectures prior to the field trip. Next, students will travel to LHI for a week to conduct a range of field exercises that reinforce concepts that were covered previously readings and lectures. Students will also explore the specific conservation issues facing LHI and how they relate to the challenges that will likely face New Zealand in the future.

BIOL 416	CRN 27133	ADVANCED METHODS IN MARINE SCIENCE	15 PTS	1/3

Prerequisite: 20 points from 300-level Ecology or permission of the Head of School
Corequisite: BIOL 417
Restriction: BIOL 428 in 2010–2014
Coordinator: Prof Jonathan Gardner

An advanced course in the development of practical skills in research design, implementation and analysis in Marine Science. Students will participate in two field components: one compulsory unit based at Victoria University, the other unit to be chosen from those offered by Otago or Auckland Universities. Each field course is one week in duration and is scheduled out of normal teaching time. Students wishing to take this course should contact the course coordinator (**jonathan.gardner@vuw.ac.nz**) in early December for more details and to confirm their interest. Note that there is an additional $300 field costs fee charged.

BIOL 417	CRN 27134	CURRENT ISSUES IN MARINE SCIENCE	15 PTS	1/3

Prerequisite: 20 points from 300-level Ecology or permission of the Head of School
Restriction: BIOL 427 in 2010–2014
Coordinator: Prof Jonathan Gardner

A seminar-based examination of selected current issues in marine science. Seminars will be jointly run using the KAREN computer network link between the Universities of Auckland, Otago and Victoria. The topics and material will recognise the wide range of experience of the participants and emphasise the value of cross-disciplinary approaches to marine science (not just marine biology).

BIOL 420	CRN 5036	CONSERVATION ECOLOGY	30 PTS	1/3

Prerequisite: 300-level Ecology or permission of the Head of School
Coordinators: A/Prof Heiko Wittmer

Ecological theory, principles and practice relating to biological conservation. A selection of prescribed and optional ecological topics in conservation including island biogeography and

nature reserves, sex and mating systems, species harvesting and utilisation, determining priorities, invasion risk and ecosystem threats, conservation genetics, landscape and urban ecology, ecological evaluation and services, species ecology, management and conservation.

BIOL 422	**CRN 9586**	**ECOLOGY**	**30 PTS**	**1/3**
Prerequisite:		300-level Ecology or permission of the Head of School		
Coordinator:		A/Prof Nicole Phillips		

In this course we will evaluate how foundational ecological ideas/concepts have originated and changed over time, and obtain an appreciation for some of the innovative approaches that researchers today are applying to address long-standing (i.e. “classic”) ideas/questions in ecology. We integrate material across a variety of disciplines and systems.

BIOL 423	**CRN 9587**	**MARINE BIODIVERSITY AND ECOLOGY**	**30 PTS**	**1/3**
Coordinators:		A/Prof Ken Ryan		

Discussion and critical evaluation of current research topics in marine biology, including marine diversity and ecology, and the physiology of marine organisms.

BIOL 424	**CRN 9629**	**NEW ZEALAND CONSERVATION PRACTICE**	**30 PTS**	**NS**
Prerequisite:		300-level Ecology or permission of the Head of School		
Coordinator:		A/Prof Nicola Nelson		

A practical and field based course in New Zealand’s terrestrial and marine flora and fauna and its conservation. In consultation with professional, governmental and nongovernmental organisations we aim to provide an understanding of the practical processes of conservation biology in New Zealand. The course will focus around field trips in late January–February to different conservation sites around New Zealand. The topics we cover will include the role of the Treaty of Waitangi in New Zealand conservation, invasive species, endangered species, commercial use of conservation resources, land use issues, mainland islands and island conservation.

There is a course charge to pay for expenses incurred in the field. This covers transport, accommodation, food etc. Please notify Dr Nelson as early as possible if you are interested.

Applications closed 15 October 2018 for enrolment in this course.

BIOL 430	**CRN 9228**	**GENETICS AND MOLECULAR BIOLOGY**	**30 PTS**	**2/3**
Prerequisite:		45 points from approved combination of 300-level BIOL, BMSC, CHEM, PSYC courses or permission of Head of School		
Restriction:		BMSC 430		
Coordinator:		Dr Melanie McConnell		

An in-depth review of research and modern concepts in heredity, genomics, gene regulation, and molecular biology.

BIOL 431	CRN 9229	CELL BIOLOGY	30 PTS	2/3
Prerequisite:		45 points from approved combination of 300-level BIOL, BMSC, CHEM, PSYC courses or permission of Head of School Approved courses to include at least 20 points from BIOL 340, BMSC 343. All 45 points to be achieved at B grade or above.		
Restriction:		BMSC 431		
Coordinator:		Dr Janet Pitman		

Advances in cellular processing, function and architecture, including aspects of developmental biology.

BIOL 432	CRN 9230	PHYSIOLOGY AND PHARMACOLOGY	30 PTS	1/3
Prerequisite:		45 points from approved combination of 300-level BIOL, BMSC, CHEM, PSYC courses or permission of Head of School Approved courses to include at least 20 points from BIOL 340, BMSC 343. All 45 points to be achieved at B grade or above.		
Restriction:		BMSC 432		
Coordinators:		Prof John Miller, A/Prof Paul Teesdale-Spittle		

Advances in physiological and pharmacological sciences at the molecular, cellular and organismal levels, including integrative physiology of organ systems, the mechanistics of drug interactions with biological systems, pharmacokinetics and the structural design, targeting and biological reactivity of molecular probes and drugs.

BIOL 436	10772	SPECIAL TOPIC: ADVANCED COMMUNITY ECOLOGY	30 PTS	2/3
Prerequisite:		BIOL 327 or 325 or permission of Head of School		
Coordinator:		Dr Julie Deslippe		

Community ecology studies the interactions between populations of co-existing species. It underpins conservation and restoration goals from scales of genes to ecosystems. This course delves into emerging network-based theories in community ecology, exploring their potential to address pressing contemporary issues (e.g. climate change).

BIOL 440	DIRECTED INDIVIDUAL STUDY	30 PTS

A supervised programme of study approved by the Head of School. If interested in taking this course, in the first instance you are advised to contact the graduate programme coordinator in the subject area you are interested in. There are no formal prerequisites for this course which is available for all trimesters: permission must be obtained from the Head of School.

BIOL 519	CRN 26208	PRINCIPLES OF MARINE CONSERVATION	30 PTS	2/3
Prerequisite:		60 points from 300-level marine biology, ecology or environmental studies or permission of the Head of the School		
Restriction:		BIOL 419		
Coordinator:		Prof James Bell		

This course focuses on the underlying principles of marine conservation and management. Topics may include: population and extinction risks; coastal dynamics; marine chemistry and pollution; exploitation of marine bio-resources, including fisheries ecology; bio-invasions and disease; global climate change; marine reserve ecology; and scenario planning.

BIOL 529	**CRN 26209**	**TROPICAL MARINE CONSERVATION PRACTICE**	**30 PTS**	**2/3**

Prerequisite: Enrolment in PGCertMarCon, MMarCon or MSc in Marine Biology or permission of the Head of School.
Restriction: BIOL 429
Coordinator: Prof Simon Davy

Students should notify the course coordinator of their intention to enrol by 1 March 2019.

An examination of conservation issues and practices in tropical coastal environments, with particular emphasis on coral reefs, mangroves and seagrasses.
This two-week field course provides practical experience of identifying, monitoring and managing impacts on tropical marine ecosystems. The course is taught overseas.

Please note: there are additional field trip costs for this course.

BIOL 489	**CRN 3201**	**RESEARCH PROJECT**	**30 PTS**
BMAR 489	**CRN 9579**	**RESEARCH PROJECT**	**30 PTS**
EBIO 489	**CRN 9580**	**RESEARCH PROJECT**	**30 PTS**

A research project on a topic approved by the Head of School. There are multiple offerings of these courses throughout the academic year, please contact the postgraduate coordinator to discuss your options.

BIOL 580	**RESEARCH PREPARATION**	**30 PTS**
CBIO 580	**RESEARCH PREPARATION**	**30 PTS**

A course of study in preparation for a Master's part 2 research programme. The course is to be no less than 300 hours study or research and to be agreed with the research supervisor (or postgraduate coordinator if the supervisor is not yet known). Typical activities could include undertaking preliminary research investigations, developing key practical or theoretical skills, undertaking in depth analysis of the literature or an existing dataset. There are multiple offerings of these courses throughout the academic year, please contact the postgraduate coordinator to discuss your options.

BIOMEDICAL SCIENCE

BMSC 405	**CRN 19800**	**ADVANCED TOPICS IN BIOMEDICAL SCIENCE 1**	**15 PTS**	**1/3**

Prerequisite: 45 points from an approved combination of 300-level BMSC, BIOL, CHEM, PSYC courses or permission of Head of School.
Approved courses: BMSC 301–354 (or BIOL equivalents). All 45 points to be achieved at B grade or above.
Coordinator: Dr Janet Pitman

A detailed examination of currently developing areas of major importance in biomedical science including but not limited to molecular pathology, vaccine immunology, and medicinal chemistry.

BMSC 406	**CRN 19799**	**ADVANCED TOPICS IN BIOMEDICAL SCIENCE II**	**15 PTS**	**2/3**

Prerequisite: 45 points from an approved combination of 300-level BMSC, BIOL, CHEM, PSYC courses or permission of Head of School
Approved courses: BMSC 301–354 (or BIOL equivalents). All 45 points to be achieved at B grade or above.
Coordinator: Prof Anne La Flamme

A detailed examination of currently developing areas of major importance in biomedical science including but not limited to immunology, pathology, and ethics.

BMSC 433	**CRN 9861**	**HUMAN AND CLINICAL BIOCHEMISTRY**	**30 PTS**	**1/3**

Prerequisite: 45 points from BIOL 301–354 or an approved combination of 300-level BMSC, CHEM, PSYC courses
Approved courses to include at least 20 points from BIOL 340, BMSC 343. All 45 points to be achieved at B grade or above.
Restriction: BIOL 433
Coordinators: Dr Darren Day, A/Prof Bronwyn Kivell

Cellular and molecular biochemistry of normal and pathological cell function with an emphasis on human disease processes and therapeutic treatments.

BMSC 440	**CRN 10013**	**DIRECTED INDIVIDUAL STUDY**	**30 PTS**	**1+2/3**
	CRN 16012			**1/3**
	CRN 27300			**2/3**

A supervised programme of study approved by the Head of School. If interested in taking this course, in the first instance you are advised to contact the graduate programme coordinator in the subject area you are interested in. There are no formal prerequisites for this course: permission must be obtained from the Head of School.

BMSC 489	**CRN 9862**	**BIOMEDICAL SCIENCE RESEARCH PROJECT**	**30 PTS**	**1+2/3**

Prerequisite: BMSC 361 or CHEM 305

A research project on a topic approved by the Head of School.

CLNR 413 CRN 29083 ADVANCED TOPICS IN CLINICAL RESEARCH 1 15 PTS 1/3

Prerequisite:	45 points from an approved combination of 300-level BMSC, BIOL, CHEM, PSYC courses or permission of Head of School
Approved courses:	BMSC 301–354 (or BIOL equivalents). All 45 points to be achieved at B grade or above.
Restriction:	BIOL 403 prior to 2017
Coordinator:	Prof Anne La Flamme

A detailed examination of selected topics in developing areas of clinical science and practice. In particular, the subjects covered may include such topics as immunology, epidemiology, or molecular therapeutics and shall include knowledge of current research activity in terms of theory and practice. This course will take place at the Wellington Hospital site.

CLNR 414 CRN 29084 ADVANCED TOPICS IN CLINICAL RESEARCH 2 15 PTS 2/3

Prerequisite:	45 points from an approved combination of 300-level BMSC, BIOL courses including BMSC 334 or permission of Head of School.
Approved courses:	BMSC 301–354 (or BIOL equivalents). All 45 points to be achieved at B grade or above.
Restriction:	BIOL 404 prior to 2017
Coordinator:	Prof Anne La Flamme

A detailed examination of further selected topics in developing areas of clinical science and practice. In particular, the subjects covered may include such topics as pharmacology, haematology, or surgical interventions and shall include knowledge of current research in terms of theory and practice. This course will take place at the Wellington Hospital site.

BMSC 580 CRN 9863 RESEARCH PREPARATION 30 PTS 1+2/3

A course of study in preparation for a Master's part 2 research programme. The course is to be no less than 300 hours study or research and to be agreed with the research supervisor (or postgraduate coordinator if the supervisor is not yet known). Typical activities could include undertaking preliminary research investigations, developing key practical or theoretical skills, undertaking in depth analysis of the literature or an existing dataset.

BIOTECHNOLOGY

BTEC 435 CRN 15708 BIOTECHNOLOGY 1 15 PTS 1/3

Approved courses: BTEC 301, BIOL/BMSC 301–354, CHEM 301–306 to include at least 20 points from BTEC 301, BIOL/BMSC 339, 340. All 45 points to be achieved at B grade or above.

Coordinator: Prof David Ackerley

Seminars introducing topics of current interest in biotechnology research.

BTEC 436 CRN 15709 BIOTECHNOLOGY 2 - BUSINESS DEVELOPMENT 15 PTS 2/3

Approved courses: SCIE 310, BTEC 201, 301, BIOL/BMSC 301–354, CHEM 301–306 to include at least 20 points from SCIE 310, BTEC 201. All 45 points to be achieved at B grade or above.

Coordinator: A/Prof Paul Teesdale-Spittle

Evaluation of business strategic decision-making and intellectual property as applied within a biotechnology business context.

BTEC 440 CRN 15710 DIRECTED INDIVIDUAL STUDY 30 PTS 1+2/3

A supervised programme of study in biotechnology approved by the Head of School. If you are interested in taking this course, contact A/Prof David Ackerley in the first instance. Acceptance into such courses will be for exceptional reasons only (e.g. for a student-designed project that will interface directly with a specific biotechnology company). There are no formal prerequisites: permission must be obtained from the Head of School, following the initial consultation with Prof Ackerley.

BTEC 441 CRN 15711 DIRECTED INDIVIDUAL STUDY 15 PTS 1/3
CRN 18016 2/3

A supervised programme of study in biotechnology approved by the Head of School. If interested in taking this course, in the first instance you should contact A/Prof David Ackerley. For acceptance see BTEC 440 above.

BTEC 489 CRN 15712 RESEARCH PROJECT 30 PTS 1+2/3

Prerequisite: Permission of Head of School

A research project on a topic approved by the Head of School.

CBIO 489 CRN 9276 RESEARCH PROJECT 30 PTS 1+2/3

Prerequisite: Permission of Head of School

A research project on a topic approved by the Head of School.

BTEC 580 CRN 15713 RESEARCH PREPARATION 30 PTS 1+2/3

A course of study in preparation for a Master's part 2 research programme. The course is to be no less than 300 hours study or research, and to be agreed with the research supervisor (or postgraduate coordinator if the supervisor is not yet known). Typical activities could include undertaking preliminary research investigations, developing key practical or theoretical skills, undertaking in depth analysis of the literature or an existing dataset.

CLINICAL IMMUNOLOGY

CLNR 410	**CRN 27056**	**CLINICAL IMMUNOLOGY**	**30 PTS**	**1/3**
Prerequisite:		45 points from an approved combination of 300-level BMSC and BIOL courses including BMSC 334 or permission of Head of School All 45 points to be achieved at B grade or above		
Coordinator:		Prof Anne La Flamme		

This course will provide a broad understanding of recent advances in immunology as well as advanced understanding in specialist areas of clinical immunology. In particular, the subjects covered shall include knowledge of current research activity in terms of theory and practice.

CLNR 411	**CRN 28222**	**PRACTICUM IN CLINICAL IMMUNOLOGY**	**30 PTS**	**2/3**
Prerequisite:		Enrolment in MClinIm; and approval by Head of School		
Coordinator:		Prof Anne La Flamme		

This course enables students to gain professional work experience in clinical immunology. Each student is supervised by a host organisation involved in immunological research or applications in the public or private sectors. The placement allows students to further develop teamwork and communication skills.

CLNR 412	**CRN 29135**	**RESEARCH PROJECT IN CLINICAL IMMUNOLOGY**	**30 PTS**	**2/3**
Prerequisite:		Enrolment in MClinIm; and approval by Head of School		
Coordinator:		Prof Anne La Flamme		

A research project in Clinical Immunology approved by the Head of School

CLNR 510	**CRN 28223**	**ADVANCED CLINICAL IMMUNOLOGY**	**30 PTS**	**3/3**
Prerequisite:		Enrolment in the MClinIm and approval to proceed to Part 2		
Coordinator:		Dr Lisa Connor		

This course will enable the development of an advanced understanding in clinical immunology. Specifically, this course shall promote critical analysis of recent advances and clinical trials and will emphasize the development of skills in science communication.

CLNR 511	**CRN 28224**	**RESEARCH DESIGN AND IMPLEMENTATION**	**30 PTS**	**3/3**
Prerequisite:		Enrolment in the MClinIm and approval to proceed to Part 2		
Coordinator:		Prof Anne La Flamme		

This course consists of the mentor-guided development of a clinical or immunological study including the implementation pathway. In particular, students will design and produce a research proposal complete with a literature review, methodological detail, a budget, and ethical considerations.

CLINICAL RESEARCH

CLNR 401	**CRN 18711**	**INTRODUCTION TO CLINICAL RESEARCH AND CLINICAL TRIAL PRACTICE**	**15 PTS**	**1/3**
Prerequisite		Approval from course coordinator		
Coordinator:		Dr Richard Carroll & Dr Rosemary Hall		

A broad framework for understanding clinical research including the critical appraisal of the literature, clinical trials planning, preparation and implementation.

CLNR 402	**CRN 18712**	**ETHICS AND RESEARCH IN SPECIAL POPULATIONS AS APPLIED TO CLINICAL RESEARCH**	**15 PTS**	**1/3**
Prerequisite		Approval from course coordinator		
Coordinator:		Dr Richard Carroll & Dr Rosemary Hall		

An understanding of the place of ethics in clinical research common ethical issues that arise and how to analyse them and find solutions. The role of ethics committees, applications to ethics committees and Good Clinical Practice. An in-depth consideration of obligations under the Treaty of Waitangi with special regard to ethics and community based research. The development of an appropriate and inclusive approach to clinical research with special populations.

CLNR 403	**CRN 18713**	**BIOSTATISTICS AND INFORMATICS**	**15 PTS**	**2/3**
Prerequisite		Approval from course coordinator		
Coordinator:		Dr Richard Carroll & Dr Rosemary Hall		

Biostatistics relevant to clinical research with the focus on quantitative method and applications for clinical trials. informatics will be introduced with its application to clinical research including information gathering, processing and storage.

CLNR 404	**CRN 18714**	**QUALITIVE METHODS IN CLINICAL RESEARCH**	**15 PTS**	**2/3**
Prerequisite		Approval from course coordinator		
Coordinator:		Dr Richard Carroll & Dr Rosemary Hall		

An understanding of the place of qualitative research in clinical research both in a stand-alone context and combined with quantitative research. This course will include interview techniques contrasting advantages and disadvantages of different approaches and a range of other qualitative techniques.

CLNR 405	CRN 18715	ADVANCED CLINICAL RESEARCH DESIGN, MANAGEMENT AND ANALYSIS	30 PTS	1/3
Prerequisite		Approval from course coordinator		
Coordinator:		Prof Elaine Dennison		

An understanding of the practices and processes of clinical research, including clinical trials, project management, regulatory reports and audits, requirements specific to industry-funded research and the preparation and submission of study reports for publication.

Students must complete courses CLNR 401–404, prior to enrolling in CLNR 580.

CLNR 580	CRN 18716	RESEARCH PREPARATION	30 PTS	2/3
Prerequisite		Approval from course coordinator		
Coordinator:		Dr Richard Carroll & Dr Rosemary Hall		

Students will bring together material from many of the other courses and write an original, full, research grant application describing a proposed clinical research project: background and aims, clinical relevance, hypotheses to be tested, design and methods, analysis of results, dissemination of results, a plan for project management including staffing, budget, timeline and milestones for project delivery and quality management issues, consultation, an ethics committee application for the project and any other regulatory body applications required.

CLNR 591	CRN 23059	THESIS IN CLINICAL RESEARCH	120 PTS
Prerequisite		PGDipClinRes or its equivalent or approval by Programme Director	
Coordinator:		Prof Elaine Dennison	

Students are part time and enrol in 30 points at a time, beginning in trimester 1, and complete the programme on a part-time basis over two years.

DRUG DISCOVERY AND DEVELOPMENT

DRGD 401	**CRN 28255**	**CHEMICAL BIOLOGY AND DRUG DISCOVERY**	**15 PTS**	**1/3**
Prerequisite:		CHEM 301		
Corequisite:		CHEM 441		

An advanced course covering target identification and validation, biological assays and use of natural products in the context of drug discovery.

DRGD 402	**CRN 28256**	**DRUG DESIGN**	**15 PTS**	**2/3**
Prerequisite:		CHEM 201; 30 points from an approved combination of 300-level BMSC, BIOL, CHEM courses		

An advanced course with a focus on medicinal chemistry and the formulation of active pharmaceutical products.

DRGD 403	**CRN 28257**	**DRUG DEVELOPMENT**	**15 PTS**	**2/3**
Prerequisite:		15 points from CHEM 201, 203, 225; 30 points from an approved combination of 300-level BMSC, BIOL, CHEM, SCIE		

An introduction to advanced-stage development of drugs, synthesis scale-up and cGMP practices, pharmaceutical analytical chemistry, protection of intellectual property and regulatory requirements.

DRGD 561	**CRN 28258**	**APPLIED RESEARCH PROJECT**	**60 PTS**	**3/3**
Prerequisite:		120 points from approved combination of 400-level BMSC, BIOL, CHEM, DRGD courses or approval of the Programme Director		
Restrictions:		DRGD 590		

One or more problem-solving projects providing students with experimental and research skills.

DRGD 580	**CRN 28259**	**RESEARCH PREPARATION**	**30 PTS**	**1+2/3**
Prerequisite:		As required for acceptance into the programme		

A course which equips students with the skills required to effectively perform research, and includes literature retrieval and surveys, report writing, data reporting and statistical analysis, development of a research proposal and problem-solving skills.

DRGD 590	**CRN 28260**	**RESEARCH PROJECT**	**60 PTS**	**2/3**
Prerequisite:		120 points from an approved combination of 400-level BMSC, BIOL, CBIO, CHEM, DRGD courses to include 30pts from		
Restrictions:		DRGD 580, CHEM 580, CBIO 580 or approval of the Programme Director DRGD 561		

A research project leading to a comprehensive report.

DRGD 595	**CRN 28261**	**RESEARCH THESIS**	**90 PTS**	**1+2+3**

Prerequisite:	45 points from an approved combination of 400-level BMSC, BIOL, CBIO, CHEM, DRGD with a minimum grade average of B+ or approval of the Programme Director
Restrictions:	DRGD 561, 580, 590

ECOLOGICAL RESTORATION

ERES 525 CRN 13632 ECOLOGICAL RESTORATION 30 PTS 1/3

Coordinator: A/Prof Wayne Linklater

Restoration Ecology is considered alongside Reservation and Reconciliation Ecology to develop an understanding of the relationship of people with the environment and biodiversity. The course begins by considering the philosophical, political, economic and social aspects underlying the science of ecology for biodiversity reservation, restoration and reconciliation. Course content is topical and structured around debating current dilemmas and challenges in applied ecology, especially for those whose solution requires that the social and ecological sciences be integrated.

ERES 526 CRN 13758 ECOLOGICAL RESTORATION PRACTICUM 30 PTS 2/3

Coordinator: A/Prof Stephen Hartley, A/Prof Heiko Wittmer

Students will develop practical skills and obtain knowledge enabling them to become involved in restoration projects. Special focus will be placed on skills that enable students to develop and implement a restoration plan but projects designed to evaluate the success of restoration efforts are also suitable. Students are expected to work with either government agencies (e.g. Wellington City Council, Greater Wellington Regional Council, Department of Conservation) and/or local community groups to get hands-on experience with actual restoration projects. Within this general framework (and with input from staff), students are expected to develop their own project.

MOLECULAR MICROBIOLOGY

MBIO 434 CRN 13742 MICROBIOLOGY 30 PTS 1/3
Coordinator Dr Joanna MacKichan

This course will consist of seminars introducing topics of contemporary importance in microbiology research, providing insight into the techniques used in microbiology and the development of advanced concepts and knowledge in the field. The course will be assessed by a combination of in-term assessments and a final exam. Students are strongly advised to have taken BMSC 301 or an equivalent level of microbiology as preparation for this course.

MBIO 440 CRN 13743 DIRECTED INDIVIDUAL STUDY 30 PTS 1+2/3
Restriction: BIOL 440

Not offered in 2019.

MBIO 489 CRN 13744 RESEARCH PROJECT 30 PTS 1+2/3
Prerequisite: Permission of the Head of School.

A research project on a topic approved by the Head of School.

MBIO 580 CRN 13745 RESEARCH PREPARATION 30 PTS 1+2

A course of study in preparation for a Master's part 2 research programme. The course is to be no less than 300 hours study or research and to be agreed with the research supervisor (or postgraduate coordinator if the supervisor is not yet known). Typical activities could include undertaking preliminary research investigations, developing key practical or theoretical skills, undertaking in depth analysis of the literature or an existing dataset.

QUESTIONNAIRE FOR INTENDING GRADUATE STUDENTS IN SBS FOR 2018

Applicants for admission to the graduate group should discuss their general interests with the appropriate staff such as potential supervisors, or the relevant graduate coordinator, preferably before the summer vacation break. You are encouraged also to discuss possible projects with the staff member in your general area of interest; this **must** be done early if your project is likely to involve fieldwork over the summer period. Projects in Cell and Molecular Bioscience will not be allocated until the beginning of the 2019 academic year.

PLEASE COMPLETE THE FOLLOWING AND RETURN IT TO YOUR POST-GRADUATE ADMINISTRATOR AS SOON AS POSSIBLE

Note that the closing date for the Master of Marine Conservation and Master of Conservation Biology is 15 October 2018. For other programmes you may apply at any time.

1. **Name:** **Student ID:**
2. **Address for contact during summer:**

   Email: **Telephone: ( )**
3. **Intended degree (circle one):**

   BSc(Hons) MSc Pt1 GDipSc BBmedSc(Hons) MBmedSc

   PGDipSci MConBio MMarCon MClinIm MDDD
4. **Subject of study:**

Biotechnology	Cell and Molecular Bioscience
Clinical Immunology/Research	Conservation Biology
Ecology and Biodiversity	Ecological Restoration
Marine Biology/Conservation	Molecular Microbiology

5. **Level of certainty (circle one):** definitely probably possibly
6. **General area of research interest.** At this stage all you need indicate is some undergraduate course(s) that have interested you most.

   .....
7. I have discussed possible project topics with the following academic staff member(s):

   .....
8. **Teaching position**. Do you wish to be considered for a teaching position (sessional assistant) in 2019? (Circle one).

   Interested Possibly Interested Not Interested

   Tick preferred subject area:

Plants	☐	Cell and Molecular Biosciences	☐
Ecology	☐	Marine Biology	☐
Animals	☐	Conservation Biology	☐