



# Research and Research Training

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## 4.1 Research at UOW

UOW's strong research reputation and performance are the results of:

- a strong researcher base built up as the University expanded during the 1990s;
- a flexible and responsive research management environment that encourages a multidisciplinary approach to research; and
- the capacity and flexibility to develop strong partnerships with industry and other R&D organisations.

These factors culminated in an outstanding performance in 2000, including the Award of University of the Year for Outstanding R&D Partnerships and the number one position in ARC grants awarded (relative to size of operating grant). UOW has since maintained this strong ARC performance which, together with the growth in activities supported by Cooperative Research Centres (CRCs) and large grants to several centres, has resulted in a 23.8% increase in research income from 2002 to 2003. In 2004, UOW achieved its first Good Universities Guide 5-star rating for Research Intensity.

## 4.2 Planning for Quality

### 4.2.1 Strategic Directions

UOW adopted a centralised approach to research management approximately 15 years ago. Research groups, centres and institutes<sup>1</sup> are provided with University Research Committee (URC) support to:

- encourage collaborative research;
- initiate new research foci in strategic areas;
- facilitate activities that cross traditional discipline boundaries.

From the mid to late 1990s research planning focussed on growth of research effort. By the end of 2000, the URC was directly supporting 31 research units grouped under four major themes. A number of units developed into high performing institutes and centres with substantial external support and drawing together researchers from different disciplines. Others remained essentially a focal point for research development within academic units.

During 2003, a review of URC funding support for research units was facilitated by a series of R&D Discussion Papers<sup>2</sup> circulated for extensive consultation between the Pro Vice-Chancellor (Research), faculties and key research leaders. As a result, 12 research units were identified as research strengths (see Appendix M) and a new model for internal

## PLAN

- 1 Research Institutes, Centres or Groups supported by the URC or via external funds (ARC or the CRC Program) are collectively referred to as 'Research Units' whereas faculties, schools and departments are referred to as 'Academic Units'.
- 2 R&D Discussion Papers #1,2 and 4, SM35

funding of research was developed (see 4.3.1.1). This represented the first major shift in direction in research management since the research unit concept was first developed in the early 1990s.

A new Research Strategic Plan 2005–2007,<sup>3</sup> was developed during 2004 in the light of the 2003 review outcomes. The Plan identifies six objectives to support the University's Strategic Goal 2—'Excellence and Innovation in Research':

1. Increase the level of externally-funded research to enhance the capacity and diversity of our research effort
2. Improve the quality of higher degree research student scholarship and training by aligning them with strategic research directions
3. Improve the quality, impact and recognition of outcomes of our research effort
4. Encourage linkages and commercialisation opportunities between researchers, industry and other partners
5. Identify, reward and promote research activities that enhance the international reputation of the University
6. Create a strong culture of support for research excellence

Underlying these objectives is a commitment to excellence, high quality outcomes and ethical conduct in research and research training. UOW aims to consolidate the substantial growth that has taken place over the past decade, expand the scope, quality and depth of its research activities and continue to enhance its international and national reputation as a leading, research-intensive University.

#### 4.2.2 Managing the Plan

The Pro Vice-Chancellor (Research) (PVC-R) has central responsibility for the direction and management of research and advises the Vice-Chancellor and Senior Executive on strategic decisions relevant to that portfolio.

The PVC-R chairs the URC, a committee of Academic Senate responsible for developing research policies and procedures and overseeing their implementation, and providing direction on the distribution of funds awarded under the Institutional Grants Scheme (IGS) and Research Infrastructure Block Grant (RIBG). URC reviews performance against planning objectives and reports to Academic Senate each year and conducts the end-of-cycle review of the Plan every three years (see The Institution, 2.2.3).

The URC and its subcommittees were reviewed and restructured in 2002 to streamline workload and decision-making and provide broader representation. The URC is currently supported by the following committees:<sup>4</sup>

- University Research Standing Committee (URSC);
- Postgraduate Research Policy Committee;

3 Research Strategic Plan 2005-2007, SM4. Research planning had previously been documented in the Research and Research Training Management Plans/Reports prepared annually for DEST.

4 See the UOW Committee Structure Diagram in Appendix D and detailed terms of reference in the Research Strategic Plan, SM4.

- Thesis Examination Committee; and
- The University Ethics Committee—overseeing the Human Research Ethics, Animal Ethics and Biosafety Committees (see 4.3.2.3).

### **Research and Innovation Division**

The PVC-R is supported by the Research and Innovation Division (RaID) which manages the key administrative functions relating to research, higher degree research students, innovation and commercialisation. Established in 2004 after a major, quality-driven restructure of the former Office of Research, RaID comprises:

- Research Student Centre (RSC)—managing all aspects of a research student's candidature;
- Research Services Office (RSO)—managing research grant activities, ethics, research information systems and performance data; and
- Managers of Innovation and Commercial Development (MICDs), located in faculties and reporting to the PVC-R on research development and identification of commercialisation opportunities.

Later stages of the commercialisation process are managed via a service agreement with UniQuest, the commercial arm of the University of Queensland. Contracts and consultancies, Intellectual Property and Cooperative Research Centres (CRCs) are managed by a new Legal and Commercial Unit, which is part of the Personnel and Finance Division but is closely linked to RaID activities and staff.

### **Faculties**

Faculties play a critical role in supporting research and research students. Each faculty identifies its own objectives and strategies under the Research Strategic Plan and reports on progress in their Faculty Direction and Resource Plan. From 2004, faculties are required to prepare an annual submission for the URC outlining the faculty's support for research and the broad objectives of their respective joint URC-faculty development pool (see 4.3.1.1). Faculty Research Committees (FRCs) are involved in the development of faculty-specific policies to support research and provide advice to the URC on allocation of resources, grants and scholarships. Each FRC Chair is a member of URC and URSC.

### **Research Strengths and Units**

The Directors of research strengths and research units monitor research activities and may also play a role in faculty planning. In some cases, Directors have a direct role in managing staff and students; in others, the Director's major role is in mentoring staff and facilitating new funding opportunities rather than in line management. UOW recognises different models because of the differences in historical development and in the requirements of different disciplines.

## ACT

**4.3 Ensuring Quality****4.3.1 Strategic Investment in Research****4.3.1.1 Allocation of Internal Resources**

Before 2004, a significant portion of URC funding was allocated to researchers and research students through two major schemes: (i) a direct, performance-based allocation to 31 research institutes and centres; and (ii) a per capita allocation to faculties for higher degree research students.

During 2003 an extensive review of funding policies for faculties and the existing 31 research units was undertaken, resulting in a new approach to the management of internal research funding. Twelve areas of research strength were identified, each with a sustained level of performance over several years and a strong international and/or national reputation.

**Case Study****UOW Research Strengths—A Model for Managing Change**

From 2004, the UOW research strengths have received performance-based funding and also per capita research student funding (the latter designed to increase the link between research students and research strengths). The change has had varied impact: some research units have integrated the student funding seamlessly, while others have had to develop new processes and procedures (an additional administrative burden in the short term).

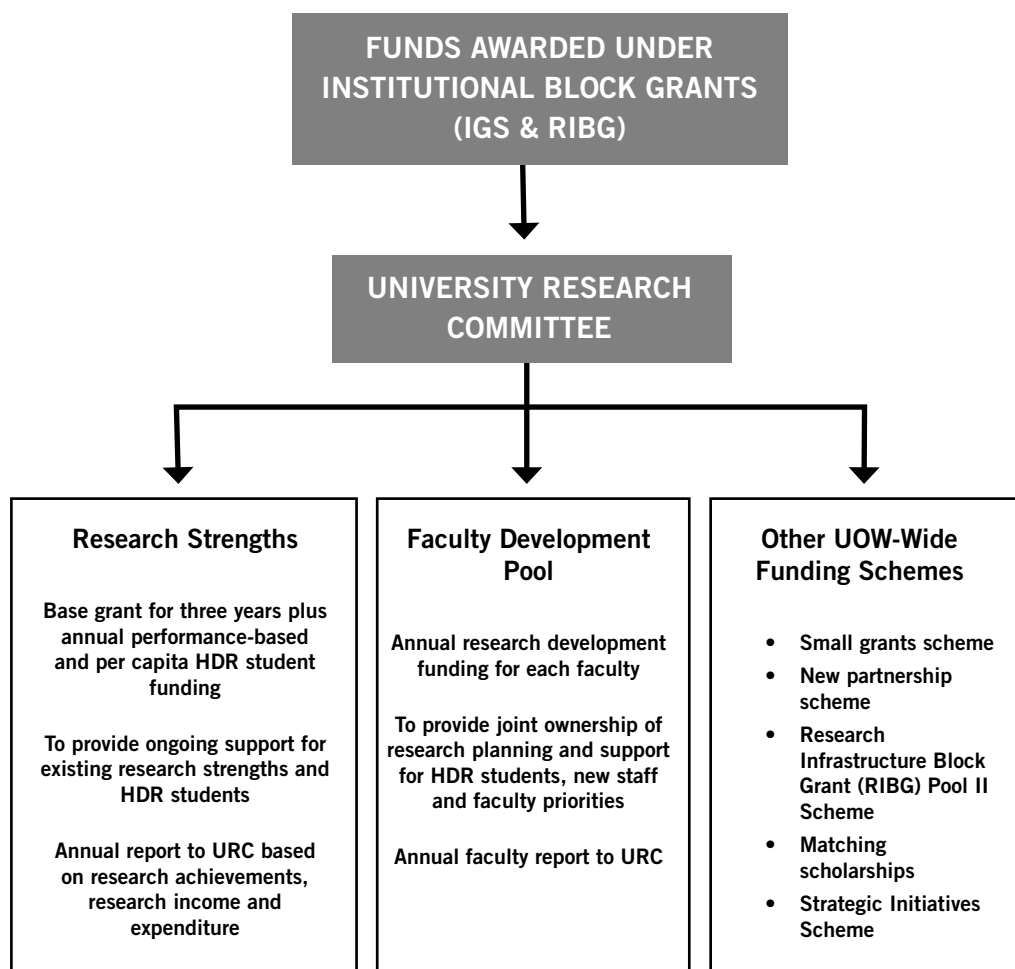
A joint URC-faculty development pool was created for each faculty to support active and excellent researchers whose areas of focus currently lie outside the research strengths. This pool will also fuel the growth of emerging research strengths and support early career researchers.<sup>5</sup> Thus faculties have more flexibility but now have a clear responsibility to build up emerging areas and new initiatives, with the URC retaining responsibility for initiatives that cross faculty boundaries.

Over time this 'dual' funding model should result in greater integration of research development and planning with faculty planning, recruitment and budgeting. Over the next three to five years, UOW plans both to enhance existing areas of research strength and to develop three to five new areas that meet specified criteria.<sup>6</sup>

In addition to the funding allocations to research strengths and faculties discussed above, there are a number of University-wide funding schemes for specific purposes (see Figure 4.1).

<sup>5</sup> R&D Discussion Paper #4, SM35

<sup>6</sup> R&D Discussion Paper #2, SM35

**Figure 4.1 Summary of URC Funding Schemes**

#### 4.3.1.2 Supporting quality grant applications

Mentoring and critical review of grant applications by peers, FRC Chairs and research strength directors/coordinators is common practice throughout the University. Early career researchers, in particular, are targeted for support.

Administration and coordination is provided by the Research Services Office (RSO) which assists research academics to secure competitive research grant funding.

Examples of recent RSO initiatives to support the development and management of quality research grant applications include:

- reviewing all applications that are submitted to grant funding agencies against compliance checklists;
- conducting grant information seminars and grant writing workshops for researchers;

- documenting procedures for applying for and administering grants;<sup>7</sup>
- referring selected applications to expert readers, editors and the UOW Statistical Consulting Services for feedback; and
- promoting specific grant schemes through webpages<sup>8</sup> and email updates.

The results of UOW investments in research are reviewed via regular reports from RSO to the URSC and URC on the outcomes of external funding schemes, benchmarked against the previous three years. The RSO provides comprehensive three-year quantitative data to each research strength which is allocated funding on the basis of performance in research income, HDR completions and publications.

## Case Study

## Grants Management Review

In October 2003, Deloitte Touche Tohmatsu conducted a grants management review. The auditors reported that UOW had made significant progress in the management of grants since an earlier 1998 review, including improved documentation of RSO procedures, implementation of internal review of all submitted grant applications and improvements to the grants management database. The review identified grant expense tracking and delivery of final research reports as areas for improvement. In response, the RSO developed and implemented training modules for all new grant recipients, focussing on past-award grants management with an emphasis on financial management. Further initiatives to improve controls over expenditure include quarterly audits, improved financial reporting and electronic distribution of grant budgets to faculty officers.

### 4.3.2 Support for Research Excellence

UOW recognises that research excellence is a product of individual and collaborative achievement and an enriched research culture. To promote excellence, UOW continues to invest in high-quality research staff through recruitment, development and recognition; to encourage collaborative research, and to foster a research culture that demonstrates ethical practice, quality outcomes and international recognition.

#### 4.3.2.1 Research Potential and Recruitment

Since 2002, UOW's strategy of appointing Deans with active research programs and/or professional practice has produced a major cultural change and renewed emphasis on research.

A majority of Deans and PVCs have externally funded research, while the remainder are actively involved in professional or creative practice. Research activity is similarly expected from other academics with significant administrative roles (e.g., Heads of

7 Grant Procedure Manual and Form Control Register

8 External Funding Opportunities, [www.uow.edu.au/research/rso/grants/opportunities/external/](http://www.uow.edu.au/research/rso/grants/opportunities/external/)  
Internal Funding Opportunities [www.uow.edu.au/research/rso/grants/opportunities/internal/](http://www.uow.edu.au/research/rso/grants/opportunities/internal/)

School/Department and Institute Directors). The PVC-R has been a standby member of professorial appointment committees for the past three years.

One measure of the success of this strategy is the number of National Competitive Grants (NCGs) transferred to UOW by incoming staff. For example, from 2003 to 2004, incoming staff brought 14 NCGs to UOW while outgoing staff transferred only one to another institution. This is an improvement over the period 1999–2002 when incoming staff brought only five NCGs to UOW, and outgoing staff took 11 to other institutions.

#### 4.3.2.2 Staff Development and Recognition

Faculties support research via allocation and recruitment of staff to support strategic research directions and strengths. Deans and/or Heads of academic units play a critical role in career development and have oversight of workload models/agreements that determine relative time commitments of staff to research activities.

Since 1998, a biennial process for promotion to Professor has enabled UOW to retain and develop key, high-performing research staff. The distinguishing criteria for promotion include demonstrated leadership, development of others and collaborative research, in addition to a strong individual research record.

#### 4.3.2.3 An Ethical Framework

The URC is responsible for monitoring research ethics in accordance with the Research Strategic Plan and UOW governing principles. It has adopted an innovative, widely collaborative approach to keeping abreast of and attaining contemporary standards.

The URC's Ethics Committee oversees key ethics review committees—the Human Research Ethics Committee (HREC), the Animal Ethics Committee and the Biosafety Committee.<sup>9</sup>

The HREC, as a joint committee with the Area Health Service (AHS), is unique in New South Wales. It has streamlined the ethics process for local researchers and strengthened ties between the University and the AHS, which is a significant body in the local community. Given the growth of combined research effort, plans are in place to form an additional HREC to focus on social and behavioural sciences, while the original committee will focus on health and medical research.

In recent years, the Ethics Committee has conducted reviews of the policies and procedures of the Animal Ethics Committee (2001)<sup>10</sup> and the HREC (2004).<sup>11</sup> In the area of biosafety, the Ethics Committee is currently focusing on implementing recent regulatory changes. Outcomes include:

- the introduction of a Conscientious Objection Policy<sup>12</sup> regarding the use of animals in coursework subjects. The NSW Animal Research Review Panel has forwarded this policy to the NHMRC as an example of positive action being

9 [www.uow.edu.au/research/committees/uec.html](http://www.uow.edu.au/research/committees/uec.html)

10 University Ethics Committee Report of AEC Review (2001)

11 Human Research Ethics, Internal Review, August 2004

12 [www.uow.edu.au/about/policy/ethicalobjectionanimals.html](http://www.uow.edu.au/about/policy/ethicalobjectionanimals.html)

taken by UOW and requested a presentation at the annual meeting of members of the Animal Ethics Committee in 2004;

- a recommendation (to accompany the restructuring of the HREC noted above) to further involve faculties and schools in the ethics review process, with a view to improving the overall integration of ethical practices and processes into the research culture of the University.

#### **4.3.2.4 International Linkages and Reputation**

Until 2004, international research collaborations largely developed as a result of individual initiatives and linkages, many of which were highly effective and important. The University Internationalisation Committee (UIC) has encouraged linkages involving key overseas partner institutions (see Internationalisation, 5.3.4.1) but integration of internationalisation objectives into URC planning, processes and management information systems is a key component of the new Research Strategic Plan. This will be the subject of a more detailed strategy to be developed by URC and UIC during 2005. Particular attention will be given to identifying and supporting international collaborations and linkages and raising UOW's international profile.

#### **4.3.2.5 Information Resources**

The University Library supports research through access to a broad range of relevant information products and specific services and facilities. Commitment to a consortium approach and effective negotiation with vendors has increased the range of available resources. Support for UOW's key research strength areas is evaluated on an ongoing basis and a targeted Library Support for Research Strengths project<sup>13</sup> was initiated in 2004. The review revealed:

- a high level of satisfaction with Library resources and services and the alignment of the collection to research needs;
- some resource gaps which will be addressed in the 2005 budget; and
- document delivery and transaction based access (ScienceDirect) is effective in meeting the need for some expensive subscriptions.

The Library has coordinated the publications component of the Higher Education Research Data Collection (HERDC) since 2002 with the aim of ensuring that UOW receives appropriate funding allocations for the research efforts of academic staff. In 2003, 1376 publications were collected. 72% met the DEST categories of research related books, chapters, articles and conference papers and represented an 11.6% increase on 2002 in DEST points gained by UOW and 53% increase from 2001. Of particular note was the increase in book chapters and peer reviewed journal articles published by UOW academics.

13 Library Support for Research Strengths Report, SM36

#### 4.3.2.6 Quality of Outcomes

An important underlying principle in staff development and support is the need to have processes that assess and recognise the quality of outcomes. Hence, a major thrust of research planning over the next three years will be to identify the measures of: (i) quality, high impact outcomes that are appropriate to all research endeavours and disciplines; and (ii) multidisciplinary research excellence, with the intent of promoting and rewarding publications and other outputs that meet quality criteria. The discussion process has been initiated through a preliminary Library paper: *Indicators of Journal Quality*.<sup>14</sup>

### 4.3.3 Strategic Partnerships and Commercialisation

#### 4.3.3.1 Strategic Partnerships

UOW's mutually beneficial research linkages with industry were recognised in the 2000 award of University of the Year for outstanding R&D partnerships. UOW continues to build on this achievement with strong results in the ARC Linkage Scheme where success rates are continually above the national average: 2001—67.5%, 2002—60.6%, 2003—67.6% and 2004—55.5% (see Appendix M).

UOW's strategic partnerships have been extended through the Cooperative Research Centres (CRC) program (Appendix L). UOW also has key long-standing partnerships with BlueScope Steel (formerly BHP), Telstra (now via the CRC-Smart Internet Technology), Motorola,<sup>15</sup> and Integral Energy, as well as with the pharmaceutical companies Amrad and Johnson and Johnson.

More recent initiatives to enhance linkages with potential partners have been facilitated by the establishment of RaID and the creation of three new positions for Managers of Innovation and Commercial Development (MICDs) who will assist researchers and industry and identify commercialisation opportunities. The development of the Innovation Campus (see Community Engagement, 6.3.2.1) is intended to create further opportunities and take industry partnerships to a new level of collaboration.

#### 4.3.3.2 Commercialisation

The new structure of RaID and the appointment of the MICDs will also provide additional resources for commercialisation of research outcomes, an area that has been under-resourced in the past. UOW has also negotiated an historic agreement with the technology transfer company of the University of Queensland, UniQuest. This first such agreement between two Australian universities will assemble resources and expertise to assess the potential of UOW research and development outcomes and, where possible, take them through to the most appropriate commercialisation vehicle (e.g., spin-out company, licensing).

UOW has recently established an IT start-up company (Enikos), in collaboration with the CRC for Smart Internet Technology, which has the potential for generating a commercial return and for increasing the awareness of relevant staff of the commercialisation process (see The Institution, 2.2.8).

14 R&D Discussion Paper #6, SM35  
15 Continuing after closure of Motorola Research Labs in Sydney, UOW has recently received a major research contract from Motorola in the US.

### 4.3.4 Higher Degree Research Students

#### 4.3.4.1 Recruitment and Support

The quality of its Higher Degree Research (HDR) students is critical to UOW's research endeavours. It is therefore committed to recruiting quality students into areas of current and emerging research strength where excellent supervision is available. A new 'fast tracking' process was implemented in 2003 to allow early and efficient allocation of scholarships to these students.<sup>16</sup> Once enrolled, they are supported by specialised facilities and training opportunities.

UOW is also committed to enhancing the experience of its HDR students by providing them with appropriate support, training and facilities. Since its inception in 2002, the Research Student Centre (RSC) has been active in supporting a number of major initiatives (outlined below) to enhance the quality of the environment for research students and supervisors.

#### 4.3.4.2 Quality supervision

While research supervision at UOW has consistently rated highly in student satisfaction surveys over the years (see Appendix M), a number of mechanisms are in place to promote ongoing improvement. They include a sound policy framework governing supervision practices (see Case Study below), guidelines on the HDR process<sup>17</sup> and an annual, centrally-run workshop on effective supervision. UOW also encourages and rewards quality research supervision through the Supervisor of the Year Award,<sup>18</sup> which is now one of the Vice-Chancellor's annual awards.

An informal mentoring system has also operated in faculties and research strengths for many years and some faculties hold their own professional development workshops for supervisors. The widely accepted practice of pairing experienced and inexperienced supervisors is reinforced by recent policy changes which require co-supervision where a supervisor is inexperienced.<sup>19</sup> The systems in place for first year reviews and annual progress reports allow Deans and Heads to identify supervision problems at an early stage.

16 Postgraduate Research Scholarship Ranking Administrative Guidelines

17 [www.uow.edu.au/research/rsc/hdrhb/](http://www.uow.edu.au/research/rsc/hdrhb/)

18 [www.uow.edu.au/research/rsc/news/supervisor-of-the-year.html](http://www.uow.edu.au/research/rsc/news/supervisor-of-the-year.html)

19 Code of Practice-Supervision, section 7.3, SM37

## Review of Research Supervision Practices

## Case Study

In 2002, as part of its ongoing commitment to quality assurance, UOW sponsored a project (through its Educational Strategies Development Fund—see 3.3.2.3) to examine a range of issues affecting the quality of research supervision. A report, released in May 2003,<sup>20</sup> provided specific recommendations to enhance UOW's strengths in supervision practices and to address some problematic areas. The following recommendations were adopted and implemented in 2004:

- The Code of Practice—Supervision<sup>21</sup> was reviewed extensively to clarify the responsibilities of students and their supervisors and good management practices for research and academic units.
- The First Year Research Proposal Review<sup>22</sup> was formalised to assist HDR students to define their research project and identify necessary resources at an early stage.
- Progress Review and Probation Guidelines<sup>23</sup> were developed and include procedures for formal progress reports and for reporting and managing unsatisfactory progress.
- An HDR Handbook<sup>24</sup> was developed as a key resource for academic staff and students on all aspects of HDR candidature from enrolment to graduation.

Student feedback on the quality of their supervision can readily be provided online via their annual progress reports or confidential student reports. An academic grievance policy, specific to research students, was developed in 2004 to provide a transparent and consistent process for resolving complaints by research students regarding their supervision or any other aspect of their candidature.<sup>25</sup>

### 4.3.4.3 Training Opportunities

In addition to quality supervision and research training through specific research methodology subjects, UOW supports the development of higher degree research students by providing free access to a number of training and self-help opportunities.

An induction program, conducted by RSC each session, includes a series of short seminars/workshops to assist new students to understand procedural requirements and to develop foundational skills. From 2005, each student will be provided with a hard copy of the HDR Handbook at induction (see 4.3.4.2).

Faculties also provide specific orientation/welcome days which include various combinations of information sessions, workshops and tours of facilities and lunches.

Research students can develop generic and research-based skills through a wide range of training programs<sup>26</sup> provided by faculties, the RSC, the Library, Learning Development, Statistical Consulting Service and Career Development Unit. The Introduction to Tertiary Teaching course (conducted by CEDIR)<sup>27</sup> is available to research students interested

- 20 Practising Research Supervision: Report of the ESDF Project on Research Supervision, May 2003, SM38
- 21 Code of Practice-Supervision, SM37
- 22 [www.uow.edu.au/research/rs/files/forms/1styr-research-proposal.pdf](http://www.uow.edu.au/research/rs/files/forms/1styr-research-proposal.pdf)
- 23 [www.uow.edu.au/research/rsc/files/policies/hdr-progress&probation.pdf](http://www.uow.edu.au/research/rsc/files/policies/hdr-progress&probation.pdf)
- 24 [www.uow.edu.au/research/rsc/hdrhb/](http://www.uow.edu.au/research/rsc/hdrhb/); HDR Student Handbook, SM39
- 25 Academic Grievance Policy (HDR Students), SM32
- 26 [www.uow.edu.au/research/rsc/hdrhb/training.html](http://www.uow.edu.au/research/rsc/hdrhb/training.html)
- 27 <http://cedir.uow.edu.au/subjects/education/itt/>

in an academic career (see 3.3.2.1) and a specially designed Graduate Certificate in Business<sup>28</sup> is also offered to PhD students.

#### 4.3.4.4 HDR Student Facilities and Resources

UOW monitors the quality of facilities and resources available to research students through feedback mechanisms. Concerns expressed in past student experience questionnaires have been addressed by a number of significant recent improvements. For example, during the past three years:

- Substantial funding was allocated from the Vice-Chancellor's Strategic Development fund for the construction of new accommodation for research students in the Faculty of Commerce.<sup>29</sup>
- The Faculty of Arts made major investments in computer infrastructure.
- Several research centres were relocated to create additional space for students in the faculties of Creative Arts and Health and Behavioural Sciences.
- New and refurbished research laboratories were provided in the Faculties of Science and Informatics that include new student accommodation.

A review of faculty resources is currently being conducted to identify HDR resources across campus, how they are distributed and used across faculties and research strengths, and any serious shortfalls. A report summarising the findings of the review should be finalised by mid-2005.

UOW's range of support for HDR students includes a centrally administered Research Student Conference fund, which provides some financial assistance for conferences where they are presenting papers. This is frequently supplemented by supervisors via external grants and/or allocations by research strengths and faculties.

In 2003, a Research Training Librarian was appointed to: (i) provide HDR students with, for example, advice on bibliographic searches, use of print and electronic resources, and tailored research training programs; and (ii) work with faculties to integrate information skills into faculty research training.

UOW is one of only a few universities in Australia to require the submission of student research theses to the Australian Digital Theses Program. The Library assists in the digitisation of theses and submission to the national database. Over 100 UOW theses available online were accessed 210,000 times in 2004 with email enquiries from around the world.

28 [www.uow.edu.au/bized/GCBuscourse.html](http://www.uow.edu.au/bized/GCBuscourse.html)

29 [www.uow.edu.au/commerce/research/research\\_centre.html](http://www.uow.edu.au/commerce/research/research_centre.html)

## 4.4 Review and Evaluation

### 4.4.1 Monitoring Performance

The broad objectives in the Research Strategic Plan are supported by work/action plans developed and reviewed annually by the URC, faculties and administrative and academic support units. A range of broad performance indicators identified in the plan are used to assess progress towards meeting the objectives. Specific indicators measuring progress against individual activities are identified in the plans of faculties and support units.

### 4.4.2 Evaluation—Research

#### 4.4.2.1 Strategic Investment

For its size, UOW has an excellent track record in securing research grants, particularly from the Australian Research Council (ARC). In 2004 UOW ranked number nine overall in ARC grant income (see Appendix M).

Recent ARC highlights include:

- In 2005 researchers were awarded a record 37 Discovery Project grants (including five fellowships) for \$9.78M, compared to 24 grants for \$8.48M in 2004. This represents a success rate of 32.7% for UOW against a national average of 30.8%. UOW was awarded the total highest Discovery funding outside the G08 (see Appendix M).
- UOW achieved a 100% success rate in the 2005 Linkage Infrastructure results, with four successful grants awarded a total of \$805K.
- The combined value of grants from the 2004 ARC Linkage International Awards and 2005 ARC Linkage International Fellowships placed UOW second nationally for total dollars awarded.
- A key feature of UOW's 2005 ARC performance was the success of grant applications from discipline areas, such as arts, law, health sciences and commerce, outside UOW's traditional research strengths. For example, the Faculty of Commerce (with a success rate of 71.4%) was ranked fourth nationally in terms of total Discovery grants.

Recent NHMRC highlights include:

- In the 2005 allocations, UOW researchers were awarded four project grants worth a total of \$1.273M (an increase of \$693,000 over 2004), with a success rate of 25% compared with a national average of 22%. The number of grants awarded was the best result for universities that do not have operational medical schools and exceeded some that do.
- UOW was successful in both of its applications for the 2005 Development Grants, securing a total of \$356,500 for 2005.

### **Future Challenges**

To date, the Research Services Office has focussed on the major national competitive grant schemes (ARC and NHMRC). In 2005, the RSO will work with FRC Chairs and Directors of research strengths to increase researchers' awareness of, and participation in, a more diverse range of funding opportunities. Online funding databases (e.g., Research Online) and other available resources, both within Australia and internationally, will also be promoted.

The following key issues from the 2003 review of funding policies and the objectives of the new strategic plan also remain to be addressed:

- Defining appropriate indicators of quality of publications and other outputs: a particular challenge for professionally-based and applied disciplines, multidisciplinary research fields, creative arts and some of the newer areas in information and communications technology.
- Developing an appropriate process for supporting and promoting research groups and centres that do not meet the criteria for research strength, but nonetheless represent distinct areas of excellence.
- Evaluating the dual funding model, especially for funding of students, to ensure that lines of responsibility are transparent and clear to both staff and students.

#### **4.4.2.2 Research Excellence**

Apart from the rather crude measure of 'grants in and out' associated with staff movement, it is difficult to evaluate the success of strategies to promote quality and to support and retain key staff.

As part of the faculty planning and reporting process, UOW has begun to collect data on Fellowships, Medals and other staff awards for research excellence.

### **Future Challenges**

Broader indicators of research performance are being applied and the new measures for assessing quality will enable improvements to be monitored in a more detailed and systematic way. The aim is to focus on monitoring levels of performance through outcome measures that apply to disciplinary and multidisciplinary research excellence, such as publications, external fellowships, evidence of ethical research practice and international recognition. Over time, it is expected that the results from this process will inform and further enrich the development of UOW's research culture.

#### **4.4.2.3 Strategic Partnerships and Commercialisation**

Success in Strategic Partnerships and Commercialisation is monitored by success rates in the ARC Linkage scheme and the levels of industry and CRC funding. During 2004,

UOW has been putting processes and resources in place to improve identified shortfalls in support and resourcing for this area. The framework established as a result of the partnership with UniQuest, referred to in 4.3.3.2 above, will have key performance indicators, such as numbers of patents, licences and start-ups.

Refinements to the Commercial Research Policy took place to reflect the changes in the external commercialisation environment and the potential impact of the new UniQuest partnership. The IP Policy is currently undergoing revision.

### **Future Challenges**

A mechanism is to be established, in light of the above reviews, to secure external feedback and advice on the success or otherwise of UOW's commercialisation activities.

The role and functioning of the Intellectual Property Committee (which reports directly to the Vice-Chancellor) will also be reviewed in the coming months to improve its effectiveness and to take into account the new service arrangement with UniQuest.

### **4.4.3 Evaluation—Research Training**

Research students, across many areas, have consistently acknowledged the effectiveness of UOW's research supervision and supportive research environment. Key results of the 2003 annual UOW Student Satisfaction Survey include:

- 90.1% of respondents found research supervision at the University either 'acceptable' or were 'satisfied';
- 90.5% of respondents found the RSC at the University either 'acceptable' or were 'satisfied';
- 90.1% of respondents found research facilities at the University either 'acceptable' or were 'satisfied'.

The revisions to policy and procedure—by introducing milestone checking in the form of commencement of candidature interviews, first year research progress reviews and more efficient annual progress reporting—is expected to improve completion rates in the long term.

### **Future Challenges**

UOW aims to enhance the research student experience by continuing to implement the significant improvements, outlined above, in management and student support practices. The success of these initiatives will be evaluated when they are integrated into practices across the University. The RSC has conducted education sessions and distributed HDR Handbooks to staff and students across campus to facilitate the adoption of new policies and practices.

The RSC is also working towards improving the coordination of HDR student training by:

- Developing a comprehensive website in 2005 to raise the awareness of HDR students and their supervisors of the wide range of training programs on offer.
- Developing a more comprehensive professional development program for supervisors, based on feedback from a focus group with academic staff in mid 2004, benchmarking with other universities and a program of annual training workshops for supervisors commencing in 2005.

## IMPROVE

### 4.5 Priorities for Action

UOW aims to work towards its 2005–2007 strategic goals for research and research training by undertaking the following plan of action:

#### Current Priorities, 2005

- Develop a coordinated internationalisation strategy between University Research Committee and the University Internationalisation Committee.
- Reinforce the new dual funding model and associated practices (especially in relation to HDR students, the development of new strategic initiatives and a process for recognition of excellence outside areas of strength).
- Implement further training in research grant submissions and post-award grant management.
- Disseminate HDR policy changes more widely within faculties.
- Review and improve resources for HDR students at the faculty level.
- Develop and promote measures of quality research outcomes.
- Implement new processes and structures for Human Research Ethics Review.
- Implement the new commercialisation framework, including the new partnership and associated internal policy changes and staff recruitment.
- Improve the promotion of UOW's research effort by way of ongoing improvements to webpages and other promotional material.

#### Longer Term Priorities, 2005–2007

- Identify and develop new areas of research strength.
- Take advantage of opportunities resulting from the development of the Innovation Campus and the proposed Graduate Medical School to expand the research effort.
- Review the Research Strategic Plan (in 2007).

While UOW has been a leader in research management and is on a rising trajectory in terms of research performance, it will continue to seek improvements in policy, practice and outcomes.