

Centre for Excellence in Teaching and Learning  
Oxford Brookes University/ University of Warwick

## **Research as Learning: The Reinvention Centre for Undergraduate Research**

### **CETL Academic Fellowships for Schools**

*“In proposing the Reinvention Centre, we embrace the conclusions of the Boyer Commission (see Reinventing Undergraduate Education: A Blueprint for US Universities, 1998). ... In making the case for undergraduate research to be a standard feature of undergraduate programmes, we do not expect all modules to contain such opportunities. However, we do anticipate all students having access to some modules in which this is the case and that the impact on student learning and curriculum design will extend from this. We also expect all undergraduates to learn within inclusive departmental research cultures in which extra-curricular opportunities for undergraduate research are an embedded feature” Warwick University and Oxford Brookes University, CETL Stage 2 Bid (2005).*

#### **DEFINITION**

“Undergraduate research describes student engagement from induction to graduation, individually and in groups, in research/inquiry into disciplinary, professional and community-based problems and issues, including involvement in knowledge transfer/exchange activities.” (Childs et al<sup>1</sup>)

#### **A - INTRODUCTION**

Each of the eight Schools at Oxford Brookes is invited to submit a proposal for an Academic Fellowship of up to £10,000 to further develop undergraduate research both inside and outside the curriculum. Specifically, the Fellowships should be seen as the Schools’ response to the paper<sup>2</sup> that was approved by the Learning and Teaching Committee at its meeting on 3

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<sup>1</sup> Childs, P, Healey, M, Lynch, K, McEwen, L, Mason O’Connor, K, Roberts, C, and Short, C (2007) *Leading, promoting and supporting undergraduate research in the new university sector*, National Teaching Fellowship Project [http://www.heacademy.ac.uk/documents/NTFS\\_Projects\\_2006-07\\_Funded\\_Projects-Exec\\_summaries\\_V5.doc](http://www.heacademy.ac.uk/documents/NTFS_Projects_2006-07_Funded_Projects-Exec_summaries_V5.doc)

<sup>2</sup> See Huggins R, Jenkins A and Scurry D (2007) *Developing Undergraduate Research at Oxford Brookes University: Recommendations and Models for Future Development*

April 2007; the primary thrust of that paper was for all Fields to enhance the extent to which students in years one and two learn through doing research, and to develop more explicitly structured research pathways through their undergraduate programmes (see Appendix for summary of key proposals).

It is anticipated that the £10,000 budget (over up to two years) for a Fellowship will be mainly used to ‘buy out’ time for one or more members of a School’s teaching, research and support staff. Whilst funding for Fellowships will not formally be released until the start of the 2008/2009 academic year, it is anticipated that preparatory work will be required in advance of the start date in order for Schools to (a) review progress to date in implementing the university’s undergraduate research strategy and (b) set out what can now be achieved by the Fellowship to take the strategy forward.

Members of a School’s Academic Fellowship will join the Reinvention Centre Academic Fellows Group at Brookes for the term of the CETL, until 31 August 2010. As well as informal meetings with the Reinvention team to monitor progress there will be organised seminars to share experiences with other Schools. In addition, some pages on the Reinvention website will report the changes that have been implemented as a result of the Fellowships.

Research-based learning and teaching can manifest itself in the curriculum in a number of different ways, including

- learning about current research issues
- learning how research issues are investigated
- learning how research can be critically appraised
- learning about research done by lecturers
- learning by helping lecturers with their research
- learning by carrying out research<sup>3</sup>

The focus of the Reinvention Centre is on the undergraduate student learning through doing research, with a particular emphasis on curricula in year one and year two. It is naturally recognised that different definitions can be placed on ‘doing’ and on ‘research’ and that different activities will be suited to some disciplines more than others. Thus, it is not expected that every undergraduate student would experience exactly the same mix of features of research-based teaching and learning since

*“This will obviously vary considerably dependent on the discipline and which year of the undergraduate programme is being considered, but fundamentally the approach should be “to make the undergraduate curriculum parallel the research process as much as possible so that the experience students have in learning is the same as the one staff have in researching”<sup>4</sup>*

It is hoped that every Fellowship will review the current practice/s of the Fields in their School against a complete range of the possibilities that are open to them before making a

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<sup>3</sup> Based on criteria used to advise Brookes subject teams on linking teaching and research as supplied in Jenkins A, Breen R and Lindsay R (2002), Re-shaping Teaching in Higher Education: Linking Teaching and Research, Kogan Page and the Staff & Educational Development Association

<sup>4</sup> Roger Brown, reported by Swain (2007) “Bin recipe book, let them create”, The Times Higher Educational Supplement, 30 March, 54-55

judgement on which they will actively choose to develop<sup>5</sup>. However, in order to gain Reinvention Centre funding, proposals will need to include clear strategies to enhance the involvement of students in learning through *doing* research in years one and two.

## **B - POSSIBLE WAYS OF INTEGRATING RESEARCH IN THE UNDERGRADUATE EXPERIENCE**

### ***THROUGH COURSE VALIDATION***

#### **1. Validate a module in Academic Literacy & Practice**

There is evidence to suggest that incoming first-year students are receptive to the idea of a research-based curriculum<sup>6</sup> and a basic module in academic literacy and practice would establish the ethos of a university education where research is seen as the prime mode of learning. A basic module in Academic Literacy could be field or subject based or school-wide. Such a module would need a clear emphasis on the students learning in research mode.

#### **2. Identify ‘Research Skills’ in module descriptions**

As well as (or instead of) Transferable Skills and Professional Skills the inclusion of Research Skills in module descriptions would draw attention to the many instances of teaching and learning where students are being equipped with these skills but often without recognising that they can be deployed in research.

#### **3a. Validate a Research Methods module**

Some courses do not include a Research Methods module in their programme and it is accepted that it remains difficult to engage students with the subject. However, to neglect Research Methods or distribute it around other modules runs the considerable danger of relegating it to a set of mechanical skills that are unthinkingly applied. A module dedicated to Research Methods would be able to develop the equally important values, attitudes and philosophy of research and scholarship that will have been introduced through the Academic Literacy and Practice module.

#### **Or 3b. Review the Teaching of Research Methods**

If a specialist module is rejected, review how students learn research methods through their programme, and how the development of these skills, if embedded in ‘mainstream modules’, can be improved to better ensure that students learn the methods and have strong experiences of doing research.

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<sup>5</sup> “Sources on international discipline based case studies are in Jenkins A , Healey M and Zetter R (2007) Linking Teaching and Research in Disciplines and Departments, York, Higher Education Academy [http://www.heacademy.ac.uk/research/LinkingTeachingAndResearch\\_April07.pdf](http://www.heacademy.ac.uk/research/LinkingTeachingAndResearch_April07.pdf)  
As part of a Reinvention Fellowship, Alan Jenkins has also drawn up guidelines and case studies on adapting US undergraduate research to the UK . These can be found at <http://www2.warwick.ac.uk/fac/soc/sociology/research/cetl/ugresearch/>.  
And a range of US undergraduate research web sites is at <http://www.reinventioncenter.miami.edu/resundergrad.html>

<sup>6</sup> See Smith P and Rust C (2007), *Students’ Expectations of a Research-Based Curriculum: Results from an Online Questionnaire Survey of First Year Undergraduates at Oxford Brookes University*, in submission

#### **4. Research Experiences in Year Two Modules**

Building on the students experience of doing research and wider appreciation of research in year one modules, enhance the extent to which current year two modules give students the opportunity to carry out (as individuals or in groups) research related to their discipline and perhaps related to community or work placement or volunteering and /or staff research interests

#### **5. Rename the double honours module ‘Research Project’**

Almost all programmes feature a final year double module that is required for Honours. This module is variously named ‘dissertation’, ‘synoptic project’, etc but a title that includes ‘research project’ would standardise terminology and, more importantly, leave no-one in any doubt that an undergraduate course at this institution culminates with a student research exercise.

### ***THROUGH COURSE DELIVERY***

#### **6. Include research staff in module teaching teams**

In making research more prominent in the undergraduate curriculum there is a sense that the demarcation between teachers and researchers should become increasingly redundant. The involvement of all kinds of researchers in undergraduate teaching would emphasise the notion of an inclusive academic community where learners, teachers and researches are all seen as scholars in the common pursuit of knowledge.

#### **7. Emphasise research in second year modules**

It is strongly suspected that many modules, especially in the second year, are delivering material that is strongly research-based but often without referring to it as such. With only small adjustments in terminology, in module handbooks and in the classroom, students would gain a stronger sense of the research credentials of their learning. (See also 2 & 4 above)

#### **8. Develop Community Research projects**

In second year modules, in particular, there is some evidence that research is given strong impetus when students become involved in research for a community group<sup>7</sup>. A live research project carried out for a client body can successfully raise student awareness of the issues that are involved in research and such projects create invaluable case study examples to refer to when discussing research methods<sup>8</sup>.

#### **9. Assemble a compendium of research skills**

If research skills, in particular, are delivered in a range of modules, then it may be helpful to assemble these skills in a single document that would be available in advance of a Research Methods module and for reference by students and supervisors throughout the final double honours Research Project.

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<sup>7</sup> Byron Mikellides has been awarded a Reinvention Academic Fellowship to develop the work that undergraduate Architecture students have been doing on community research in designing out crime and in design for accessibility. Richard Huggins has been awarded a Reinvention Academic Fellowship to further develop undergraduate students’ opportunities to do community research with organisations in the Oxford region.

<sup>8</sup> The Reinvention Centre has established a Community Research Fund to facilitate the creation of opportunities for students on undergraduate modules to carry out research for local clients

## **10. Form subject groups in Academic Literacy & Practice and/or Research Methods**

With the emergence of Academic Literacy and Practice and with the difficulties of teaching Research Methods, it may be helpful to establish informal subject research groups across the disciplines within a School. Such groups may make links to other Schools and it may be useful to convene meetings and seminars across the university.

## **11. Evaluate/research undergraduate research in the curriculum**

The level of Brookes' commitment to undergraduate research would seem to warrant an explicit evaluation of this aspect of the student learning experience. A systematic and sustainable but 'light touch' scheme could be integrated into existing procedures. In addition, some programmes might want to more systematically research aspects of their programme. It would be especially valuable to evaluate/research the final double honours Research Project as the concluding and perhaps the single most important element of a student's course.

## ***THROUGH FURTHER ACTIVITIES***

### **12. Encourage students to carry out research projects**

Students could be encouraged to develop their academic interests outside the curriculum by undertaking research. This work could be part of a larger project being run by a member of staff and would most easily be carried out in the summer vacation. The project is likely to be a group exercise involving different kinds of researchers and funding would clearly need to be available. The Reinvention Centre offers some funding for this kind of activity through its URSS scheme.<sup>9</sup>

### **13. Encourage students to publish work**

Students could be encouraged to publish research which they have conducted either outside or inside the curriculum. Particularly using web based publishing a module could encourage /require all students to 'publish' their investigations /research. Also strong submissions from the double honours Research Project or funded work with staff could be written up for an existing academic journal.<sup>10</sup> Clearly this would be particularly appropriate to those students seeking a research career or wishing to go on to postgraduate work.

### **14. Create a student journal**

In order to facilitate the publication of some of their students' work a discipline or School could create a student journal. Such a journal may need to be established in partnership with other institutions but a level of student involvement would further reinforce academic values and practice<sup>11</sup>.

### **15. Organise a student conference**

A further opportunity for disseminating student research work would be a student conference. Such an event could be at least partly organised and convened by the students themselves

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<sup>9</sup> The Undergraduate Research Scholarship Scheme (URSS) is sponsored by the Reinvention Centre at Brookes to enable students to become directly involved in the research work of the University, experience what it is like to be a member of a research team and take part in cutting-edge research

<sup>10</sup> The Reinvention Centre is developing an e-journal of Undergraduate Research dedicated to the publication of undergraduate student research. There is also already an undergraduate research journal in BioSciences, and another being developed for Geography

<sup>11</sup> Helen Walkington has been awarded a Reinvention Academic Fellowship to continue collaborations with other institutions to develop an electronic student journal in geography and environmental studies

with the style of the sessions being as informal as possible with group posters and seminars rather than individual presentations.

**16. Include undergraduate students in research proposals, including bids to Research Councils and others**

Research proposals could consider the possibilities for recruiting undergraduate students to conduct some of the tasks on the project. Students could subsequently draft a critical working note or similar on what it is they have done. Part of the debriefing for students involved in this way could include a short evaluation interview with the intention of improving the integration of undergraduates in research teams. Note that a number of national bodies, including some Research Councils, are now explicitly encouraging undergraduate involvement in research bids.

**17. Present undergraduate student research outcomes at Visit Days**

At university Visit Days students could be given the opportunity to display their research and talk to applicants and parents about what they have achieved at Brookes. There are examples of this practice in the US and it serves as an excellent mechanism for promoting undergraduate courses as well as encouraging students to continue into postgraduate courses.

**C – INDICATIVE TIMETABLE**

September 2007	Circulate this application invitation to Schools
October to December 2007	Members of Reinvention CETL hold preliminary discussions with Schools
January to March 2008	Schools identify staff composition of Academic Fellowships and make initial applications
April 2008	Reinvention CETL members consider applications
May to July 2008.	Discussions between proposed Fellows, the Dean of the Modular Course and the Reinvention Centre lead to the drawing up of revised and more detailed project plans
August 2008	Contractual and financial arrangements drawn up
September 2008 to December 2008	Fellowships conduct review work
January 2009	Review report due
February 2009 to July 2009	First phase of development work
August 2009	Interim report due
September 2009 to December 2009	Second phase of development work
January 2009	Final report due

**D - APPLICATION FORMAT**

Applicants will have to make a case as to how their application progresses the development of undergraduate research, especially in the curricula, within their School, on no more than six sides of A4 (including a resume CV, the proposed budget, and a signed Statement of Support from the appropriate Dean/Director as Appendices).

The application should address:

- Title of proposed Academic Fellowship project and name of the applicant (lead participant)
- Name of other participants (where applicable). Staff with different degrees of experience and differing expertise are encouraged to work together where such collaboration will enable the generation of innovative proposals and outputs
- Project rationale, ie explicit explanation of how the project better ensures that undergraduate students in year one and two will learn through doing research (by linking the CETL aims with those of the School)
- Project budget and milestones, up to a maximum of £10,000 (and see budget guidance below).
- Project Report to comprise: (a) a summary Report of the main project achievements suitable for publication on the CETL website, (b) financial report and (c) text of an article on the project suitable for publication in Brookes eJournal of Learning and Teaching.
- Project impact and dissemination, to include: explicit statement of the number and subject disciplines of students and academics covered by the proposal (including specific Fields and modules where applicable); internal workshop hosted by home School/Directorate; dissemination within and beyond the University.
- Project evaluation, to include provision for formative student/staff feedback during the course of the project

## **E - BUDGET GUIDELINES**

The funding available for each academic year is £35,000 at Warwick and £35,000 at Oxford Brookes. Applicants may apply for up to £10,000, though the CETL will be happy to consider funding for smaller Fellowships where appropriate.

1. Reinvention CETL Fellowship monies may be used to fund the following:

- Release of time from teaching, research or administrative duties.
- Research or administrative assistance, including student assistance.
- Reasonable travel and subsistence costs, including participation in conferences where these are integral to project dissemination .
- Purchase of consumable items.

The following **will not** normally be funded:

- Normal costs of programme delivery, as distinct from additional costs of innovation.
- Equipment or ICT hardware/software.
- Institutional overheads, although the on-costs of salaries are allowed.

2. Payments will be made on a subcontract basis from the Reinvention CETL to the Academic Fellow. Once the proposed project has been agreed, the CETL will send out a funding contract for signing by the applicant and their sponsoring School/Directorate. On receipt of a signed contract, the CETL will pay one half of the Fellowship funding on

commencement of the project. The second half will be paid upon completion of the project and on acceptance by the CETL Deputy Director of a completed Project Report from the Academic Fellow. This final claim needs to be supported with an appropriate and auditable statement of expenditure. Please note that no overheads will be paid.

## **F - APPLICATION AND SELECTION PROCEDURE**

Each application from Brookes' staff will be considered by a selection panel representing both the partner Universities which comprises the CETL's Director at Warwick, Deputy Director at Oxford Brookes, the Academic Co-ordinators at both Warwick and Brookes, the Centre's Academic Manager and the Head of Learning and Teaching Development at Brookes.

The Deputy Director of the CETL at Oxford Brookes welcomes the opportunity to discuss the scope and timing of potential proposals for Reinvention Centre Academic Fellowships with interested staff and appropriate colleagues in their School/Directorates.

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## Appendix

Summary of key proposals from LTC paper:

1: Audit and Celebrate; Recognise that course teams and the Modular Course implicitly and in some cases explicitly, have key aspects of ‘undergraduate research’ in place eg structures for independent study in many fields /programmes. One strategy for Schools is to audit /celebrate what is already in place, as has the Schools of Built Environment and Social Sciences and Law.(eg the Geography (Research) Expedition Module  
<http://ssl.brookes.ac.uk/sslonline/resources/23/GP%20field%20guide%202006.doc>

2: Rename Modules; Schools /fields could rename all modules in which undergraduate research already takes place as ‘Research Modules’ (for example Research Methods Training, Independent Study Modules, Project and Dissertation Modules).This would raise the visibility of this activity and ensure immediate embedding across the university.

3: Year One Introduction; The introduction of a Year one, Semester Two, basic cross-disciplinary (in Schools or clusters of subject areas) that encourage initial engagement with research, the activities and objectives of academic staff and the disciplines they pursue, methods and scholarly devices and protocols. This module – perhaps called Academic Literacy and Practice, or something similar – would encourage the development and understanding of academic skills through the early immersion in the practice (research/enquiry/action) of academic activity. The key would be to involve students, probably in small groups, in small-scale research activities.

4: Research Methods Modules (Compulsory or Optional) in Year Two. These modules would be directly linked to a range of optional or compulsory modules that progressively build on the research skills and activities of students and allow students to engage directly in their own and/or staff research activity either individually or in teams. For example, this might include modules such as, *Research Practice One* – which could be a taught, class/lab based module, activities based on staff research, team research or a more “stand alone” research activity designed and developed by staff and student(s) working together. *Research Practice Two* – which would build on work already undertaken and could take the form of an Independent Study Module, a research-based placement, volunteering within a community (or other) research based project or activity directly linked to staff research.

This pathway would be capped with the:

5: Final Year Dissertation or Research Project; which could be designed to build on work undertaken in the previous modules. Such a pathway could, in year three, mark a clear delineation for honours modules and for advanced independent learning.

6: Linked Activities; The above could be complemented with a range of additional research-based activities including, for example,

- The Reinvention Undergraduate Research Scheme.  
<http://www2.warwick.ac.uk/fac/soc/sociology/research/cetl/projectfunding/urssbrookes/>
- Externally Funded Projects which involve student research.

- Community based independent research placements based on the experience of the FDTL 5 funded project: Politics in Action – The Scholarship of Engagement  
<http://www.politicsinaction.ac.uk/>
- Community Based Research as a designated programme or pathway at field, School and/or University levels
- Undergraduate Research Days at School and University levels
- Summer Undergraduate Research Programs: perhaps linked to Service Learning and/or Volunteering.
- Personal Development Planning (PDP): helping students (and staff) to explicitly recognise undergraduate development of research skills