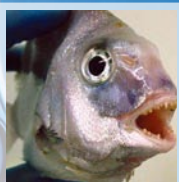
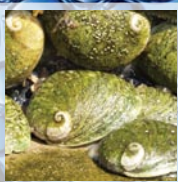


Bachelor Of Applied Aquaculture



www.nmit.vic.edu.au



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Course Code: HEESAAQUAC

CRICOS Code: 051679G

NMIT

NMIT is one of the largest and most successful government funded providers of tertiary education in Melbourne. It provides a comprehensive range of accredited courses from certificate to bachelor degree in both Australia and internationally. NMIT is primarily a teaching institution with an applied research culture that supports provides and supports learning and assists industry and economic development.

Bachelor of Applied Aquaculture

With rapid expansion of the Australian and international aquaculture industry in both marine and fresh water sectors there is a need for skilled professionals to improve sustainability in both production and management.

NMIT is the first Victorian TAFE institute to establish a full-time course in applied aquaculture at bachelor degree level.

This course is for school leavers who wish to enter the aquaculture industry, mature age applicants who wish to advance their knowledge and skills in aquaculture and international students who wish to pursue a career in aquaculture or closely related field.

Specialist Facilities

NMIT has established the Aquaculture Training and Applied Research Centre, a research and commercial facility designed to industry standards.

The Centre provides specialist equipment to enable students to learn and experiment under supervision and includes fresh and salt water indoor recirculating aquaculture systems, water quality laboratory, quarantine facility and fully integrated alarm and monitoring systems. Other developments include a live feeds production research laboratory for microalgae and zooplankton, a larval fish rearing facility and a specialist seafood processing facility for freezing, processing and packaging of product is located on site at the Primary Industries Production and Training Centre.

Together, these specialist facilities support teaching, supervised practice and NMIT's applied research.

Teaching Staff

The Bachelor of Applied Aquaculture is taught by highly qualified academic staff supported by highly experienced industry practitioners.

The Learning Environment

NMIT has several advantages in training delivery including:

- A supportive learning environment and supervised hands-on experience.
- Practical involvement with industry through guest lecturers, field trips to external commercial enterprises and professional relationships with industry figures and groups.
- A combination of theory and its application to industry scale facilities supported by academic staff and industry practitioners.

Campus

NMIT offers the Bachelor of Applied Aquaculture at its Epping Campus in Melbourne.

Course Overview

This innovative multi-disciplinary course combines biology, aquatic animal culture, aquaculture engineering, business management and marketing and applied research – essential elements of the contemporary aquaculture industry. The course has four strands of learning: Biology, Aquaculture Engineering, Business Management and Marketing and Applied Research.

The course has a practical orientation to enable students to develop the commercial applications that will allow them to manage, own or operate a commercial aquaculture enterprise. The course places an emphasis on integrating theory and practice, learning in commercial-scale aquaculture facilities, multi-disciplinary study and applied research.

The Bachelor of Applied Aquaculture consists of 24 subjects including a fieldwork industry placement. This placement takes place during vacation time in the third year of the course. Fieldwork placements are undertaken at approved commercial farms and government agencies.

Practical and high-level vocational skills will be developed through extensive training periods at the commercial-scale aquaculture facilities managed by NMIT.

Course delivery includes lectures, problem solving and team based projects, workshops, laboratory sessions, discussion groups, field work, on site research and development projects in experimental facilities that replicate commercial practices.

Duration

Full time: 3 years

Domestic students may undertake the course on a part-time basis (Maximum duration: 6 years).

Entry Requirements

- Successful completion of VCE (Year 12 or recognised equivalent) with Biology, Chemistry and Mathematics. Those that do not have prior exposure to these subjects will be encouraged to participate in bridging courses (starts in January each year) with a strong applied focus, and may still be able to enrol in the course.
- Successful completion of a TAFE Diploma course in aquaculture, or
- Mature age entry where applicants can demonstrate capacity to undertake work at degree level.

An additional requirement for international students is

- International English Language Testing System (IELTS) Level 6. Those prospective students not yet at this level will have the opportunity to participate in a bridging course program to allow participation in the course.

Recognition of Prior Learning

Applicants may seek recognition for prior learning where work of an advanced and related nature has been undertaken previously.

Bridging Courses

Bridging courses that cover the essential knowledge required for first-year subjects are available.

Tuition Fees

Full-time: A\$12,000 per annum

Part-time: Part-time fees are pro-rata and determined by subject load.

FEE-HELP

FEE-HELP is a loan given to eligible fee-paying students (domestic students only) to help pay part or all of their tuition fees.

Students can borrow up to the amount of the tuition fee being for each of the units of study. However, over a lifetime a student can borrow only up to the FEE-HELP limit. In 2009, the FEE-HELP limit is \$83,313. This amount is indexed each year.

A loan fee of 20% applies to FEE-HELP loans for undergraduate courses of study. The FEE-HELP limit does not include the loan fee. If the tuition fee is \$10,000 then the loan fee is \$2000 and the total loan is \$12,000. Students may choose to pay some of your tuition fees up front and apply for a FEE-HELP loan to pay the remaining portion.

The Commonwealth pays the amount of the loan directly to the student's provider.

Students repay their loan through the tax system once their income is above the minimum threshold for compulsory repayment.

Eligibility Requirements

To be eligible for a FEE-HELP loan for a unit of study students must be:

- An Australian citizen, or
- The holder of a permanent humanitarian visa who will be resident in Australia for the duration of the unit.

And you must also:

- Provide your Tax File Number (TFN) or *Certificate of application for a TFN* form.
- Complete, sign and submit a *Request for FEE-HELP Assistance form*.

Full details on FEE-HELP are available from **www.goingtouni.gov.au**

or contact NMIT **03 9269 1042**.

Application Procedure

Apply through VTAC (**<http://www.vtac.edu.au>**) or contact NMIT (Tel: **03 9269 1042** or **03 92691166**; email: **mobin@nmit.vic.edu.au**).

Domestic Students:

Contact NMIT; Telephone **03 9269 1042**;
email: **mobin@nmit.vic.edu.au**.

International Students:

Apply through NMIT's International Office
email: **international@nmit.vic.edu.au**
or
telephone: **+61 3 9269 1666**.

Course Subjects

Year 1

Semester 1

BAA101 Introduction to Aquaculture

The purpose of this introductory subject is to develop knowledge of aquaculture principles and species, national and international practices and production figures, and future prospects and directions. The learning experience will be enhanced through direct contact with visiting lecturers from industry and government and with site visits to external commercial enterprises.

BAA102 Biology of Aquatic Animals I

The Biology of Aquatic Animals is a two semester subject. The purpose of the first semester of this subject is to develop knowledge of taxonomy related morphology of aquatic animals, life cycle, migration and distribution patterns of important aquatic species that may be used in aquaculture or could be in the future, and have application to the subject area of environmental management.

BAA104 Practical Computing

The purpose of this subject is to develop practical skills in the maintenance of computer hardware and networks and the use of computer software for applied research, business management and aquaculture management. Practical knowledge will be developed using data generated at the NMIT Aquaculture Training and Applied Research Centre and the software demonstrated will be used regularly in other subjects in the course.

BAA109 Aquatic Chemistry and Biochemistry

This subject develops knowledge of chemistry and biochemistry and how it relates directly to aquaculture and environmental management principles and practices. The subject covers the importance of various water quality parameters and variables, the fundamental nutrient cycles in nature and the biochemistry of physiological processes in aquatic animals.

Semester 2

BAA103 Aquaculture Mathematics and Statistics

This subject provides the foundation for other subjects in the course that require mathematical knowledge and skills in applied research. The purpose of this subject is to develop knowledge of statistical theory in relation to the design of proper experiments and the analysis of results.

BAA108 Aquaculture Engineering I

This subject will develop knowledge of engineering principles and physical laws in relation to the construction of aquaculture facilities. Students will evaluate the relationships between physical laws, functional design and operating characteristics of various types of aquaculture plant and equipment.

BAA110 Biology of Aquatic Animals II

The purpose of this second semester subject is to further develop knowledge of biological concepts by focusing on the physiological approaches used by different animal groups to cope with environmental variables, the physiological basis of life processes including growth, respiration, reproduction, metabolism, and osmoregulation.

BAA113 Applied Algology and Zooplankton

This subject introduces the student to the production of various species of microalgae (phytoplankton) and zooplankton in aquaculture facilities. This subject area forms a fundamental part of many modern aquaculture operations (such as larval fish hatcheries and prawn farms), and an understanding of plankton dynamics is useful in understanding ecological processes. A variety of culture techniques will be explored for culturing microalgae, as well as rotifers, daphnia, copepods and artemia. Key areas covered will include the establishment and maintenance of culture systems of a wide variety of species and their commercial potential.

Year 2 Semester 1

BAA201 Aquaculture Engineering II

The purpose of this subject is to develop knowledge of the design features, mode of construction and operation of recirculation systems for the production of aquatic animals and the maintenance of suitable water quality. The topic of aquaponics will also be covered in this subject.

BAA202 Aquatic Animal Nutrition

The purpose of this subject is to develop detailed knowledge of animal nutrition related to the feeding of aquaculture animals for economically optimal growth in intensive aquaculture systems. Practical development will be undertaken at the NMIT Aquaculture Training and Applied Research Centre where students will undertake feeding experiments and trials using prepared feeds.

BAA211 Business Management and Marketing I

The purpose of this subject is to develop knowledge of business structures and the strategic planning required for establishing and operating a small business project effectively and safely, as well as having knowledge of the principles of marketing, distribution and communications and their application to seafood products and the aquaculture industry. A capacity for forward planning and the evaluation of business opportunities will be developed through the production of a business plan. A capacity for critical analysis will be developed through SWOT analysis of products and the identification of target markets.

BAA215 Aquatic Ecology and Aquatic Science

The purpose of this subject is to develop knowledge, both theoretical and practical, of the field of aquatic ecology and science. Ecology is the study of how animals and plants interact with the environment and each other to form complex ecosystems. Types of ecosystems and the factors affecting them will be studied and illustrated on field trips to a variety of aquatic ecosystems. The subject is designed to verse students in a number of areas of aquatic ecology that are considered essential to an understanding of practical aquaculture and its relationship to the surrounding environment.

Semester 2

BAA206 Aquaculture Engineering III

The purpose of this subject is to develop knowledge of the design, construction and operation of ponds, sea cages, long-lines, and other marine structures as well as water reticulation from the marine environment to offshore facilities. The subject will build on previous knowledge developed in other Aquaculture Engineering subjects, and will examine new and innovative forms of aquaculture, products and technology that are presently being developed or assessed in Australia and overseas

BAA212 Reproduction and Genetics of Aquatic Animals

The purpose of this subject is to develop detailed knowledge of reproduction and genetics in relation to egg production techniques, stock improvement and selection programs for use in aquaculture farms. A practical approach to genetics will include selection methods for use on farms and the use of ploidy manipulation and hybridisation.

BAA213 Applied Mollusc and Crustacean Aquaculture

This subject highlights the knowledge and skills required for the production of mollusc and crustacean species in the aquaculture industry. The subject emphasises not only the culture and hatchery production of the species, but also aspects of their biology, reproduction, disease control and management, as well as harvesting and processing. Theoretical teaching is supported by practical training in the laboratory and at the NMIT Aquaculture Training and Applied Research Centre and at external commercial enterprises, which will provide examples of commercial practice. Students will learn about the breeding, larval rearing and growout of molluscs and crustaceans, including blue mussels, abalone, oysters, scallops, penaeid shrimp, freshwater prawns, yabbies, mudcrabs and lobsters.

BAA214 Business Management and Marketing II

The purpose of this subject is to develop business or project accounting skills and to analyse the Australian business environment in terms of taxation and legal issues affecting business. A primary focus will be the analysis of business opportunities, the effect of new technology, the use of break-even and cost/benefit analyses to make accurate predictions of future performance.

Year 3

Semester 1

BAA304 Applied Marine Fish and Salmonid Aquaculture

The purpose of this subject is to develop knowledge of and practical skills in the production of marine fish and salmonid species in aquaculture facilities. Students will undertake spawning and larval rearing of marine fish and salmonids at the NMIT Aquaculture Training and Applied Research Centre and will visit commercial operations.

BAA311 Microbiology and Histology of Aquatic Animals

The purpose of this subject is the analysis of crucial bacteria and viruses for aquaculture and the environment. The subject covers knowledge of microbiological taxonomy, preparation of agar plates, quantitative analysis of plates, species identification, histology of tissues, histological slide preparation and staining.

BAA312 Aquatic Environmental Management

The purpose of this subject is to build on the biological and ecological knowledge developed in the earlier years of the course through an analysis of the principles of aquatic environmental management, conservation, maintenance of diversity, environmentally sustainable development, environmental management systems and current state, national and international legislation. This subject will also provide the students with the theoretical background and conceptual framework for critical analysis of the contemporary problems and issues in aquatic environmental management and conservation.

Semester 2

BAA309 Applied Freshwater Finfish Aquaculture

The purpose of this subject is to develop knowledge and practical skills in the production of freshwater finfish species in aquaculture facilities. Involvement in spawning and larval rearing of freshwater finfish at the NMIT Aquaculture Training and Applied Research Centre will provide students with direct practical experience in hatchery processes while visits to commercial farms will provide examples of commercial practice.

BAA302 Seafood Processing and Food Safety Management

The purpose of this subject is to develop knowledge of the handling and processing strategies of product from aquaculture farms. A capacity for critical assessment of risk and the identification of critical control points will be developed through food safety management plans as food safety is one of the most critical tasks undertaken by seafood production managers. Processing, product design and product quality will also be studied.

BAA310 Aquatic Animal Health and Diseases

The purpose of this subject is to develop detailed knowledge of animal health related to farm hygiene, relevant legislation, quarantine laws and prevention, diagnosis and control of both infectious and non-infectious diseases. The subject will also develop techniques for handling animals on farms and for translocation of aquaculture animals.

BAA313 Aquaculture Project and Research Methods

This subject will explore various research methodologies and will provide the opportunity for students to conduct their own research projects and to participate in small groups. The subject will examine approaches to experimental design, the design of experiments in commercial contexts, commercial applications from research and approaches to scientific writing and reviewing, and differing approaches to analysis and formulation of conclusions in a range of research paradigms. This subject will involve the application of the knowledge and skills developed over the first two years of the course in the design and management of a practical research project, and will culminate in the analysis and presentation of the results of the research project.

This subject runs over both semesters 1 and 2.

BAA314 Industry Placement

This subject aims to provide practical experience in the operation of commercial or government aquaculture institutions. The primary focus of the subject is developing real-life experience in the type of work that will be undertaken when nearing completion of the course.

This work will be conducted at external aquaculture establishments, and certain components may also be conducted at the Aquaculture Training and Applied Research Centre at the Epping campus. The placement will run for a total of four weeks, and will run over both semesters 1 and 2.

Employment Outcomes

A graduate in applied aquaculture will be equipped to enter the expanding field of aquaculture or to follow a career in which there is a need for scientifically trained personnel.

A degree in applied aquaculture also provides a pathway into careers outside of science such as those in management and the leisure and tourism industry.

Graduates will be equipped to continue on to postgraduate study or employment as professionals in the aquaculture industry.

Campus Libraries

NMIT has libraries at each metropolitan campus and boasts access to more than 100,000 items and a vast range of resources and services online. Each library is equipped with computer facilities including internet access, photocopying and printing facilities, as well as group and quiet study areas.

Professional library staff is available at each campus to provide assistance with using the library and its resources and help you find information in your topic of interest. The library also offers orientation sessions and tours which provide an overview of library offerings.

The library's website at <http://library.nmit.vic.edu.au> provides a wealth of information about library collections, facilities and services. The website can be used to access the catalogue, locate libraries, check opening hours, contact librarians and more.

For more information contact the Preston campus library on

03 9269 1363.

GENERAL CONTACTS

Campus Locations & Maps

www.nmit.vic.edu.au/campuses

Information Centres

Phone: (03) 9269 1200

e-mail: info@nmit.vic.edu.au

www.nmit.vic.edu.au/information/nmit_information_centres.html

International Office

Phone: (03) 9269 1666

e-mail: international@nmit.vic.edu.au

www.nmit.vic.edu.au/international

NMIT Website/General Info

www.nmit.vic.edu.au

Prospective Students

Phone: (03) 9269 1200

e-mail: info@nmit.vic.edu.au

www.nmit.vic.edu.au/prospective

Short Courses

Phone: (03) 9269 1483

e-mail: shortcourses@nmit.vic.edu.au

www.nmit.vic.edu.au/courses/short_courses

Student Services

Phone: (03) 9269 1314

e-mail: studserv-ss@nmit.vic.edu.au

www.nmit.vic.edu.au/students

Student Activities

Phone: (03) 9269 1316

e-mail: activities@nmit.vic.edu.au

www.nmit.vic.edu.au/students/activities

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CAMPUSES

PRESTON

77-91 St Georges Rd, Preston VIC 3072

COLLINGWOOD

20 Otter St, Collingwood VIC 3066

EPPING

Cnr Cooper St & Dalton Rd, Epping VIC 3076

FAIRFIELD

Yarra Bend Rd, Fairfield VIC 3078

GREENSBOROUGH

Civic Drive, Greensborough VIC 3088

HEIDELBERG

Cnr Waterdale Rd & Bell St,

Heidelberg West VIC 3081

ARARAT

Grano St, Ararat VIC 3377

TRAINING CENTRES

YARRA GLEN

Yarra Valley Racing Centre, Armstrong Gve,

Yarra Glen VIC 3775

NORTHERN LODGE

Glen Robin Court, Eden Park VIC 3757

YAN YEAN

2005 Plenty Rd, Yan Yean VIC 3755

NORTHERN AMEP CENTRE

Cnr Belfast & Blair St, Broadmeadows Vic 3047

FOR ALL ENQUIRIES:

Domestic students: (03) 9269 1042

International Students: +61 3 9269 1666

agriculture@nmit.vic.edu.au

international@nmit.vic.edu.au

www.nmit.vic.edu.au/highered

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