

P O S T G R A D U A T E

RESEARCH DEGREES

in the

SCHOOL OF BIOLOGICAL SCIENCES



The University of Sydney

This booklet is also available at:

http://www.bio.usyd.edu.au/admin/PGhandbook_07.pdf

Please address all initial correspondence to:

**Co-ordinator, Postgraduate Studies
or to potential supervisor**

**c/- The Head of School's Office,
School of Biological Sciences A10,
University of Sydney NSW 2006
Australia**

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THE SCHOOL OF BIOLOGICAL SCIENCES

THE ROLE OF THE SCHOOL

The School of Biological Sciences is one of the largest units in the Faculty of Science. The School has approximately 1,100, 350 and 150 undergraduate students in first, second and third years respectively. It has up to 20 Honours and Graduate Diploma students and over 40 Postgraduate research students. Its undergraduate teaching and postgraduate research have an emphasis on physiology, ecology, evolution, taxonomy, cell biology, molecular biology and genetics. The range of environmental (marine, freshwater, terrestrial) and taxonomic (plant, fungal and animal) diversity within these fields is one of the strengths of the School. It complements other biologically-based but more narrowly-focussed departments within the University (Biochemistry, Microbiology, Histology and Embryology, Physiology, Crop Sciences) that provide additional study options for undergraduates and co-supervision opportunities (among others) for postgraduates (see later).

Research activities are well-funded. Staff obtain currently over \$3,000,000 in competitive research grants per annum and gain further funding in co-operative arrangements with several Commonwealth Research Centres (CRCs).

BUILDINGS, FACILITIES AND EQUIPMENT

On Campus

The School occupies four buildings with a wide range of equipment for experimental biology and other areas of research. Facilities include a glasshouse complex and garden, the John Ray Herbarium, the Native Animal House, many constant temperature rooms and programmable controlled environment cabinets, fresh and sea water aquarium rooms, C1 laboratories, a DNA sequencing service, a photography unit, electronic and mechanical workshops and a poster and laminating room. There is a good range of microscopes and access to the excellent facilities of the University's Electron Microscope Service. The School is constantly upgrading its computer facilities and is fully networked with access to a large number of library and other data bases within and beyond the campus.

The University has the largest library in Australia which has a branch library in Biology situated conveniently close to the main research areas. Other University facilities are usually available by arrangement (see cooperative research) including other animal houses, glasshouses, crop science facilities, MRI, etc.

Field Research

The School has a fleet of 4 WD and other vehicles and some small boats. Field facilities include the Crommelin Biological Field Station, 60 km north of Sydney, which provides accommodation and basic laboratory and library facilities and access to adjacent wet and dry sclerophyll forests, sandy beaches, mangrove swamps and intertidal rock platforms. More locally, the Institute of Marine Ecology (Director: Dr. M.G. Chapman) leases the Cape Banks Scientific Marine Research Area. On the Great Barrier Reef, the University leases the One Tree Island Research Station (Director: A/Prof Maria Byrne) which in turn is administered by the University of Sydney Institute of Marine Sciences (see later). The Institute of Wildlife Research (Director: Prof Christopher Dickman) has access to several field stations and sites in remote areas as part of its cooperative programmes.

Cooperative Research

Within the University cooperative and co-supervision arrangements are possible with many departments and Schools including Biochemistry, Microbiology, Histology and Embryology, Physiology, Crop Sciences, other departments within Clinical Medicine and Veterinary Science, the Australian Genomic Information Centre, and the NWG Macintosh Centre for Quaternary Dating.

The University of Sydney Institute of Marine Sciences (Director: A/Prof Dietmar Muller) is a grouping of marine researchers from Biological Sciences, Geography, Geology and Geophysics. Other links are possible to the Children's Medical Research Institute, the Kanematsu Laboratories and other medical groupings.

Beyond the University, similar arrangements are possible with staff of the four other metropolitan Universities, the Australian Museum, Taronga Zoo and Aquarium, Department of Primary Industries (including Forests NSW and NSW Agriculture) and the NSW Department of Agriculture and Fisheries through its Fisheries Research Institute and the various Agriculture Research Institutes. Research cooperation and/or co-supervision is also possible with the CSIRO (various divisions, including Entomology, Sustainable Ecosystems, Plant Industry, Animal Production and Biotechnology), The National Herbarium of NSW at the Royal Botanic Gardens, The Department of Environment and Conservation (formerly National Parks and Wildlife Service of NSW) and Biotechnology Australia. Under certain circumstances co-supervisory arrangements may be possible with researchers interstate or overseas.

DEGREES AVAILABLE

Two higher research degrees, Master of Science (MSc) and Doctor of Philosophy (PhD) may be taken in Biological Sciences. Candidates for each degree proceed primarily by research and thesis; these degrees involve no coursework, although students may be required, as appropriate, to attend specific courses related to their research field. A full account of the conditions of candidature can be found in the University of Sydney Postgraduate Studies Handbook, obtainable from The Faculty of Science.

In addition to the higher research degrees, several higher degrees based on coursework may be undertaken. These degrees are all within the Applied Science program, and include Graduate Certificates, Graduate Diplomas and the Applied MSc. These may be taken in a wide variety of discipline areas, with some, such as Bioinformatics and Wildlife Health and Population Management, having substantial input from Biological Sciences. This booklet does not cover these applied coursework degrees, but more information on them can be found in the Faculty of Science Postgraduate Coursework booklet.

MSc

The degree of MSc is awarded for an original investigation of a topic leading to the presentation of a thesis. The topic must be approved by the School of Biological Sciences. Candidates work on their chosen topic under the direction of their supervisor and associate supervisor with whom they are required to consult regularly about their work and the planning of the thesis. MSc degrees may be obtained after a minimum of one year's full-time or two years' part-time enrolment, and up to a maximum of two years of full-time or four years of part-time enrolment.

PhD

The degree of PhD is awarded for a major piece of original research leading to presentation of a thesis. The topic investigated must be approved by the School and by the Faculty of Science, and the research is done under the direction of a supervisor and associate supervisor with whom students must consult regularly about their work and the planning of the thesis.

A PhD degree may be obtained after a minimum of three years of full-time research, or six years of part-time enrolment. The School of Biological Sciences has determined that wherever possible, PhD theses should be submitted within four years of initial enrolment.

ENTRY REQUIREMENTS

MSc: Applicants must hold a Bachelor's degree in the relevant subject area with First or good Second Class Honours or a pass at a sufficiently meritorious level in the Graduate Diploma of Science, from the University of Sydney or their equivalent*.

Graduates from other universities must supply full details of their education history, together with an official transcript of their academic record, in order that their application may be properly assessed.

PhD: The formal requirement for admission to PhD candidature is a Bachelor's degree with First or good Second Class Honours, or its equivalent*. **It is the School's policy, however, that all postgraduate candidates, unless they hold a Master's degree by research, enrol initially as MSc candidates.** (An exception will be made for applicants for APA scholarships or equivalent international awards, such as the Endeavour International Postgraduate Research Scholarships).

At the end of, or after, the first year of Master's candidature, applications for transfer to PhD candidature are considered by the Postgraduate Studies Committee. Such applications are assessed in the light of progress made in the first year and the supervisor's report submitted with applications. If an application is approved, credit is normally granted for time spent towards the MSc.

For both the MSc and the PhD degrees, successful applicants will also have a supervisor and associate supervisor prepared to offer supervision.

*At the time of writing, the Faculty of Science was discussing policy with respect to admission of candidates holding a relevant Masters degree from the Applied Science program at the University.

PRELIMINARY STUDIES

For those without the above requirements, the School offers a Graduate Diploma in Science which is equivalent to the one-year Honours course. Entry requirements are as for Honours. Achievement in the Graduate Diploma at a sufficiently meritorious level will serve as a qualification for entry to the MSc and PhD programmes (see above). The number of places is limited so selection for entry is on the basis of academic merit. For further information on the Graduate Diploma, see the School's website at:
<http://www.bio.usyd.edu.au/futurestudents/future.html>

ADMINISTRATION

i) Faculty of Science

The Faculty of Science is the larger academic and administrative unit within which the School operates. Formal admission, enrolment, examination and the award of degrees are administered by the Faculty Office. The Faculty usually acts on the advice of the Head of the concerned Department or School in student matters. Prospective students and candidates should ensure that all matters relating to admission, supervision, variation of candidature, and so on, are formally ratified by the Faculty.

ii) Postgraduate Studies Committee of the School of Biological Sciences

The School has a Postgraduate Studies Committee comprising the Head of School and four members of the academic staff, one of whom is the Co-ordinator of Postgraduate Studies. The function of the Committee is to consider applications for admission, to monitor, through annual progress reports and interviews, the progress of postgraduate students, and to advise the Head of School on postgraduate matters.

APPLICATIONS FOR ENROLMENT

ALL APPLICANTS

Contact a potential supervisor as a preliminary to formal application. The website http://www.bio.usyd.edu.au/staff/staff_academics should assist applicants in selecting a potential supervisor. Alternatively, to search by research project opportunity please visit the Research Supervisor Connect website: [Research Supervisor Connect - Future Students - The University of Sydney](#) If in doubt, write to: the Co-ordinator of Postgraduate Studies c/- The School Office. Otherwise write to the potential supervisor c/- The School Office. Our web page is also available at <http://www.bio.usyd.edu.au>. You should note that you will need to have an associate supervisor in addition to a supervisor. The website will provide a useful guide to potential associate supervisors; once identified, your supervisor will also advise on the appointment of an appropriate associate supervisor.

AUSTRALIAN APPLICANTS

(Australian Citizens and Permanent Residents).

When satisfactory contact has already been made with the potential supervisor/associate supervisor, you can make an application for admission to candidature for the appropriate degree. Application forms may be obtained from and must be returned to:-

The Faculty of Science
UNIVERSITY OF SYDNEY, NSW 2006

Or, from the Faculty website at: <http://www.science.usyd.edu.au>

- (a) Ensure that all necessary documentation is provided with the application. In addition to a strong academic record (i.e. a result average of credit, 65% or better), supporting material such as references from suitably qualified persons, and the support of a potential supervisor will increase the chances of an application's success. The Federal Government has imposed a quota on all Universities, thus the University of Sydney must rank all applicants on the available information.

The following items are essential to applications: an official academic transcript (translated if not in English); a precise indication of the proposed field of research; a brief account of any relevant work experience; and the names and addresses of referees who can provide an assessment of the applicant's research potential. It would help in assessing applications if, where it is not clear from the transcript what courses were completed, supplementary information were provided about such courses. **Remember that your application cannot be considered unless a potential supervisor/associate supervisor supports your case.**

If you have not yet completed your qualifying year you should attempt to get an academic referee to estimate your final mark and indicate when the University will be able to obtain the official grade.

- (b) You must lodge your candidature application by 31 October for commencement at the end of February and by the 31 May for commencement in late July.
- (c) If you are applying for a Scholarship you must make a **separate** application (see under SCHOLARSHIPS). Note that these may have **different** closing dates and will often be earlier than the application for commencement.

INTERNATIONAL APPLICANTS

Application forms are available from and processed by the

International Office
UNIVERSITY OF SYDNEY NSW 2006

Or, from the International Office website at:

http://www.usyd.edu.au/fstudent/international/postgrad/apply/pg_inter_application-research.pdf

- (a) When asking for the application forms, also ask for the INTERNATIONAL GRADUATE PROSPECTUS which explains conditions applying to international students.
- (b) You must return the forms **no later** than 31 October for commencement at the end of February and by 30 April for commencement in late July. (Note: If intending to apply for a Scholarship, see (d) regarding deadlines)
- (c) Send an extra copy of all your documents to your proposed supervisor who can then assist and expedite the acceptance process.
- (d) If you wish to apply for an EIPRS or USydIS Scholarship the Application for Research Degree Candidature form includes your application to those schemes. Some other Scholarships may request a **separate** application. Information and forms of all Scholarships may be found at <http://www.usyd.edu.au/su/reschols/> Note that a

Scholarship application form may have closing dates (indicated on form) that differ from enrolment closing dates; ***often, these will be considerably earlier than the application for enrolment.***

FINANCIAL SUPPORT

For full-time postgraduate candidature a personal living allowance (approximately \$21,000 per annum) is recommended. The major scholarship schemes (see Scholarships) provide a living allowance. Where full fees are paid (whether by a Scholarship, such as EIPRS, or by an individual) the School receives a portion of those fees to support the research of the Postgraduate concerned.

The School and individual supervisors provide extra research funds for postgraduate students, and many students are able to gain competitive grants and awards to increase the money available for their research. Many programmes of postgraduate research are very expensive and financial support should be sought to supplement the minimal funds available from general scholarships. This is particularly true of work involving travel within Australia, which is very expensive. Once you are enrolled, you can apply to the University of Sydney Research Training Office for various special scholarships to assist research, in the range \$1,000 to \$26,000. There are over 30 kinds available, with closing dates which are advertised on the web at: <http://www.usyd.edu.au/su/reschols/>

In addition, funds to a maximum of \$1200 (more if presenting at an overseas conference) may be made available each year through the Postgraduate Research Support Scheme (PRSS).

FEES

Australian Citizens and Permanent Residents

All students enrolled in University courses which lead to a degree are subject to a charge under the Australian Government's Higher Education Contribution Scheme. Under the scheme, a fee for each year of enrolment is levied, payable yearly or after graduation as a percentage of income. There are, however, certain categories of exemption, details of which may be obtained from the Student Centre, University of Sydney.

In previous years exemptions were granted to all APA holders and all full or part-time PhD candidates up to the equivalent of their fourth year of full-time candidature. The Research Training Office can provide current information.

International Students

International students are subject to full-fee course costs. These are advised on the application form.

SCHOLARSHIPS

Australian Citizens and Permanent Residents

The Australian Government Scholarship that provides a living allowance is the Australian Postgraduate Research Award (APA). Application forms and further information can be obtained from

The Research Training Office (A14)
University of Sydney, NSW 2006

Web address - <http://www.usyd.edu.au/su/reschols/>

Applications must be returned to the Research Training Office by 31 October.

Applications will not be considered unless you have also made an application to enrol.
(see earlier).

The University of Sydney quota for APA is limited so it is extremely unlikely that applicants with less than the equivalent of first class honours will get one. The ranking system used by the University of Sydney is explained in a later section. You can assess your chances of getting an APA from this.

International Students

The University is allocated a very limited number of Endeavour International Student Postgraduate Research Scholarships (EIPRSs). These awards cover the tuition fees and may be supplemented by a University Postgraduate Research Award (UPA) that would provide a living allowance. The number of UPAs, however, is limited, and you will need to find an alternative means of support, if you do not receive one.

Competition is, however, extremely high because of the very small number of awards. You must therefore have the equivalent of an outstanding grade of first class honours to stand much of a chance. The later section on ranking procedures will help you estimate how you would stand. Details and application forms are obtainable from the Research Training Office website: <http://www.usyd.edu.au/su/reschols/> Forms are available from May and must be submitted by 31st July or earlier, but ensure you check the University's website for the latest information on submission dates.

<http://www.usyd.edu.au/fstudent/international/postgrad/costs/scholarships.shtml#iprs>

Finally, students from certain countries can apply to the Australian Agency for International Development award which will pay both fees and living allowance in most cases. You have to apply to the Australian Embassy, High Commission or Consulate in your own country.

New Zealand Citizens and Residents

New Zealand citizens are not eligible for EIPRSs but can apply for APAs after one year of residence in Australia. New Zealand residents who are not citizens are only eligible for EIPRSs.

UNIVERSITY OF SYDNEY RANKING PROCEDURE

Because of quota restrictions, the University of Sydney uses a ranking procedure for (a) Australian applicants for enrolment under the HECS arrangement; (b) applicants for APA; (c) applicants for IPRS. The ranking procedure produces a score out of 200. The cut-off point for (a) Australian applicants for enrolment under HECS is around 140; (b) for APA awards it is around 162 or higher; (c) for EIPRS awards it is about 190. The cut-off points are a consequence of the number of offers that the University is allowed to make.

The ranking score is twice the sum of 65% your Honours (or equivalent) mark and 35% your pre-Honours (or equivalent) weighted average mark (WAM).

Calculation of the Honours (or equivalent) component of your score

First of all your Honours (or equivalent) mark is expressed as a percentage. It is then made to conform to the University of Sydney distribution of marks, viz: Honours second class division 2 = 70-74; Honours second class division 1 = 75-79; Honours first class = 80-100. For instance, if the lowest mark for first class at your institution is 75% and you got 80% then your score would convert to 84. If only your class, but not actual mark, is specified you will be given a score equivalent to the bottom of the range (eg 80 in the above example). It is thus in your best interest to obtain a mark (even if it is an unofficial estimate) - get your Honours (or equivalent) coordinator to send a letter (with copy to your potential Supervisor).

If you have no Honours (or equivalent) but have an MSc, you will be credited with 80 plus 3 more for a recognized publication or 5 more for two or more publications. Your APA application will not succeed unless your honours (or equivalent) component is 80 or more.

Calculation of pre-Honours (or equivalent) component

This is done by calculating a weighted average mark (WAM) which is based on your marks converted to percentages according to the University of Sydney distribution of marks, viz: pass = 50 - 64, credit = 65 - 74, distinction = 75 - 84, high distinction = 85 - 100. This calculation can only be done by the University from your full transcript. It is a complex calculation in practice but you can estimate your mark by following the outline below.

The WAM is an integer between 45 and 100 which is an overall measure of performance in the two pre-Honours years (marks from First Year units of study are not included in WAM calculations for ranking purposes). It is calculated by summing the products of the marks achieved and the weighted unit values of the courses taken in the two pre-Honours years and then dividing by the sum of the weighted unit values. Note that *all* attempts at units of study are included in the calculation *except where these courses were discontinued with permission*.

The formula used is as follows:

$$W A M = \frac{\sum W c M c}{\sum W c}$$

where Wc is the weighted unit value - i.e. unit value times year weighting of 1/3 (Intermediate) or 2/3 (Senior) - and Mc is the greater of 45 or the mark out of 100 for the course.

If you are not a Sydney graduate you can use a unit value for a course calculated as the number of hours in the course divided by the total number of hours (full-time) in the academic year. For year values in the case of part-time study, use full-time equivalents, with Year weightings as above. If you did more than the equivalent of 3 full-time years in pre Honours (or equivalent) study, the University of Sydney will decide from your transcript how to weight the various years as either 1/3 or 2/3.

Calculation of Scholarship (ranking) Score

The score (S) is found by

$$S = 2(xWAM + yH)$$

where $x = 0.35$; $y = 0.65$; H = Honours or equivalent score.
