

HEADS OF UNIVERSITY BIOLOGICAL SCIENCES (HUBS)
COSTING THE BIOSCIENCES
20-21 April 2005, University of Leicester

Wednesday 20 April: focus on Teaching

0. **Welcome and Introduction by Chairman**
1. **Student Transition and Retention in the Biosciences: the STAR project** (Tony Cook, STAR project, University of Ulster) [[notes](#) | [powerpoint](#)] _____
2. ***i*-Science: the true costs and benefits of student-centred learning** (Jan Zalasiewicz, University of Leicester) [[notes](#) | [powerpoint](#)]
3. **Costs and benefits of accreditation: the Psychology experience** (John Beech, University of Leicester) [[notes](#) | [powerpoint](#)]
4. **Bioscience in Medical Education: how much basic science is needed?** (Stewart Petersen, Leicester/Warwick Medical Schools) [[notes](#) | [powerpoint](#)]
5. **Cost-effective alternatives to conventional practical teaching** (Ed Wood, Bioscience Centre of the Higher Education Academy, University of Leeds) [[notes](#) | [powerpoint](#)]

Thursday 21 April: focus on Research

6. **Organising Biosciences on a large scale: the Manchester experience** (Maynard Case, Manchester) [[notes](#) | [powerpoint](#)]
7. **Why do the Biosciences seem so expensive? A Finance Office perspective** (Gary Hague, University of Leicester Finance Office) [[notes](#) | [HESA statistics](#)]
8. **Alternative income streams and associated research opportunities in Biosciences: sports science, forensic science, pharmacy etc.** (Hilary Evans, John Moore University, and John Coggins, University of Glasgow) [[notes](#) | [powerpoint](#) (Evans) | [Powerpoint](#) (Coggins)]
9. **Exploiting the biosciences: opportunities and problems of commercial exploitation of research** (Kevan Gartland, University of Abertay) [[notes](#) | [powerpoint](#)]
10. **Full Economic Costing on trial: experience of the TRAC methodology** (Rodney Eastwood, Director of Policy and Planning, Imperial College) [[notes](#) | [powerpoint](#)]
11. **Survey of costs in Bioscience departments: results, analysis and general discussion** (Wendy Purcell, UWE and David Coates, Bradford University) [[notes](#) | [powerpoint](#)]

HEADS OF UNIVERSITY BIOLOGICAL SCIENCES (HUBS)
20-21 April 2005, University of Leicester.
Record of discussion

20th April.

After coffee, registration and a buffet lunch, the afternoon commenced with a welcome and introduction by the HUBS Chairman (Prof John Coggins).

Tony Cook, STAR project, University of Ulster: Student Transition and Retention in the Biosciences. [[Powerpoint presentation](#)]

Main topics covered:

- Cost of students leaving early
 - Cost to institution of students leaving early,
 - Cost to student,
 - Role of management Principles of retention
 - Reasons why students leave
 - The STAR project
- Practices of retention
 - Prior to entry
 - Induction
 - Flexible progression
- STAR provision

Discussion:

Q - John Coggins (Glasgow Univ.). Asked about the value of 'buddy' schemes for 1st & 2nd year students.

A - Go with a scheme of student mentoring where your own students take new intake around the University and tell them the truth about it all.

Q - Simon Jarvis (Univ. of Westminster). Asked about the students' motivation to succeed.

A - This is all down to student expectation, what they want to do and also what they get to do when in the institution. Having checked thoroughly beforehand, this should give them the motivation. Students do not necessarily do what their parents want them to do, and this can affect the support they receive.

Malcolm Finbow (Glasgow Caledonian) Re. recruitment: why not bus students in to see what it's like and get them motivated before arriving? Some parents don't really want them to go to University as it's too expensive.

John Coggins. Give information to parents as children becoming students is not always a high family priority.

Robert Slater (Univ. of Hertfordshire). Asked about institutional benchmarks on retention.

Q - Tony Cook asked about Universities such as York that have very high retention rates.

A - Peter Hogarth (York Univ.). Noted that they have no problem with retention, mainly due to characteristics of their students who live largely on a self-contained, attractive campus. Noted that inner city students living at home frequently have part time jobs to cope with, so studying may be especially difficult for them.

Jan Zalasiewicz, University of Leicester: *i*-Science: the true costs and benefits of student-centred learning [[Powerpoint presentation](#)]

Main topics covered:

- Where we are coming from with the *i*-science
 - Most of the interesting problems in science are interdisciplinary
 - Recruitment problems (attractiveness) of traditional science degrees
 - Need to achieve greater participation in science
- What *i*-Science is and what it isn't
- Advantages
 - Graduate needs
 - Student interest
 - Staff interest
- Modules are based on PBL

Discussion:

Q - Hilary Evans (JMU). How is this course assessed?

A - Working in a group element, written knowledge and all linking together.

Q - Peter Hogarth. How do you select students and how do they progress as they advance into second and third years?

A - They need some science background and then learn the fundamentals of science through PBL. In later years (this year is the first intake) they will handle more complicated material. The idea is to gain high levels of professional and personal skills necessary for working in science-based industry in the 21st century.

Q – In what sense are students ‘in the driving seat’?

A - By designing their own modules and courses and investigating real-world problems in teams.

Q - John Coggins. How many students are you hoping for eventually?

A - 40 – 50

John Beech, University of Leicester: Costs and Benefits of Accreditation: the Psychology experience. [[Powerpoint presentation](#)]

Main topics covered:

- Overview
 - Details of the accreditation process in Psychology
 - Problems with accreditation
 - Benefits of accreditation
 - Would it be worth Biological Sciences doing something similar?
- Accreditation by the British Psychological Society
 - ChecklistReview visitCurriculumWhat would be needed for Biology to embrace accreditation

Discussion:

Much of the discussion was about experience of those biological courses that already had accreditation, e.g. pharmacy, environmental health.

Paul Whiting (de Montfort Univ.). Asked whether the Institute of Environmental Science takes accreditation away if benchmarks are not fulfilled.

Simon Jarvis. Without accreditation, there's no enrolment of students.

Mark McNair (Exeter Univ.). Raised question of protecting resources with a certain number of teachers required on each course.

Stewart Petersen, Leicester-Warwick Medical School: Bioscience in Medical Education: how much basic science is needed? [\[Powerpoint presentation\]](#)

Main topics covered:

- Historical background
 - Pre-20th century
 - 20th century model (prevailed for 80 years)
 - Why medical education was revised
 - 'Tomorrow's Doctors' reviewed and revised priorities
- Defining the core in the 21st century
 - Reduced emphasis on science, more on communication with patients
 - 'Tomorrow's Doctors 2'
 - Move to national licensing
 - NHS-run medical training?
- Opportunities for teaching basic biology
- Move to graduate entry: the Warwick experience
 - Very disappointing knowledge of biology relevant to medicine
 - Biology graduates perform no better than school leavers in early part of course
 - Age/maturity seems to be more beneficial than biology degree
- Engaging with the medical agenda
 - Modern medicine deeply rooted in biological science
 - Paradoxically, basic biology is increasingly marginalised in medical education
 - Biologists need to engage with agenda of medicine rather than assuming medicine will follow your research agenda

Discussion:

Q - Ed Wood (Leeds Univ.). Is basic science taught in first year?

A – Sciences, including anatomy & psychology, are included as soon as we see potential. Students generally want to learn biology.

John Coggins. Medical students in Glasgow are coming along to classes to learn physiology and anatomy because they're worried about making errors by not knowing the basics. People driving GMC agenda seem not always to be reliably informed.

Hilary Evans. With medical research changing, many students come back to biology.

Q - Medical education seems not to be stable. We were approached by a dentistry school to deliver physiology and anatomy to dentists.

A – There are now very few anatomy graduates around to teach anatomy.

? Paleontologists teach anatomy to medical students in some places!

Len Evans (Univ. of Buckingham). New course at Buckingham will produce medical graduates in 4 years with no biology.

David Fell (Oxford Brooks). We teach physiology and microbiology to nurses - not many nursing courses include microbiology but many nurses regard it as essential training.

Robert Slater. Is undergraduate entry to medical schools better than graduate entry?

Graduate courses are shorter and more intense – students might do better learning at a slower rate.

Ed Wood, University of Leeds: Cost-effective alternatives to conventional practical teaching. [[Powerpoint presentation](#)]

Main topics covered:

- Modes of teaching and learning
- The learning pyramid
- Objectives of practical teaching (manual and intellectual)
- What does industry/PhD supervisor want?
- Constraints
- Problems with modular system
- Importance of good data
- Case studies.

Discussion:

Q - Chris Barnard (Nottingham Univ.). It used to be relatively cheap to do animal-behaviour practicals. The problem nowadays is Home Office legislation, housing requirements, and the centralisation of all animal breeding and keeping in expensive facilities. A project on crickets used to cost £50, but it is now £3,500 to pay a central animal house to keep them in plastic tanks. Students don't always want to handle animals.

Q - John Coggins. There's also a problem about ethics committees.

A - Ed Wood – The experience of working with animals is valuable. Pharmaceuticals etc. still have to be tested on animals.

John Newbury (Birmingham). Quite a lot of practical work is done on projects outside Departments, for example a student going to Brazil to study rattlesnakes.

21st April.

Maynard Case, Univ. of Manchester: Organising Biosciences on a large scale: the Manchester Experience. [[Powerpoint presentation](#)]

Main topics covered:

- History of development of School of Biological Sciences at Manchester
- Model for rest of University
 - Independent resource centre since 1990
 - Life Sciences is one of the four faculties in the new, post-merger University
- Faculty of Life Sciences
 - Size: >600 staff, 350 PG students, >2,200 UG students
 - Courses: 20 UG degrees in Faculty, also medicine, dentistry, nursing, speech therapy, pharmacy
 - Income >£53Mp.a., grants & contracts total >£155M
- Manchester model: the School (Faculty) is the department (since 1993)
 - Research quality has increased from 2 to uniformly 5* over 20 years since began abolishing departments

What about the negatives?

 - *Camaraderie*
 - *Communication* Loss of 'disciplines'

Benefits include:

 - Flexibility and speed of action (all decisions on appointments are devolved to School/Faculty)
 - Economies of scale
 - Enhanced collaboration
 - Greater influence

Discussion:

Q - John Coggins. Re the financial side, what ways can you reduce expenditure on teaching in a large school?

A - You have to merge units where possible, and the benefits are enormous. Staff contact hours were reduced from 336 in year one to 220 now, all gained from merged course units (saved 27% of staff teaching time). Students lost one 2nd year unit, which was a deliberate policy, but they still have the same contact hours.

Q - Has there been any substantial increase in E-learning

A - No there hasn't, although this will be the next step forward.

Q - Mick Uttley (Plymouth) asked about teaching neurosciences.

A - Some of these courses are to be merged, e.g. teaching Optometrists with Opticians etc., to make them viable.

Gary Hague, University of Leicester Finance Office: Why do the Biosciences seem so expensive? A Finance Office perspective. [[Excel chart of HESA 2002/03 data](#)]

(Note: There is no PowerPoint presentation associated with this talk.)

Main topics covered:

The focus was an analysis of HESA statistics, with comparison of HEIs within Biological Sciences and also comparisons across other science subjects. Problems for HEIs included an increasing pay budget and increasing costs of utilities. It was noted that staffing decisions in Leicester are made centrally in order to try to improve the overall University RAE ratings. The broad conclusion from analysis of HESA data was that Biological Sciences is not expensive when compared with Chemistry and Physics.

Discussion:

Q - Robert Smith (Leicester Univ.). Your analysis started 2 or 3 years ago with a comparison of the 25 institutions with 5 and 5* RAE ratings in UoA14. You pulled out the support-cost element to tell us we were the second most expensive in this area. My response was that we were 24/25 on non-pay support and 16/25 (i.e. relatively poorly funded) overall. I questioned whether the HESA figures were accurate or whether different institutions fill out their return forms in the same way, because it did not seem feasible that there was such massive variation between institutions. This is important because it affects how much faith we have in the HESA figures.

Q - Simon Jarvis. Some of these figures are unreal for what I understand I am meant to be spending. Ratios vary widely from institution to institution. How much guidance is there?

A - There's a set of rules, a set of conventions, and I hope that everyone fills the form in accurately.

Q - Maynard Case. Going back to the first part, when staffing decisions are centralised as in Leicester, what is the incentive for departments to manage staff efficiently?

A - Incentives are pride and prestige the harder people work. Staff boosts allocation in relation to annual plans.

Q - Maynard Case ... what's the incentive for Biologists to get bigger and better?

A - They will get bigger & better for a purpose. We are there to help them thrive and grow.

Hilary Evans, John Moore University and John Coggins, University of Glasgow: Alternative income streams & associated research opportunities in Biosciences, forensic science etc. [\[Powerpoint - Evans\]](#) [\[Powerpoint - Coggins\]](#)

Main topics covered:

- Several courses have a Biosciences input, for example
 - Forensic science
 - Pharmacy
 - Sports science
- Research Councils and other major funders have clear priority areas and do not map onto areas of UG demand
- Areas popular with UG, e.g. sports, science and forensic science, often have fewer job opportunities than students realise
- Teaching staff in these areas are in short supply and have few opportunities for research funding.
- Research intensive departments need teaching income
- Specialist teaching activities can be shared across institutions
- We are sometimes generous with the selection of modules that we offer

Discussion was cut short by the need for sustenance.

Kevan Gartland, University of Abertay: Exploiting the biosciences: opportunities and problems of commercial exploitation of research. [\[Powerpoint presentation\]](#)

Main topics covered:

- How to integrate small, successful research centres into a University department
- Promoting enterprise
 - Challenges
 - Opportunities

- Working with SMEs
- Case studies from Abertay
 - Caledonian Railway
 - Soil testing for leisure industry
 - Textile manufacturers

Discussion:

Q - Trevor Hocking - How many of your 85 staff are full time.

A - Ten to fifteen.

Q - Trevor Hocking - how many teaching hours do they work?

A - Some work 40 hours a year, some work 300-350. Sometimes we buy out people's time for particular projects. This works well for environmental projects.

Q - Are the academic staff the ones who instigate the projects?

A - We are very fortunate in having a Business Development person who is very good at forcing through projects. The project officers work very hard making things work.

Rodney Eastwood, Imperial College: Full Economic Costing on trial: experience of the TRAC methodology. [\[Powerpoint presentation\]](#)

Main topics covered:

- Background – persistent failure to invest in research infrastructure
 - TRAC - TRansparent Approach to Costing
 - Instigated by Treasury
 - Includes infrastructure adjustment and cost of capital employed
 - Revealed costs of major activities in teaching and research
 - Showed deficit or surplus on each activity
 - Challenge is to become financially sustainable and to maintain quality
 - Full economic cost
 - A price which, if applied across an institute's full programme, would recover the total cost (direct, indirect and total overhead) of the institute, including an adequate recurring investment in the institute's infrastructure
 - Includes academic time and consumables, libraries and admin., cost of capital and depreciation
 - New system requires Research Councils to find 80% of full cost
- Implications, questions raised and timetable

Discussion:

Q - Do you know when government departments like DEFRA will pay 100% of full economic costs?

A - They should do from now. There's a letter from the Treasury that has gone around saying they should pay 100% on all new grants. When challenged, they will say it's open competition - take the best value for money. Will drive down return of full costs unless every university is bidding towards that and plays the game and puts in 100% The letter's available, so you can always copy the letter in and send it with your proposal. The issue that worries me is that costs and salaries do vary enormously and that's going to have quite an impact on costs, by a factor of 2 or more.

Q - John Coggins. You need to research and price the best people for the research.

A - Research Council pay slightly more than they need because they can't change the rates, and we all know that grants subsidise teaching.

David Coates, Bradford University: Survey of costs in Bioscience Departments: results, analysis and general discussion. [[Powerpoint presentation](#)]

Main topics covered:

- Rationale behind HUBS survey was to get more money for teaching
- Data only came in recently so analysis not yet complete
- Ten returns good enough to use for ball-park estimates
- Tables of costs shown
- Results to date are very variable - next steps?

Discussion:

Q - Maynard Case. This should be an easy thing to define, you could say this is what graduates should be able to do and if you want them to do that it will cost you, say, twice as much as it does now.

A - I don't know if we would know the things we had to cut under pressure. Some things we would not want to move back on are the efficiency of teaching and modules. The practical lab sessions are diminishing, and some people are moving away from 3rd year projects, not having the staff numbers and space to run them. We could use the employers' argument, their biggest criticism is that the students are not sufficiently trained in practical science.

Q - Peter Heathcote. Industry says that students do not retain the practical skills that we do try and teach them, it's too sporadic and not reinforced. I do have a problem in that I'm not convinced that the students use their time sensibly. We need to give them quality time and also to safeguard projects. It's very difficult to sustain teaching labs when you are on a devolved budget. You are paying for that space, which is only used part of the time, and there is not the amount of teaching income to support that amount of space.

A - The way we are funded applies to every single academic subject, but we are training people on equipment some of them are never going to see again.

Q - John Newbury. Things in institutions are not as good as they used to be because of the cost of practicals in general, projects in particular, field courses, which I know in the past in Birmingham have become too expensive to continue; is that true in all subjects or just in biosciences?

A - It's the same in all subjects, isn't it?

Q - John Newbury. We need to say "This is what we need to deliver, we need to meet a benchmark and to do that would cost £x".

A - In some non-science departments, academic staff don't do much teaching, perhaps only one lecture a month. Then you go to biology where you've got people working in the labs every hour of the day & night and the staffing is the same in both places. Other departments say that they have different teaching styles but the costs should be the same.

Maynard Case. They would say that anyway, wouldn't they.

Q - Peter Heathcote. The people who are winning the argument at the moment are the chemists and the physicists and their higher funding. Why do they get higher funding? What are they doing that we're not doing that costs more?

Q - John Coggins. I think part of it is that they made a tremendous fuss about it, having to modernise all their labs etc., but they really do not make good use of them. In Glasgow we use ours all of the time; the lab runs in the morning for the Dental class, the afternoon for a Medical class, the big classes can't be run all together. Some chemistry and physics departments tend to have a higher support staff ratio.

A – We face questions such as, should environmental students do so many days of fieldwork a week a year? When you are faced with criticism of costs, people will say to you “Why do you spend so much on field work, why do you spend so much on lab work?”. Without any idea of what is the baseline, you always lose the argument.

Q - John Coggins. In some respects we could learn from the medics because in clinical teaching, some of which is done in very small groups, there they have these huge sums of money to cover additional costs of teaching, that even comes outside the HEFCE fees bracket, they come from sort of NHS-type funding but they seem to keep making the case that this is what's needed. You were mentioning the animal teaching. If you look at France, they are desperate to have people exposed to working with animals, they can't recruit people in those areas.

There then followed a general discussion, with much talking about a range of issues.

*Robert Smith, Leicester
David Coates, Bradford
Tuesday, June 14, 2005*

STAR Project

Costing the BioSciences

20-21st April 2005

Tony Cook

STAR@ulster.ac.uk

<http://www.ulster.ac.uk/star>

What I am going to talk about

- Cost of students leaving early
- Principles of retention
- Practices of retention
- How the STAR project can help you.

<http://www.ulster.ac.uk/star>

Institutional Costs

- Per full time FTE
 - + £5,923 (from HEFCE May 2004/23)
- If they leave in Year 1 then
 - Save recurrent cost of tuition + trouble
 - Lose
 - either a further £11,846 if not replaced
 - OR recurrent costs of recruiting a replacement + £5,923

<http://www.ulster.ac.uk/star>

Cost to the Student

- + Change to more suitable course/ life style
- - Fee £1100 ish + living expenses.
- Angst

<http://www.ulster.ac.uk/star>

Problem solving

- Early leaving is an institutional problem
 - Financial Problem
 - Statistical Problem
- Early leaving is a student's solution to an academic or social problem

<http://www.ulster.ac.uk/star>

Role of Management

- IF you have a retention problem worth solving
 - Decide what your problems are
 - Only solve problems you have
- All solutions will require resources
 - Planning
 - Staff time
 - Money
- Balance the pain against the gain

<http://www.ulster.ac.uk/star>

Principles of retention

- Every student leaves for a different reason
- These can be classified into three:
 - Poor social fit
 - Poor academic fit- (academic failure)
 - Sudden changes in circumstances

<http://www.ulster.ac.uk/star>

The Social dimension

- "Nobody liked me"
- "I did not fit in"
- "The staff were not accessible"
- " I felt lost"
- "I was lonely"
- "I was homesick"

<http://www.ulster.ac.uk/star>

The Academic dimension

- "Course was not what I expected"
- "I could not cope with the Statistics"
- "The staff were too distant"
- "I did not understand what it was I was supposed to be doing"

<http://www.ulster.ac.uk/star>

Sudden change

- Financial factors
- Family circumstances
- Illness

- Typical of mature students
 - Full time / part time
 - Change course
 - Leave of absence

<http://www.ulster.ac.uk/star>

The STAR project

- Founded on a set of objectives
- Working to illustrate how to achieve these objectives with case studies and projects.
- These will be distributed
 - LTSN,
 - Website
 - Promoted through visits

<http://www.ulster.ac.uk/star>

Solutions

- STAR Case studies
 - Prior to entry
 - Better information-
 - Literature + interviewing = fewer applications
higher conversions
 - Student mentoring- lower conversion, higher retention
 - Community outreach- better decision making
 - Better understanding of Pre-entry qualifications

<http://www.ulster.ac.uk/star>

Solutions

- STAR Case studies
 - Induction
 - Registration week
 - Social induction
 - Study skills
 - Student mentoring
 - Service teaching- chemistry, mathematics
 - Developing the first year curriculum

<http://www.ulster.ac.uk/star>

Solutions


- STAR Case studies
 - Flexible progression
 - Transition to and from placement
 - Changes in teaching style (e.g. distance learning)
 - Provision for disability

<http://www.ulster.ac.uk/star>

STAR Provision

- All products free to HE during the project- website + paper based
- We can visit,
 - Raise awareness of issues
 - diagnose problems and recommend solutions
- We regularly contribute to LTSN, etc.

<http://www.ulster.ac.uk/star>



i-Science

i-nnovative, *i*-ntegrated, *i*-nterdisciplinary
EDUCATION IN SCIENCE

Jan Zalasiewicz University of Leicester HUBS 20/5/05





Where are we coming from?

A running saw :

Chemistry is the most fundamental of all the sciences

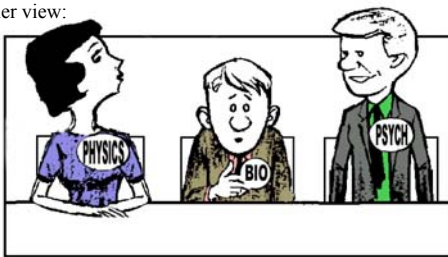
And its variant

Physics is the most fundamental of all the sciences

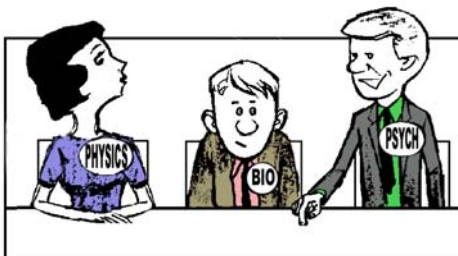
But of course

Biology is of most relevance

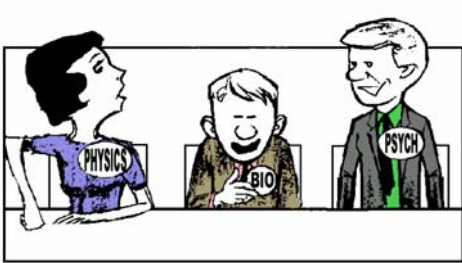
Another view:



Biologist: **Why did the chicken cross the road?**



Psychologist: **Well, certainly we must understand the motivation of the chicken, no? What is on the other side of the road? Grain? A rooster? What do you think?**



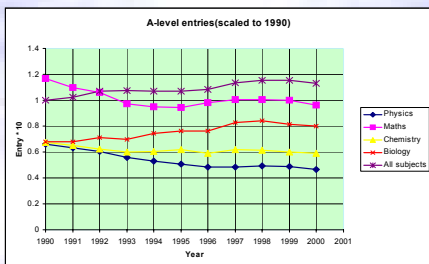
Physicist: **Well, it's obvious. First, you must assume a non-zero number of spherical chickens...**

Most of the interesting problems in Science are interdisciplinary

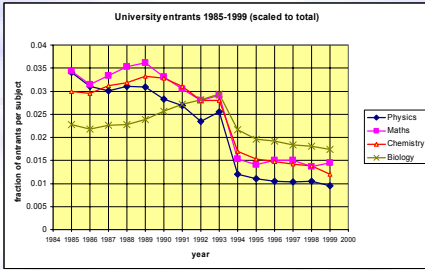
What are the drivers for change?

Recruitment What will attract students to science?

Why i-Science?



Why *i*-Science?



Why *i*-Science?



Most of the interesting problems in Science are interdisciplinary

What are the drivers?

Recruitment What will attract students to science?

Standards How can we achieve greater participation?

i-Science

What is *i*-Science?



What *i*-Science isn't

What *i*-Science is

Disciplines

Themes

Modules

Physics

Fundamentals

Science of the Invisible

Chemistry

Materials

Biology

Structures

Powers and Prophets

Archeology

Environments

Near Space

Geology

Systems

Braining IT

Geography

Communications

Engineering

Evolution

The biosphere

Mathematics

Computing

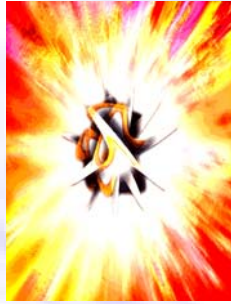
Technology

Astronomy

What is *i*-Science?



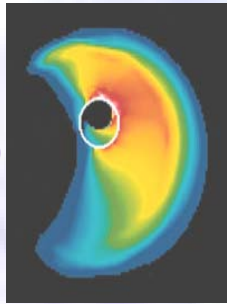
***i*-Science students** learn the fundamentals and applications of science in one or more disciplines including Physics, Chemistry, Biological Sciences, Geology, Archaeology, Geography and Engineering.



What is *i*-Science?



***i*-Science students** gain high level professional and personal skills (presentation, teamwork, communication, IT & Computing) and experience in presenting science to the public



Why *i*-Science?



Advantages of *i*-Science?

Graduate needs – science-based industry

- teaching

Student interest – we are looking for a new cohort

- adapted to 21st Century Science

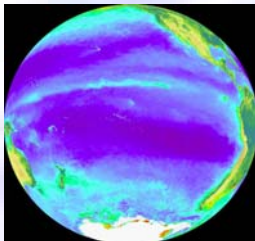
Staff interest – interdisciplinary research

How?



i-Science and Problem-Based Learning

... a **student-centred** teaching method where students learn by investigating **real-world problems** and, working in **groups**, seek out the tools necessary to solve them.



Why Problem-based learning?



Why PBL?

Viability – range of starting points, range of outcomes

Engagement – allows student-centred viewpoint

Learning Environment – coherence of form and function, (outcomes and process)

What do we have?



i-Science Centre (virtual centre, real people) +
web site www.le.ac.uk/i-science

Advisory Board and Steering Committee

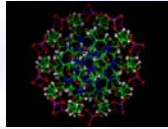
HEFCE funding for PBL through FDTL4

University of Leicester support

Outreach programme – schools and universities

What do we want/need ?

- competition
- accreditation
- publicity e.g. web links to the *i-Science* Centre (www.le.ac.uk/i-science) advisory board members
- (*i-*)Science A-level
- Industry and employer support



What result do we hope for?

-a new cohort of multidisciplinary scientists who will be tomorrow's managers and leaders in scientific fields

To learn more visit
www.le.ac.uk/i-science
or e-mail
i-science@le.ac.uk



Costs and benefits of accreditation: the Psychology experience

by

Dr. John Beech, School of Psychology, University of Leicester
Jrb@Leicester.ac.uk

Overview

We are going to cover the following:

1. Details of the accreditation process in Psychology.
2. The problems with accreditation.
3. The benefits.
4. Would it be worth Biology doing something similar?

Overview: What is accreditation?

- All psychology degrees qualify students for Graduate Basis of Registration (GBR) from the British Psychological Society (BPS). This means that they can go on to do more specialised courses in Psychology (e.g. Educational Psychology).
- The courses are reviewed on a 5-year basis.
- Every year the minimum requirements have to be met (on staffing, etc.).

What is the British Psychological Society?

- Their web site is at www.bps.org.uk
- It has 39,000 members (in 2003) and is the representative body of psychology in the UK.
- “By its Royal Charter the Society is charged with national responsibility for the development, promotion and application of psychology for the public good” (from its web site).
- Those of us who are BPS members pay a fee each year, and extra fees depending on whether we are chartered and on our membership of sections and divisions.
- It is quite a rich organisation owning offices in Leicester, London and Belfast. (It seems good at timing markets.)

4

What is the British Psychological Society?

The BPS:

- accredits 800 undergraduate degrees and 150 postgraduate professional training courses
 - confers Fellowships
 - publishes 10 scientific journals
 - has international links with other societies
 - In 2003 income was £7.5m and it was in the top 250 of charities in the UK by income
 - 35% of income comes from subscriptions.
- Etc.

5

Overview: The downsides of accreditation

1. The effort of undergoing regular reviews.
2. Flexibility in the curriculum?
3. The possible torture of losing accreditation.
4. The problems of the workings of the staffing rules.
5. Does Graduate Basis for Registration lull students into a false sense of security?



6

Overview: the benefits

There are three major benefits:

1. A protection of resources for the discipline in terms of staffing, library, etc.
2. Ensures an appropriate curriculum.
- 3 Offers a career structure for psychology, which makes it attractive to students.



7

Details of accreditation: The checklist

Every 5 years a committee visits the department and reviews the psychology course and the joint degree courses with Psychology. Beforehand we have to complete the following checklist:

1. Maximum of SSR: 20:1 based on FTE.
2. Minimum of 5 full-time staff.
3. Delivered by psychologists or suitably qualified people?
4. 80% taught by full-time (FT) or permanent fractional.

8

Details of accreditation: The checklist

5. Not more than 20% of honours route taught by PT staff.
6. Min. of 2 dedicated admin/sec. staff.
7. Min. of one FT dedicated technician/computing staff.
8. Dedicated psychology laboratory research/computing facilities.
9. Library facilities and access and minimum 2k books.
10. Journals minimum of 30.
11. Electronic material accessed.

9

Details of accreditation: The checklist

12. Two external examiners per programme, suitably qualified.
13. Programme is at honours level.
14. Programme covers compulsory components of the syllabus. (More later on this). All areas assessed individually.
15. At least 50% of level 2/3 (England) 2/3/4 (Scotland).
16. Successful completion of psychology project.
17. Practical component supervised, taught and examined by psychologists.

10

Details of accreditation: The review visit

The day of the visit:

1. Plenary session: about documentation (e.g. examiners' reports), assessment methods, support, research methods, etc.
2. Meeting with students.
3. Meeting with senior management – usually about resources, especially SSR.
4. Tour of facilities.
5. Feedback – followed by written report later – but they cannot say that the course has been accredited.

11

Details of accreditation: The curriculum

- The requirements for the curriculum are predominantly about the second year, recognising that there is usually an optional element in the third year.
- The topics/modules: Cognitive psychology, psychobiology, social psychology, developmental psychology, individual differences.
- Core compulsory elements: Research design & quantitative methods, practical component.

12

The downsides of accreditation: in more detail

1. The effort of undergoing regular reviews.
2. Flexibility in the curriculum?
3. The possible torture of losing accreditation.
4. The problems of the workings of the staffing rules.
5. Does Graduate Basis for Registration lull students into a false sense of security?

13

The downsides of accreditation: in more detail

1. The effort

A fairly detailed report has to be prepared and then the review day has to be planned. Although the review is good for 5 years, there is a “resource review” in Year 3.

Also, you have to inform the BPS if there are any changes.

If you are “at risk” then you are monitored annually. We at Leicester are in that position.

If a new course is developed, this involves more form-filling and an approval process.

14

The downsides of accreditation: in more detail

2. Flexibility in the curriculum?

Is there enough scope for the development of change in the syllabus?

Changes are made but they can be slow.

Little room for manoeuvre if one wants to be adventurous.

In some areas (developmental, statistics) difficult to get staff. This can be a real problem and run counter to RAE considerations.

However, the curriculum predominantly covers the second year and so there is a lot of freedom for the final year options.

15

The downsides of accreditation: in more detail

3. The possible torture of losing accreditation

If your department loses accreditation it can be extremely costly – and that means financially as well as emotionally.

Applicants through UCAS will most certainly dry up because students coming on to the course won't be able to get GBR. They won't be able to get on to any of the PG courses in psychology. You might face litigation if not careful.

16

The downsides of accreditation: in more detail

3. The possible torture of losing accreditation

Staff will probably want to leave, recruitment will become difficult. There may also be witch hunts, esp. of whistleblowers.

The aftermath even when reinstated can last for a long period.

But it is very **important** to remember that if there were any leniency and the discipline never had failures in accreditation, then accreditation would become worthless as a means for protecting our resources.

17

The downsides of accreditation: in more detail

4. The problems of the workings of the staffing rules

The basis of accreditation is the SSR 20:1 rule and the 80% FT staff rule. Both are important and at the same time the most difficult to satisfy.

From experience it can be **very** difficult to get across to a university administration how important that rule is. They (wilfully?) seem oblivious to the downside of losing accreditation.

The problems in more detail are as follows....

18

The downsides of accreditation:

4. The staffing rules (continued)

- (i) Not getting staff in time for the current teaching year to satisfy accreditation. Typically our new staff arrive in **January** for students starting in the previous October!
- (ii) We get very close to running foul of the 80% rule.
- (iii) The problem of a hump in student projections. University reluctant to take on permanent staff, so can run foul of the 80% permanent staff rule.

19

The downsides of accreditation:

4. The staffing rules (continued)

- (iv) Why is SSR set at 20? Due to economies of scale perhaps should be a sliding rule as staff numbers increase. SRR of 20:1 may be too difficult when the department is small.
- (v) The 80% rule is too rigid. In some years can get a bulge in study leaves, grants for staff to go abroad, “hump” conditions, etc. Perhaps should be based on the average across 3 years?

20

The downsides of accreditation: in more detail

5. Does Graduate Basis for Registration (GBR) lull students into a false sense of security?

Students may think GBR is the 100% certain pathway into getting a career in Psychology.

In practice competition is quite fierce for PG places and typically it can take 6 years (if they're lucky) before they can start working as psychologists.

21

Accreditation: what are the benefits?

1. Protection of resources

This is perhaps the most important reason for going through accreditation. It ensures that there are sufficient resources available for students – and by implication for staff.

This works by offsetting pressures from the university to cut back on resources.

As we have seen, this comes against a very small risk of losing accreditation and all that brings.

22

Accreditation: what are the benefits?

2. Ensures an appropriate curriculum

Despite the earlier criticisms, having a curriculum that is nationally laid down and monitored by psychologists gives confidence in the grounding of graduates with GBR. This will be particularly relevant when they apply for postgraduate courses.

23

Accreditation: what are the benefits?

3. Offers an attractive career structure

Students are attracted to the discipline in the belief that there is a career structure.

If they get GBR when they get their degree, this opens doors to various careers in psychology.

This is more than many other disciplines can offer.

Student applications in psychology have always been an increase each year (at least over the 35 + years I've been in the discipline). Could accreditation have had a part to play in this?

24

A postscript

Operating the rules vs the actual operation

In the cases where accreditation is not satisfied, in practice there are very severe warning shots across the bow beforehand. So although departments do lose accreditation occasionally, at least they can see it coming!

It should be remembered that those volunteer psychologists on the accreditation committees have a lot of empathy, because they will be facing similar situations in their own university.

Although the SSR 20:1 rule is applied fairly rigidly, in practice the 80% FT rule in practice is applied in terms of a 3-year average.

25

Would registration be the best way forward for biologists?

- I am not really qualified to judge, and my views may be unsuitable however...
- Accreditation for psychologists was around in the 1960s when I started psychology.
- To reach where psychologists are now, it is going to be more difficult for biology because you are starting in a different era with many more departments and many more biologists to try to arrive at a consensus, particularly in terms of a common curriculum. Also you may not have the same financial and manpower resources to provide backup that are available from the BPS that have been built up over a long period.

26

Would registration be the best way forward for biologists?

A further problem would be how to phase this in?

- Some departments of biology may be well below whatever criteria are decided. They might be afraid of being left outside of accreditation.
- Phasing in the lagging departments would not be a solution. (That is, leaving them outside accreditation until they get sufficient resources.)
- Because such departments would lose out heavily on student applicants in the first year(s) of national accreditation as when those students graduate, they wouldn't have accreditation.

27

Would registration be the best way forward for biologists?

A further problem would be how to phase this in?

- The BPS examine about 15 departments each year for full-blown reviews and get through everyone over a 5-year cycle. If Biology has a target year for accreditation, an exercise on this scale would probably be impossible for 100% of departments.
- At the most, I would guess initial accreditation would have to be based on returns from questionnaires, with targeted visits to those who are most out of line.

28

So what would be the initial stage?

Stage 1 before starting on the path to accreditation would have to be a national study investigating what resources Biology departments already have. It would need to be answered by everyone in the UK.

Then a working party would establish criteria by a target date (e.g. 2007), **even though some departments may not satisfy these.**

What to do about those who don't qualify? Perhaps visit them and hold discussions with their senior management? Give them accreditation for 2007 and a bit of slack for a limited time?

29

Would registration be the best way forward for biologists? Conclusion

So there would certainly be a few hurdles and a lot of unpleasantness for certain departments.

Paradoxically, of course, in the end accreditation will bring the most benefit to those departments that are currently under-resourced. But they may not see it quite like that as initially they will be afraid of the risk.

But overall, if you can find a consensus and can work out a set of criteria that are not too diluted, in my view I would recommend that you go for it!

30



Biosciences in Medical Education

How much basic science is
needed?

The History

- Pre 20th century
 - Learning medicine by apprenticeship in healthcare environments
 - ‘Schools’ of basic science
 - Demand for basic science comes from perceived relevance to practice
 - Learned in parallel
- Flexner 1911
 - Science comes first
 - Preclinical studies

The 20th century model

- Prevailed for 80 years
- Discipline-based preclinical sciences
- Content determined by discipline
 - Originally very medical - Anatomy, Physiology etc
 - Range of disciplines greatly increased
- Explosive growth in knowledge
- And curriculum content
- Golden age for resources

The breakdown

- Three decades of rising concern
 - ‘over stuffing’
 - Poor coordination
- Tomorrow’s doctors
 - The ‘core’ curriculum

Defining the core

- Out of the hands of the disciplines
- Central control
- Reference back to practice
 - Common presentations
 - Problem based learning

The core

- ‘medical sciences’
 - Anatomy, physiology etc
 - Ever decreasing band of teachers
 - Commonly separated from basic biologists
 - Increasingly supplemented by retired or semi retired medics
 - Often low research productivity

The core

- Basic biology most commonly in 'Foundation'
 - Foundation scenarios
 - Cystic fibrosis
 - Travelers diarrhoea
 - Summary lectures
- Maximum one semester

The 21st century

- Tomorrows Doctors 2
 - Outcome based education
 - Five pages of prescription for content
 - Less than 50 words for all basic sciences
 - Massive pressure on curriculum time
- Move to national licensing exam
- Medical education into the NHS?

The reality

- “detailed Anatomy is a postgraduate subject” – Dean of new medical school
- “Cellular structure and function” – title of the only (1 hour) lecture on this topic in the first year of a new medical course, preceded by 1 hour on “Media & Health”

Countering the trend

- Demonstrate relevance to clinical problem solving
 - Engage with clinicians
- Demonstrate relevance to patient management



Hidden demand?

- Huge informal demand for Anatomy & physiology
 - The Maastricht experience
 - Supplementary courses
 - Post graduate
 - Non medical professionals
- Is it there for basic biology?



Opportunities for basic biology

- Postgraduate medicine
 - Basis of therapeutics
 - Modern genetics
- Colleges losing influence
 - Possible move to masters type qualifications



Medicine in the NHS

- Possible move to pseudo-American model
 - All graduate entry
 - All in NHS
 - Or part commissioned
 - HEIs just deliver pre-med courses



Graduate entry

- About 750 places per year
- Some require biology
- Most do not



Graduate entry – The Warwick Experience

- Range of biology degrees
- Very disappointing knowledge of biology relevant to medicine
- Biology graduates perform no better than school leavers in early part of the course
- But may benefit from maturity
- Australian research evidence suggests that age more important factor than graduateness



Graduate entry

- In all honesty biology degrees no better than any other
- But many students who do not get into medicine will take them as a route in later



The paradox

- Modern medicine more rooted than ever in basic biology
- Basic biology increasingly marginalised in medical education
- The only way back is to engage with the agenda of medicine, and not to imagine that it will follow your research agendas



Cost-effective alternatives to conventional practical teaching

E J Wood
School of Biochemistry & Microbiology
University of Leeds
Leeds LS2 9JT

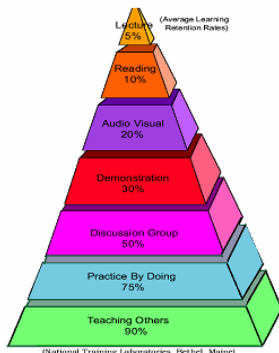
e.j.wood@leeds.ac.uk



Modes of teaching and learning

- Lecture
- Tutorial
- Practical
- Computer
- Problem class
- Project

The learning pyramid



What are the objectives of practical work?

- Teach manual and observational skills
- Understand the methods of scientific enquiry
- Develop problem-solving skills
- Train students for industry etc.
- To illustrate the lecture course
- Learn by doing – different from listening, reading

Some of these are manual, some intellectual

What does industry/PhD supervisor want?

- Practical competence
- Instrumental skills
- Problem solving skills (inc. trouble-shooting)
- Design and carry out experiments and collect and interpret the data obtained
- Communication skills (oral and written)
- Knowledge of safety issues
- IT skills
- Team-working skills, inc. time-management

What are the constraints?

- What can be done within the modular system
- Expense of reagents and materials
- Availability of equipment
- Demonstrator time
- Assessment (time and appropriateness)
- What potential employers want
- QAA Benchmark statement recommendations
- Safety

Problems with the modular system

- Time more limited – by system and timetabling
- Entry requisites – heterogeneous student population

Can we exploit the system to save costs yet still turn out graduates with the appropriate training and skills?

Design separate practical modules or “practical-lite” modules?

The importance of having good data

- Processing and interpreting data is an important part of experimentation
- It needs practice and experience
- Not satisfactory to do it with lousy data!
- In an ideal world students need to repeat the experiment until they obtain good data to work with

?Therefore, separate the experiment from the data processing – give students good data

Case studies

1. What can be done with DNA – inexpensive experiment plus paper data
2. Protein purification – computer simulation preceded by actual laboratory experience
3. Determination of blood glucose – how do you know what the right answer is?

DNA Experiments

Extraction of DNA is simple:

- Homogenise biological material in salty water
- Add a few drops of washing-up liquid and mix
- Slowly add ice-cold ethanol and the DNA precipitates

Problem: not much you can do with it!

Set paper exercise on DNA and crime

The protein purification program

- Initially the students carry out a fairly simple protein (enzyme) purification in the laboratory
- This might involve ammonium sulphate fractionation and some column chromatography
- They have to check the purity of their material/assay the enzyme and the protein
- **Only then** are they allowed to run the Protein Purification Program

The Protein Purification Program*

- A mixture of about 20 proteins
- Can use a variety of preparation methods
- Analysis by electrophoresis, etc
- Penalties for using expensive materials and wasting time
- Learning safely by trial and error

*Available to download from www.aqbooth.com/archive/

Determination of blood sugar

- Students have to find a method for the determination of glucose in the literature
- They have to make their own solutions and standards
- They determine the glucose concentration in an unknown solution ('blood')
- They take their result to the demonstrator who will say either "Yes" or "No" – and if no they must repeat.

Projects

- Laboratory-based (individual, team)
- Literature review (essay, plus)
- Computer-based (e.g. Bioinformatics)
- Community-based
- Joint – e.g. with Business Studies

*NB Benchmark statements
recommend/require such experience*

Conclusion

Devising suitable practical work is an on-going problem – even if there were no constraints!

Biosciences are experimental subjects – cannot turn out practitioners with no practical experience.

Aim to mix some (inexpensive) practical experiences with the imaginative use of paper exercises, computer simulations, etc.

- Practice is always underestimated and under-analysed and yet understanding it requires much theoretical competence . . .

Bourdieu P. (2004) *Science of Science and Reflexivity*, Polity Press, Cambridge

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

**Organising Biosciences on a large scale:
The Manchester experience**

Maynard Case

1979 – present	Professor of Physiology
1980 – 1996	Head of Department of Physiology
1986 – 1990	Head of Department of Physiological Sciences
1990 – 1994	Dean of School of Biological Sciences
1994 – 1997	Wellcome Trust Research Leave Fellow
2001 – 2004	Dean of School of Biological Sciences
2004 – 2005	Sabbatical!

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

**Organising Biosciences on a large scale:
The Manchester experience**

Email from Rob Smith to Maynard Case, 1/4/05:

“...I thought you might illustrate the benefits of the Manchester experience for strategic planning, organising Teaching, and making research more effective.”

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites
- 1986 School of Biological Sciences (SBS) established
4 large Departments; funding from Medicine (60%)
and Science (40%)

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites
- 1986 School of Biological Sciences (SBS) established
4 large Departments; funding from Medicine (60%)
and Science (40%)
- 1990 New University funding model
SBS an independent resource centre with Dean

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites
- 1986 School of Biological Sciences (SBS) established
4 large Departments; funding from Medicine (60%)
and Science (40%)
- 1990 New University funding model
SBS an independent resource centre with Dean
- 1993 First re-organisation
SBS a single Department managed as UGS & RGS

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites
- 1986 School of Biological Sciences (SBS) established
4 large Departments; funding from Medicine (60%)
and Science (40%)
- 1990 New University funding model
SBS an independent resource centre with Dean
- 1993 First re-organisation
SBS a single Department managed as UGS & RGS
- 2001 Second re-organisation

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

History of Developments

- Pre-1986 Conventional departmental structure
11 small Departments; 2 Faculties; 3 Sites
- 1986 School of Biological Sciences (SBS) established
4 large Departments; funding from Medicine (60%)
and Science (40%)
- 1990 New University funding model
SBS an independent resource centre with Dean
- 1993 First re-organisation
SBS a single Department managed as UGS & RGS
- 2001 Second re-organisation
- 2004 Merger with UMIST
SBS joined by BMS (UMIST), ONS (UMIST),
CHSTM (UoM) to form Faculty of Life Sciences

MANCHESTER
1824

BIOSCIENCES AT MANCHESTER

University Faculty Structure

Pre-merger

- Arts
- Biological Sciences
- Business Administration (MBS)
- Education
- Medicine, Dentistry, Nursing
& Pharmacy
- Science and Engineering
- UMIST

MANCHESTER
1824

BIOSCIENCES AT MANCHESTER

University Faculty Structure

<u>Pre-merger</u>	<u>Post-merger</u>
Arts	Engineering and Physical Sciences
Biological Sciences	Humanities
Business Administration (MBS)	Life Sciences
Education	Medicine and Human Studies
Medicine, Dentistry, Nursing & Pharmacy	
Science and Engineering	
UMIST	

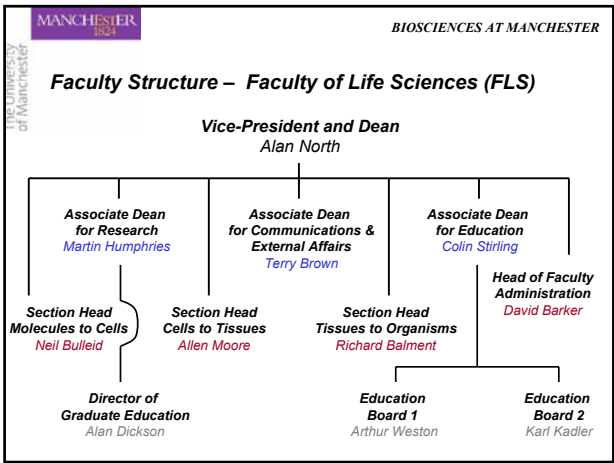
MANCHESTER
1824

BIOSCIENCES AT MANCHESTER

Faculty Structure – School of Biological Sciences (SBS)

```

    graph TD
      A[Dean and Head of Department] --> B[Director of the UGS  
(Assisted by the Senior Tutor)]
      A --> C[Director of the RGS  
(Assisted by the Director of Graduate Studies)]
      B --> D[Teaching Boards]
      C --> E[Research Divisions]
  
```



MANCHESTER 1824
BIOSCIENCES AT MANCHESTER

Faculty Staff and Students


	SBS	FLS
Academic staff	115	178
Fellows	34	36
Research Associate/Assistant	189	200
Technical	130	156
Secretarial/reception	30	39
Students		
Postgraduate	350	
Undergraduate		
• SBS/FLS	1346	
• Medical & Human Sciences	888	

MANCHESTER 1824
BIOSCIENCES AT MANCHESTER

Undergraduate Education Courses


- Faculty of Life Sciences

Anatomical Sciences, Biochemistry, Biochemistry and Biotechnology, Biology, Biology and Geology, Biomedical Sciences, Cell Biology, Genetics, Life Sciences, Medical Biochemistry, Microbiology, Microbiology and Biotechnology, Molecular Biology, Neuroscience, Pharmacology, Pharmacology & Physiology, Physiology, Plant Science, Psychology & Neuroscience, Zoology


BIOSCIENCES AT MANCHESTER


Undergraduate Education Courses

- Faculty of Life Sciences**
 Anatomical Sciences, Biochemistry, Biotechnology, Biology, Biology and Geology, Biomedical Sciences, Cell Biology, Genetics, Life Sciences, Medical Biochemistry, Microbiology, Microbiology and Biotechnology, Molecular Biology, Neuroscience, Pharmacology, Pharmacology & Physiology, Physiology, Plant Science, Psychology & Neuroscience, Zoology
- Faculty of Medical and Human Sciences**
 Medicine, Dentistry, Nursing, Speech Therapy, Pharmacy


BIOSCIENCES AT MANCHESTER

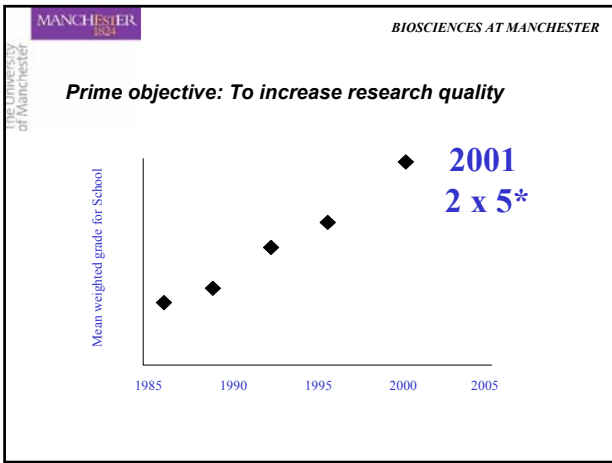
Funding the Biosciences (£K)

Income:	SBS	FLS
HEFCE + fees	19,872	26,729
Grants & contracts	18,565	23,922
Other	2,232	2,371
	<u>40,669</u>	<u>53,022</u>
Grants held - total	133,440	155,043
- per FTE	908	795
Expenditure:		
Staff	21,766	28,304
Other	10,571	14,077
Central charges	8,184	10,953
	<u>40,521</u>	<u>53,334</u>
Surplus/deficit	+148	- 312


BIOSCIENCES AT MANCHESTER

Original objectives in forming SBS

- To increase research quality (the prime objective)
- To increase research collaboration (by eliminating departmental barriers)
- To change the direction of research (by making new appointments)
- To improve the efficiency and quality of undergraduate teaching
- To improve the training of graduate students
- To increase cost efficiency by sharing services and equipment



- MANCHESTER 1824
- BIOSCIENCES AT MANCHESTER
- The University of Manchester
- Benefits of the Manchester model**
- Flexibility and speed of action
 - Economies of scale
 - Enhanced collaboration
 - Greater influence

MANCHESTER 1824

BIOSCIENCES AT MANCHESTER

The University of Manchester

Flexibility and speed of action

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Flexibility and speed of action

- Lectureship appointments
- 34 appointments, 2001 - 2004

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Flexibility and speed of action

- Lectureship appointments
- 34 appointments, 2001 - 2004
- Teaching curricula and methods
 - new UG medical curriculum, based on PBL
 - modularisation of UG science courses
 - Teaching income dissociated from courses/modules (no 'turf wars', cross-subsidy easy)

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Flexibility and speed of action

- Lectureship appointments
- 34 appointments, 2001 - 2004
- Teaching curricula and methods
 - new UG medical curriculum, based on PBL
 - modularisation of UG science courses
 - Teaching income dissociated from courses/modules (no 'turf wars', cross-subsidy easy)
- Teaching Fellows

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

Economies of Scale

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

Economies of Scale

- Core research facilities
 - animals/plants + transgenics, EM, image analysis, confocal microscopy, flow cytometry, genomics/ proteomics, NMR, Micro-array, X-ray crystallography

MANCHESTER 1824
The University of Manchester

BIOSCIENCES AT MANCHESTER

Economies of Scale

- Core research facilities
 - animals/plants + transgenics, EM, image analysis, confocal microscopy, flow cytometry, genomics/ proteomics, NMR, Micro-array, X-ray crystallography
- Core support facilities
 - Photo/graphics, reprographics, computation/IT, workshop, stores, decontamination/media preparation

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies of Scale

- Core research facilities
 - animals/plants + transgenics, EM, image analysis, confocal microscopy, flow cytometry, genomics/ proteomics, NMR, Micro-array, X-ray crystallography
- Core support facilities
 - Photo/graphics, reprographics, computation/IT, workshop, stores, decontamination/media preparation
- Administration
 - offices for UG recruitment/care (4), teaching provision (6), graduate programmes (6), research (3), finance (6), accounts (9)

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies of Scale

- Core research facilities
 - animals/plants + transgenics, EM, image analysis, confocal microscopy, flow cytometry, genomics/ proteomics, NMR, Micro-array, X-ray crystallography
- Core support facilities
 - Photo/graphics, reprographics, computation/IT, workshop, stores, decontamination/media preparation
- Administration
 - offices for UG recruitment/care (4), teaching provision (6), graduate programmes (6), research (3), finance (6), accounts (9)
- Education
 - large UG programmes, effective graduate training programme, research staff support programme

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies in UG Education

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies in UG Education

- Student:staff ratio in early 1980s = 9:1
in early 2000s = 18:1

MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies in UG Education

- Student:staff ratio in early 1980s = 9:1
in early 2000s = 18:1
- Rationalisation of UG provision at each phase of reorganisation


MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

Economies in UG Education

- Student:staff ratio in early 1980s = 9:1
in early 2000s = 18:1
- Rationalisation of UG provision at each phase of reorganisation
- Savings through curriculum review in 2003



MANCHESTER
 1824

BIOSCIENCES AT MANCHESTER

Economies in UG Education

- Student:staff ratio in early 1980s = 9:1
in early 2000s = 18:1
- Rationalisation of UG provision at each phase of reorganisation
- Savings through curriculum review in 2003


Activity	Contact Hours		Savings	
	pre	post	Hours	%
Yr 1 Lect	336	220	116	35
Prac	372	294	78	21
Yr 2 Lect	864	660	204	24
Prac	876	678	198	23
Yr 3 Lect	1056	704	352	33
Total	3504	2556	948	27


MANCHESTER
 1824

BIOSCIENCES AT MANCHESTER

Enhanced Collaborations

- Close spatial proximity
- Someone who knows what you need to know
- Graduate student 'mafia'
- Technician workshops
- Superb Faculty Seminar series (and other seminars)
- Superb research symposium
- Effective intranet
- Social events


MANCHESTER
 1824

BIOSCIENCES AT MANCHESTER

Greater Influences

MANCHESTER 1824
The University of Manchester
BIOSCIENCES AT MANCHESTER

Greater Influences

Internal

- 1980s Biological departments ignored; little influence

MANCHESTER 1824
The University of Manchester
BIOSCIENCES AT MANCHESTER

Greater Influences

Internal

- 1980s Biological departments ignored; little influence
- 2000s Life Sciences is flagship School/Faculty in the new University
 - Financial independence
 - Huge capital allocation from 'merger funds'

MANCHESTER 1824
The University of Manchester
BIOSCIENCES AT MANCHESTER

Greater Influences

Internal

- 1980s Biological departments ignored; little influence
- 2000s Life Sciences is flagship School/Faculty in the new University
 - Financial independence
 - Huge capital allocation from 'merger funds'

External

Improved success in major initiatives
Often used to pilot new schemes



MANCHESTER
1824

THE UNIVERSITY
of Manchester

BIOSCIENCES AT MANCHESTER

What about the negatives?

- Camaraderie
- Communication
- Loss of 'disciplines'

cc 10 Biosciences
2002/03

source : HESA Finance Return

source : HESA Individualised Staff Return

source : HESA Student Return

	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
	£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Total UK	206,539	94,802	301,341	70,921	12,541	384,803	4,673.7	126.0	4,743.4	9,543.1	50,911.7	4,371.6	4,241.0	7,147.4	66,671.6	44.19	20.28	64.48	15.17	2.68	82.33	3.10	1.42	4.52	1.06	0.19	5.77
Total England	159,358	71,117	230,475	54,412	9,446	294,333	3,548.0	116.5	3,532.0	7,196.6	38,036.9	4,009.4	3,273.7	5,727.6	51,047.6	44.92	20.04	64.96	15.34	2.66	82.96	3.12	1.39	4.51	1.07	0.19	5.77
0047 Anglia Polytechnic University	398	105	503	289	4	796	39.5	-	-	39.5	248.1	7.5	0.0	31.5	287.1	10.07	2.66	12.73	7.32	0.10	20.15	1.39	0.37	1.75	1.01	0.01	2.77
0108 Aston University	416	151	567	116	33	716	9.7	-	-	9.7	197.9	0.0	0.0	0.0	197.9	43.07	15.63	58.70	12.01	3.42	74.13	2.10	0.76	2.86	0.59	0.17	3.62
0048 Bath Spa University College	239	14	253	58	5	316	6.0	-	-	6.0	104.0	6.3	0.0	2.5	112.9	40.17	2.35	42.52	9.75	0.84	53.11	2.12	0.12	2.24	0.51	0.04	2.80
0109 The University of Bath	1,825	831	2,656	667	79	3,402	41.0	-	53.4	94.4	633.4	34.3	1.0	58.2	726.8	44.49	20.26	64.75	16.26	1.93	82.94	2.51	1.14	3.65	0.92	0.11	4.68
0127 Birkbeck College	1,225	721	1,946	528	6	2,480	75.3	-	-	75.3	93.9	99.5	66.1	67.3	326.8	16.26	9.57	25.83	7.01	0.08	32.91	3.75	2.21	5.95	1.62	0.02	7.59
0110 The University of Birmingham	3,154	1,562	4,716	1,025	190	5,931	59.6	1.0	98.0	158.6	861.8	3.5	69.6	159.6	1,094.5	52.93	26.21	79.14	17.20	3.19	99.54	2.88	1.43	4.31	0.94	0.17	5.42
0049 Bolton Institute of Higher Education	232	78	310	14	12	336	5.8	-	-	5.8	72.0	0.8	0.0	1.0	73.9	39.91	13.42	53.33	2.41	2.06	57.80	3.14	1.06	4.20	0.19	0.16	4.55
0111 The University of Bradford	1,020	332	1,352	303	23	1,678	19.8	-	20.9	40.6	289.5	0.0	14.0	39.0	342.5	51.63	16.81	68.44	15.34	1.16	84.94	2.98	0.97	3.95	0.88	0.07	4.90
0051 The University of Brighton	857	472	1,329	412	35	1,776	13.6	-	9.6	23.2	60.6	94.2	0.0	0.0	154.8	62.83	34.60	97.43	30.21	2.57	130.21	5.54	3.05	8.58	2.66	0.23	11.47
0112 The University of Bristol	3,396	1,319	4,715	1,039	343	6,097	63.6	-	96.5	160.1	715.2	11.5	12.0	134.0	872.7	53.38	20.73	74.11	16.33	5.39	95.83	3.89	1.51	5.40	1.19	0.39	6.99
0113 Brunel University	1,067	465	1,532	190	93	1,815	21.0	-	13.8	34.8	323.3	2.2	22.7	19.2	367.4	50.75	22.12	72.87	9.04	4.42	86.33	2.90	1.27	4.17	0.52	0.25	4.94
0114 The University of Cambridge	5,544	3,659	9,203	2,624	479	12,306	78.4	6.0	394.2	478.6	712.4	6.7	15.0	453.5	1,187.6	70.71	46.66	117.37	33.47	6.11	156.94	4.67	3.08	7.75	2.21	0.40	10.36
0188 The Institute of Cancer Research	3,164	310	3,474	1,052	268	4,794	172.6	2.1	153.2	327.9	0.0	0.0	0.0	71.5	71.5	18.33	1.80	20.12	6.09	1.55	27.77	44.24	4.33	48.57	14.71	3.75	67.03
0012 Canterbury Christ Church University College	234	70	304	35	6	345	6.7	-	1.0	7.7	80.5	2.9	13.2	3.4	100.0	34.67	10.37	45.04	5.19	0.89	51.12	2.34	0.70	3.04	0.35	0.06	3.45
0053 The University of Central Lancashire	782	359	1,141	235	87	1,463	28.9	-	-	28.9	338.6	13.9	1.5	0.3	354.2	27.04	12.41	39.46	8.13	3.01	50.59	2.21	1.01	3.22	0.66	0.25	4.13
0011 Chester College of HE	831	220	1,051	966	2	2,019	21.8	-	-	21.8	363.9	57.2	12.8	16.5	450.4	38.08	10.08	48.16	44.27	0.09	92.52	1.85	0.49	2.33	2.14	0.00	4.48
0056 Coventry University	1,354	516	1,870	383	50	2,303	29.3	1.2	-	30.4	516.1	51.7	17.0	24.6	609.4	46.23	17.62	63.85	13.08	1.71	78.64	2.22	0.85	3.07	0.63	0.08	3.78
0068 De Montfort University	1,712	49	1,761	173	0	1,934	20.1	-	0.8	20.9	461.1	110.8	33.1	46.8	651.9	85.05	2.43	87.48	8.59	-	96.08	2.63	0.08	2.70	0.27	-	2.97
0057 University of Derby	432	172	604	53	32	689	11.6	-	-	11.6	167.1	8.0	0.0	6.5	181.6	37.11	14.78	51.89	4.55	2.75	59.19	2.38	0.95	3.33	0.29	0.18	3.79
0116 University of Durham	2,702	727	3,429	574	157	4,160	67.0	-	36.0	103.0	627.8	21.4	3.0	72.8	725.0	40.33	10.85	51.18	8.57	2.34	62.09	3.73	1.00	4.73	0.79	0.22	5.74
0117 The University of East Anglia	1,631	1,091	2,722	990	135	3,847	35.6	1.0	123.3	160.0	341.9	0.0	30.2	145.7	517.7	45.78	30.62	76.40	27.79	3.79	107.98	3.15	2.11	5.26	1.91	0.26	7.43
0058 The University of East London	996	547	1,543	310	39	1,892	18.4	-	-	18.4	325.7	0.0	29.0	3.8	358.5	54.13	29.73	83.85	16.85	2.12	102.82	2.78	1.53	4.30	0.86	0.11	5.28
0016 Edge Hill College of Higher Education	231	136	367	46	42	455	5.3	-	-	5.3	72.3	0.0	32.2	2.3	106.7	44.00	25.90	69.90	8.76	8.00	86.67	2.17	1.27	3.44	0.43	0.39	4.26
0118 The University of Essex	1,982	676	2,658	469	67	3,194	43.0	-	27.5	70.6	411.4	0.0	43.2	81.8	536.4	46.05	15.71	61.76	10.90	1.56	74.22	3.70	1.26	4.96	0.87	0.12	5.95
0119 The University of Exeter	934	517	1,451	453	18	1,922	22.0	-	16.6	38.7	287.0	11.5	39.5	44.5	382.4	42.43	23.49	65.92	20.58	0.82	87.31	2.44	1.35	3.79	1.18	0.05	5.03
0059 The University of Greenwich	907	290	1,197	1,013	0	2,210	19.9	-	0.4	20.3	403.2	86.4	27.0	22.1	538.7	45.66	14.60	60.26	50.99	-	111.25	1.68	0.54	2.22	1.88	-	4.10
0060 University of Hertfordshire	1,630	616	2,246	318	0	2,564	39.2	-	3.1	42.3	613.8	36.8	94.1	28.5	773.2	41.59	15.72	57.31	8.11	-	65.43	2.11	0.80	2.90	0.41	-	3.32
0061 The University of Huddersfield	687	244	931	144	32	1,107	12.9	-	0.4	13.3	217.5	3.6	0.8	0.0	221.9	53.46	18.99	72.45	11.21	2.49	86.15	3.10	1.10	4.20	0.65	0.14	4.99
0120 The University of Hull	888	584	1,472	409	42	1,923	36.6	-	10.7	47.3	418.8	1.0	28.9	45.2	493.9	24.23	15.94	40.17	11.16	1.15	52.48	1.80	1.18	2.98	0.83	0.09	3.89
0132 Imperial College of Science, Technology & Medic	7,057	5,456	12,513	1,821	439	14,773	121.7	63.3	225.3	410.3	1,746.8	2.5	102.2	251.0	2,102.5	57.99	44.83	102.82	14.96	3.61	121.40	3.76	2.60	5.95	0.87	0.21	7.03
0121 The University of Keele	1,300	508	1,808	854	0	2,662	20.0	1.0	40.0	71.6	224.5	133.1	60.0	49.0	466.6	42.47	16.60	59.07	27.90	-	86.97	2.39	1.09	3.88	1.83	-	5.71
0122 The University of Kent(#3)	1,086	574	1,660	289	527	2,476	21.6	-	24.3	45.9	264.7	20.0	0.0	57.9	342.6	50.31	26.59	76.91	13.39	24.42	114.71	3.17	1.68	4.85	0.84	1.54	7.23
0134 King's College London	3,984	1,523	5,507	839	67	6,413	85.2	-	80.6	165.8	1,500.1	59.3	148.1	79.0	1,786.5	46.77	17.88	64.64	9.85	0.79	75.28	2.23	0.85	3.08	0.47	0.04	3.59
0063 Kingston University	1,750	783	2,533	435	192	3,160	26.0	-	-	26.0	753.3	35.7	43.7	35.4	868.0	67.19	30.06	97.25	16.70	7.37	121.32	2.02	0.90	2.92	0.50	0.22	3.64
0123 The University of Lancaster	1,826	694	2,520	475	109	3,104	28.7	-	28.2	56.9	379.2	0.0	2.4	36.5	418.1	63.63	24.19	87.82	16.55	3.80	108.17	4.37	1.66	6.03	1.14	0.26	7.42
0064 Leeds Metropolitan University	1,034	470	1,504	109	3	1,616	25.0	1.0	-	26.0	372.3	33.2	7.6	0.4	413.6	41.32	18.78	60.11	4.36	0.12	64.58	2.50	1.14	3.64	0.26	0.01	3.91
0124 The University of Leeds	4,887	3,574	8,461	2,662	128	11,251	124.2	-	144.9	269.2	994.1	0.1	30.0	203.2	1,227.4	39.33	28.77	68.10	21.43	1.03	90.55	3.98	2.91	6.89	2.17	0.10	9.17
0125 The University of Leicester	2,838	1,518	4,356	555	23	4,934	63.6	-	106.0	169.6	470.0	1.2	39.0	77.1													

cc 10 Biosciences
2002/03

		source : HESA Finance Return					source : HESA Individualised Staff Return				source : HESA Student Return					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student						
		Expenditure					Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student						
		Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
		£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
0081	University of the West of England, Bristol	1,435	553	1,988	409	138	2,535	29.7	-	11.9	41.6	581.5	55.6	57.5	62.5	757.1	48.25	18.60	66.85	13.75	4.64	85.24	1.90	0.73	2.63	0.54	0.18	3.35
0083	The University of Westminster	2,244	1,081	3,325	670	57	4,052	48.1	-	6.8	55.0	591.3	39.8	216.1	26.0	873.1	46.61	22.45	69.06	13.92	1.18	84.16	2.57	1.24	3.81	0.77	0.07	4.64
0085	The University of Wolverhampton	1,737	684	2,421	386	198	3,005	58.3	-	1.0	59.3	641.3	120.3	74.2	22.1	857.8	29.79	11.73	41.53	6.62	3.40	51.54	2.02	0.80	2.82	0.45	0.23	3.50
0046	University College Worcester	99	61	160	12	5	177	3.5	-	-	3.5	59.4	37.9	0.0	11.5	108.7	28.29	17.43	45.71	3.43	1.43	50.57	0.91	0.56	1.47	0.11	0.05	1.63
0164	The University of York	2,573	1,109	3,682	1,056	40	4,778	35.3	4.0	111.0	150.3	381.6	0.0	38.4	108.7	528.7	72.95	31.44	104.39	29.94	1.13	135.47	4.87	2.10	6.96	2.00	0.08	9.04
	Total Wales	10,084	4,780	14,864	4,076	1,120	20,060	265.7	1.0	187.8	454.6	3,569.6	88.5	193.0	192.8	4,043.9	37.95	17.99	55.94	15.34	4.21	75.49	2.49	1.18	3.68	1.01	0.28	4.96
0177	University of Wales, Aberystwyth	1,451	785	2,236	661	190	3,087	31.6	-	38.4	69.9	537.9	0.0	32.2	33.3	603.4	45.98	24.87	70.85	20.95	6.02	97.82	2.40	1.30	3.71	1.10	0.31	5.12
0178	University of Wales, Bangor	1,431	713	2,144	442	249	2,835	32.2	-	31.2	63.4	407.3	0.4	39.3	24.0	471.0	44.43	22.14	66.57	13.72	7.73	88.02	3.04	1.51	4.55	0.94	0.53	6.02
0179	Cardiff University	3,882	1,836	5,718	1,660	0	7,378	104.9	-	100.4	205.3	1,521.3	15.5	0.5	97.5	1,634.8	37.02	17.51	54.53	15.83	-	70.36	2.37	1.12	3.50	1.02	-	4.51
0089	University of Wales Institute, Cardiff	1,685	853	2,538	626	0	3,164	49.7	-	2.0	51.7	555.4	67.7	70.2	0.0	693.3	33.90	17.16	51.07	12.60	-	63.66	2.43	1.23	3.66	0.90	-	4.56
0090	University of Glamorgan	337	81	418	86	12	516	6.6	-	-	6.6	150.0	4.9	0.0	0.0	154.8	50.70	12.19	62.89	12.94	1.81	77.63	2.18	0.52	2.70	0.56	0.08	3.33
0180	University of Wales, Swansea	1,298	512	1,810	601	669	3,080	39.9	1.0	15.9	56.8	397.7	0.0	50.9	38.0	486.7	32.51	12.82	45.34	15.05	16.76	77.15	2.67	1.05	3.72	1.23	1.37	6.33
	Total Scotland	31,021	17,225	48,246	10,246	1,802	60,294	716.6	8.4	936.0	1,661.1	7,938.9	235.8	396.0	1,037.8	9,608.5	43.29	24.04	67.33	14.30	2.51	84.14	3.23	1.79	5.02	1.07	0.19	6.28
0170	The University of Aberdeen	3,576	1,624	5,200	1,220	251	6,671	73.4	-	123.1	196.5	713.0	5.8	46.7	138.3	903.8	48.69	22.11	70.81	16.61	3.42	90.84	3.96	1.80	5.75	1.35	0.28	7.38
0095	University of Abertay Dundee	881	234	1,115	96	0	1,211	24.0	1.4	5.3	30.7	202.9	3.0	24.0	30.5	260.4	36.71	9.75	46.46	4.00	-	50.46	3.38	0.90	4.28	0.37	-	4.65
0172	The University of Dundee	3,391	1,720	5,111	272	129	5,512	63.3	4.1	207.4	274.8	961.3	4.1	3.0	164.3	1,132.7	53.59	27.18	80.77	4.30	2.04	87.10	2.99	1.52	4.51	0.24	0.11	4.87
0167	The University of Edinburgh	5,081	4,251	9,332	2,037	48	11,417	127.4	2.0	275.6	405.0	1,096.5	0.2	29.0	204.9	1,330.6	39.87	33.36	73.23	15.98	0.38	89.59	3.82	3.19	7.01	1.53	0.04	8.58
0106	Glasgow Caledonian University	1,411	518	1,929	245	35	2,209	35.8	-	5.6	41.4	427.8	31.8	35.9	46.0	541.5	39.37	14.45	53.82	6.84	0.98	61.63	2.61	0.96	3.56	0.45	0.06	4.08
0168	The University of Glasgow	7,380	4,054	11,434	2,842	911	15,187	144.1	1.0	186.4	331.5	1,914.7	4.3	44.6	218.1	2,181.8	51.22	28.13	79.35	19.72	6.32	105.40	3.38	1.86	5.24	1.30	0.42	6.96
0171	Heriot-Watt University	990	652	1,642	429	46	2,117	21.8	-	16.8	38.6	321.2	0.5	24.9	37.7	384.3	45.35	29.87	75.22	19.65	2.11	96.98	2.58	1.70	4.27	1.12	0.12	5.51
0107	Napier University	1,620	661	2,281	669	72	3,022	46.0	-	7.5	53.6	552.9	69.5	112.5	5.8	740.6	35.20	14.36	49.56	14.53	1.56	65.65	2.19	0.89	3.08	0.90	0.10	4.08
0105	The University of Paisley	646	331	977	281	31	1,289	21.8	-	1.4	23.2	184.3	22.3	16.7	0.0	223.3	29.63	15.18	44.82	12.89	1.42	59.13	2.89	1.48	4.37	1.26	0.14	5.77
0100	Queen Margaret University College, Edinburgh	481	46	527	67	13	607	12.7	-	-	12.7	111.5	0.2	29.0	8.5	149.2	37.87	3.62	41.50	5.28	1.02	47.80	3.22	0.31	3.53	0.45	0.09	4.07
0104	The Robert Gordon University	527	225	752	136	81	969	14.2	-	1.4	15.6	118.5	0.0	0.0	0.0	118.5	37.24	15.90	53.14	9.61	5.72	68.48	4.45	1.90	6.35	1.15	0.68	8.18
0173	The University of St Andrews	2,888	1,624	4,512	1,299	109	5,920	83.1	-	77.3	160.3	694.7	18.1	17.0	122.5	852.3	34.77	19.55	54.33	15.64	1.31	71.28	3.39	1.91	5.29	1.52	0.13	6.95
0174	The University of Stirling	818	358	1,176	272	76	1,524	21.2	-	12.0	33.2	270.0	0.0	0.7	29.5	300.1	38.51	16.85	55.36	12.80	3.58	71.74	2.73	1.19	3.92	0.91	0.25	5.08
0169	The University of Strathclyde	1,331	927	2,258	290	0	2,548	27.7	-	16.3	43.9	346.8	1.4	11.9	31.7	391.8	48.08	33.49	81.57	10.48	-	92.04	3.40	2.37	5.76	0.74	-	6.50
	Total Northern Ireland	6,076	1,680	7,756	2,187	173	10,116	143.4	-	87.5	231.0	1,366.3	37.9	378.3	189.1	1,971.6	42.36	11.71	54.07	15.25	1.21	70.53	3.08	0.85	3.93	1.11	0.09	5.13
0184	The Queen's University of Belfast	1,863	714	2,577	559	21	3,157	40.3	-	41.0	81.3	412.4	0.0	1.0	64.8	478.2	46.25	17.72	63.97	13.88	0.52	78.37	3.90	1.49	5.39	1.17	0.04	6.60
0185	University of Ulster	4,213	966	5,179	1,628	152	6,959	103.2	-	46.5	149.6	953.9	37.9	377.3	124.3	1,493.4	40.84	9.36	50.21	15.78	1.47	67.46	2.82	0.65	3.47	1.09	0.10	4.66

cc 1 Clinical Medicine
2002/03

	source : HESA Finance Return					source : HESA Individualised Staff Return				source : HESA Student Return					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student						
	Expenditure					Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student						
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	
Total UK	380,570	116,596	497,166	98,250	11,442	606,858	4,110.6	686.0	9,361.5	14,158.1	23,489.5	183.1	3,709.9	5,568.4	32,950.9	92.58	28.36	120.95	23.90	2.78	147.63	11.55	3.54	15.09	2.98	0.35	18.42
Total England	315,918	92,693	408,611	81,109	7,977	497,697	3,307.0	587.6	7,960.1	11,854.7	18,651.4	110.4	3,017.5	4,769.4	26,548.7	95.53	28.03	123.56	24.53	2.41	150.50	11.90	3.49	15.39	3.06	0.30	18.75
0109 The University of Bath	61	22	83	11	3	97	1.8	2.0	11.9	15.7	0.0	0.0	0.0	15.3	15.3	34.68	12.51	47.19	6.25	1.71	55.14	4.00	1.44	5.44	0.72	0.20	6.36
0110 The University of Birmingham	14,613	3,722	18,335	2,505	806	21,646	99.8	16.6	373.2	489.6	1,638.1	5.4	172.4	193.7	2,009.5	146.49	37.31	183.81	25.11	8.08	217.00	7.27	1.85	9.12	1.25	0.40	10.77
0051 The University of Brighton	291	58	349	483	0	832	0.9	-	-	0.9	0.0	0.0	67.2	0.0	67.2	323.33	64.44	387.78	536.67	-	924.44	4.33	0.86	5.20	7.19	-	12.39
0112 The University of Bristol	14,035	4,048	18,083	1,527	214	19,824	131.7	26.8	292.7	451.2	949.0	0.0	105.7	136.6	1,191.3	106.55	30.73	137.29	11.59	1.62	150.50	11.78	3.40	15.18	1.28	0.18	16.64
0114 The University of Cambridge	13,732	4,421	18,153	5,723	848	24,724	70.6	11.2	731.2	813.1	639.0	3.7	0.0	460.9	1,103.6	194.45	62.60	257.05	81.04	12.01	350.10	12.44	4.01	16.45	5.19	0.77	22.40
0188 The Institute of Cancer Research	642	223	865	137	67	1,069	20.5	1.7	54.8	77.0	0.0	0.0	0.0	38.3	38.3	31.30	10.87	42.18	6.68	3.27	52.13	16.78	5.83	22.61	3.58	1.75	27.95
0117 The University of East Anglia	794	119	913	375	32	1,320	14.8	0.4	12.1	27.4	107.9	0.0	10.7	12.0	130.6	53.61	8.04	61.65	25.32	2.16	89.13	6.08	0.91	6.99	2.87	0.25	10.11
0119 The University of Exeter	1,073	857	1,930	2,075	140	4,145	19.1	1.1	16.8	37.0	67.0	6.0	5.6	38.7	117.3	56.07	44.78	100.85	108.42	7.32	216.58	9.15	7.31	16.46	17.69	1.19	35.35
0120 The University of Hull	4,059	715	4,774	712	16	5,502	4.0	1.0	71.9	76.9	0.0	0.0	0.0	76.5	76.5	1,014.75	178.75	1,193.50	178.00	4.00	1,375.50	53.06	9.35	62.41	9.31	0.21	71.92
0132 Imperial College of Science, Technology & Medicine	34,214	9,710	43,924	8,886	866	53,676	391.5	231.6	730.8	1,354.0	851.2	17.0	256.0	526.7	1,650.9	87.38	24.80	112.18	22.69	2.21	137.09	20.72	5.88	26.61	5.38	0.52	32.51
0121 The University of Keele	1,795	241	2,036	346	0	2,382	4.4	-	14.2	18.6	40.0	0.0	0.0	0.0	40.0	407.95	54.77	462.73	78.64	-	541.36	44.88	6.03	50.90	8.65	-	59.55
0134 King's College London	36,353	10,503	46,856	4,251	413	51,520	257.1	32.2	787.9	1,077.2	1,365.8	0.0	411.1	431.7	2,208.6	141.41	40.86	182.27	16.54	1.61	200.41	16.46	4.76	21.22	1.92	0.19	23.33
0124 The University of Leeds	12,438	5,686	18,124	4,314	93	22,531	101.7	14.3	255.3	371.3	1,247.3	5.7	188.8	201.3	1,643.1	122.29	55.91	178.20	42.42	0.91	221.53	7.57	3.46	11.03	2.63	0.06	13.71
0125 The University of Leicester	12,770	3,367	16,137	2,236	140	18,513	185.2	1.8	117.8	304.9	513.3	0.0	8.0	124.3	645.6	68.94	18.18	87.12	12.07	0.76	99.95	19.78	5.22	25.00	3.46	0.22	28.68
0126 The University of Liverpool	11,340	2,834	14,174	3,664	16	17,854	95.8	21.3	178.7	295.8	1,184.5	0.0	279.8	293.8	1,758.2	118.38	29.58	147.96	38.25	0.17	186.38	6.45	1.61	8.06	2.08	0.01	10.15
0138 London School of Hygiene & Tropical Medicine	4,981	2,178	7,159	1,286	0	8,445	110.2	17.0	261.4	388.6	0.0	0.0	259.7	170.4	430.1	45.18	19.76	64.94	11.67	-	76.60	11.58	5.06	16.64	2.99	-	19.63
0153 University of Manchester	17,619	4,408	22,027	6,454	844	29,325	270.1	22.8	365.8	658.7	1,225.0	0.0	229.3	298.3	1,752.6	65.24	16.32	81.56	23.90	3.13	108.59	10.05	2.52	12.57	3.68	0.48	16.73
0154 The University of Newcastle-upon-Tyne	15,537	5,229	20,766	5,272	330	26,368	168.6	14.0	347.8	530.4	1,264.0	1.9	96.9	257.2	1,620.1	92.16	31.02	123.18	31.27	1.96	156.41	9.59	3.23	12.82	3.25	0.20	16.28
0155 The University of Nottingham	11,734	2,952	14,686	2,889	87	17,662	113.8	11.8	211.5	337.1	687.7	0.0	232.9	195.5	1,116.0	103.16	25.95	129.11	25.40	0.76	155.27	10.51	2.65	13.16	2.59	0.08	15.83
0156 The University of Oxford	12,936	4,793	17,729	5,454	422	23,605	220.5	12.3	741.3	974.1	363.9	0.0	3.5	267.8	635.2	58.67	21.74	80.41	24.74	1.91	107.06	20.36	7.55	27.91	8.59	0.66	37.16
0073 The University of Plymouth	1,375	568	1,943	1,597	137	3,677	48.1	-	12.9	61.0	63.0	0.0	22.6	0.0	85.6	28.61	11.82	40.43	33.23	2.85	76.51	16.06	6.64	22.70	18.66	1.60	42.96
0139 Queen Mary and Westfield College	17,836	4,810	22,646	5,318	45	28,009	142.6	10.5	378.8	531.8	1,335.3	24.5	198.5	172.1	1,730.4	125.08	33.73	158.81	37.29	0.32	196.42	10.31	2.78	13.09	3.07	0.03	16.19
0145 St George's Hospital Medical School	9,410	3,814	13,224	2,430	295	15,949	87.4	10.2	352.0	449.7	1,176.4	13.0	0.0	55.6	1,245.0	107.63	43.62	151.25	27.79	3.37	182.41	7.56	3.06	10.62	1.95	0.24	12.81
0159 The University of Sheffield	13,720	3,150	16,870	2,768	136	19,774	167.6	4.6	279.5	451.6	1,298.4	15.0	163.5	205.0	1,681.9	81.87	18.80	100.66	16.52	0.81	117.99	8.16	1.87	10.03	1.65	0.08	11.76
0160 The University of Southampton	8,106	2,652	10,758	1,258	128	12,144	112.8	30.2	224.5	367.5	842.2	17.9	52.4	103.2	1,015.7	71.86	23.51	95.38	11.15	1.13	107.66	7.98	2.61	10.59	1.24	0.13	11.96
0149 University College London	42,401	11,267	53,668	6,777	1,842	62,287	446.3	92.0	1,134.3	1,672.6	1,477.8	0.4	253.1	494.5	2,225.7	95.01	25.25	120.26	15.19	4.13	139.57	19.05	5.06	24.11	3.04	0.83	27.99
0163 The University of Warwick	1,485	263	1,748	1,625	57	3,430	14.5	-	1.0	15.4	314.7	0.0	0.0	0.0	314.7	102.71	18.19	120.90	112.39	3.94	237.24	4.72	0.84	5.56	5.16	0.18	10.90
Total Wales	14,463	2,989	17,452	2,844	1,888	22,184	188.9	21.8	243.7	454.4	496.3	0.0	284.3	97.3	877.8	76.57	15.82	92.39	15.06	9.99	117.44	16.48	3.41	19.88	3.24	2.15	25.27
0181 University of Wales College of Medicine	13,503	2,784	16,287	2,646	1,847	20,780	173.2	21.8	239.6	434.7	496.3	0.0	284.3	97.3	877.8	77.95	16.07	94.02	15.27	10.66	119.96	15.38	3.17	18.55	3.01	2.10	23.67
Total Scotland	40,648	18,581	59,229	13,428	1,485	74,142	549.9	24.3	1,068.1	1,642.3	3,560.6	72.7	336.9	511.3	4,481.5	73.92	33.79	107.71	24.42	2.70	134.82	9.07	4.15	13.22	3.00	0.33	16.54
0170 The University of Aberdeen	6,539	2,663	9,202	1,436	422	11,060	136.0	8.2	210.2	354.3	832.6	30.6	76.5	94.1	1,034.0	48.10	19.59	67.68	10.56	3.10	81.35	6.32	2.58	8.90	1.39	0.41	10.70
0172 The University of Dundee	8,100	2,275	10,375	2,625	313	13,313	96.2	4.8	205.9	306.9	442.8	39.0	0.0	0.0	481.8	84.18	23.64	107.83	27.28	3.25	138.36	16.81	4.72	21.53	5.45	0.65	27.63
0167 The University of Edinburgh	13,182	8,656	21,838	4,808	357	27,003	136.6	3.9	405.7	546.2	1,296.0	0.5	135.1	234.2	1,665.8	96.53	63.39	159.92	35.21	2.61	197.74	7.91	5.20	13.11	2.89	0.21	16.21
0168 The University of Glasgow	12,827	4,987	17,814	4,559	393	22,766	181.2	7.4	246.3	434.8	985.7	1.9	112.1	170.1	1,269.9	70.80	27.53	98.33	25.16	2.17	125.66	10.10	3.93	14.03	3.59	0.31	17.93
Total Northern Ireland	9,541	2,333	11,874	869	92	12,835	64.8	52.3	89.5	206.6	781.2	0.0	71.2	190.5	1,042.9	147.18	35.99	183.17	13.41	1.42	197.99	9.15	2.24	11.39	0.83	0.09	12.31
0184 The Queen's University of Belfast	9,541	2,333	11,874	869	92	12,835	64.8	52.3	89.5	206																	

cc 7 Psychology & behavioural sciences
2002/03

source : HESA Finance Return

source : HESA Individualised Staff Return

source : HESA Student Return

	Expenditure					Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE					Expenditure per FTE Student							
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Undergraduate	Other Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
	£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Total UK	100,433	24,564	124,997	27,287	1,513	153,797	2,382.1	12.2	722.4	3,116.7	34,604.2	3,939.2	4,630.9	2,123.5	45,297.9	42.16	10.31	52.47	11.46	0.64	64.56	2.22	0.54	2.76	0.60	0.03	3.40
Total England	80,250	19,087	99,337	22,328	1,288	122,953	1,915.9	12.2	543.7	2,471.8	26,811.3	3,767.5	4,149.6	1,737.3	36,465.7	41.89	9.96	51.85	11.65	0.67	64.18	2.20	0.52	2.72	0.61	0.04	3.37
0047 Anglia Polytechnic University	352	88	440	604	3	1,047	12.5	-	-	12.5	365.5	0.0	0.0	0.0	365.5	28.22	7.05	35.27	48.42	0.24	83.93	0.96	0.24	1.20	1.65	0.01	2.86
0108 Aston University	733	132	865	169	16	1,050	18.6	-	5.8	24.4	463.3	0.0	0.0	8.5	471.8	39.40	7.10	46.50	9.08	0.86	56.44	1.55	0.28	1.83	0.36	0.03	2.23
0048 Bath Spa University College	209	7	216	23	1	240	4.6	-	-	4.6	146.5	25.0	0.0	0.0	171.4	45.73	1.53	47.26	5.03	0.22	52.52	1.22	0.04	1.26	0.13	0.01	1.40
0109 The University of Bath	589	168	757	125	19	901	15.9	-	4.0	19.9	268.7	0.0	41.0	18.7	328.4	37.03	10.56	47.59	7.86	1.19	56.65	1.79	0.51	2.30	0.38	0.06	2.74
0127 Birkbeck College	1,216	327	1,543	275	73	1,891	67.3	-	-	67.3	243.7	23.6	218.0	46.2	531.5	18.07	4.86	22.92	4.09	1.08	28.09	2.29	0.62	2.90	0.52	0.14	3.56
0110 The University of Birmingham	1,764	438	2,202	673	46	2,921	30.9	-	34.9	65.8	513.7	3.3	48.3	143.1	708.5	57.09	14.17	71.26	21.78	1.49	94.53	2.49	0.62	3.11	0.95	0.06	4.12
0049 Bolton Institute of Higher Education	788	150	938	78	13	1,029	19.7	-	-	19.7	255.6	34.1	12.1	0.5	302.4	40.07	7.63	47.70	3.97	0.66	52.32	2.61	0.50	3.10	0.26	0.04	3.40
0050 Bournemouth University	234	55	289	129	21	439	7.4	-	-	7.4	72.8	0.0	1.1	0.0	73.9	31.51	7.41	38.91	17.37	2.83	59.11	3.17	0.74	3.91	1.75	0.28	5.94
0112 The University of Bristol	982	249	1,231	336	18	1,585	22.4	-	15.2	37.6	279.1	0.0	22.2	28.5	329.8	43.79	11.10	54.89	14.98	0.80	70.67	2.98	0.75	3.73	1.02	0.05	4.81
0113 Brunel University	886	205	1,091	47	0	1,138	20.8	-	2.4	23.3	381.5	0.4	33.2	22.0	437.0	42.51	9.84	52.34	2.25	-	54.60	2.03	0.47	2.50	0.11	-	2.60
0009 Buckinghamshire Chilterns University College	337	33	370	90	0	460	7.4	-	-	7.4	147.3	0.0	0.0	7.4	154.7	45.36	4.44	49.80	12.11	-	61.91	2.18	0.21	2.39	0.58	-	2.97
0114 The University of Cambridge	722	430	1,152	388	16	1,556	14.8	-	37.7	52.5	141.1	0.0	0.0	53.7	194.8	48.65	28.98	77.63	26.15	1.08	104.85	3.71	2.21	5.91	1.99	0.08	7.99
0012 Canterbury Christ Church University College	1,266	0	1,266	2,076	11	3,353	30.6	-	-	30.6	0.0	8.0	157.0	0.0	165.0	41.36	-	41.36	67.83	0.36	109.55	7.67	-	7.67	12.58	0.07	20.32
0053 The University of Central Lancashire	1,374	466	1,840	483	35	2,358	38.8	-	3.1	41.9	759.3	32.9	24.0	1.2	817.4	35.44	12.02	47.46	12.46	0.90	60.82	1.68	0.57	2.25	0.59	0.04	2.88
0011 Chester College of HE	434	75	509	165	0	674	12.9	-	-	12.9	254.6	0.1	13.3	3.5	271.6	33.61	5.81	39.41	12.78	-	52.19	1.60	0.28	1.87	0.61	-	2.48
0115 City University	858	226	1,084	99	0	1,183	20.1	-	6.4	26.6	221.2	0.0	8.9	4.5	234.6	42.61	11.22	53.83	4.92	-	58.74	3.66	0.96	4.62	0.42	-	5.04
0056 Coventry University	950	323	1,273	380	36	1,689	25.7	-	1.6	27.3	451.0	1.3	70.8	1.5	524.5	36.98	12.57	49.55	14.79	1.40	65.75	1.81	0.62	2.43	0.72	0.07	3.22
0057 University of Derby	542	119	661	56	6	723	17.6	-	-	17.6	287.5	0.0	13.4	30.0	330.9	30.76	6.75	37.51	3.18	0.34	41.03	1.64	0.36	2.00	0.17	0.02	2.18
0116 University of Durham	1,299	203	1,502	197	15	1,714	32.0	-	10.0	42.0	448.4	3.4	35.0	14.0	500.8	40.59	6.34	46.94	6.16	0.47	53.56	2.59	0.41	3.00	0.39	0.03	3.42
0058 The University of East London	2,412	460	2,872	627	11	3,510	45.9	-	8.5	54.4	481.0	57.6	535.3	12.8	1,086.8	52.59	10.03	62.62	13.67	0.24	76.53	2.22	0.42	2.64	0.58	0.01	3.23
0016 Edge Hill College of Higher Education	279	0	279	4	2	285	6.0	-	-	6.0	142.6	0.0	0.0	0.0	142.6	46.42	-	46.42	0.67	0.33	47.42	1.96	-	1.96	0.03	0.01	2.00
0118 The University of Essex	1,035	186	1,221	200	0	1,421	24.3	0.1	9.5	34.0	280.7	0.0	26.1	13.4	320.2	42.53	7.64	50.18	8.22	-	58.40	3.23	0.58	3.81	0.62	-	4.44
0119 The University of Exeter	1,227	436	1,663	373	10	2,046	27.3	-	2.7	30.0	311.8	1.8	49.6	23.1	386.2	44.87	15.94	60.81	13.64	0.37	74.81	3.18	1.13	4.31	0.97	0.03	5.30
0054 University of Gloucestershire	240	67	307	49	38	394	14.6	-	-	14.6	215.1	0.3	3.1	0.0	218.5	16.44	4.59	21.03	3.36	2.60	26.99	1.10	0.31	1.41	0.22	0.17	1.80
0131 Goldsmiths College	1,600	357	1,957	290	42	2,289	37.8	-	4.3	42.1	386.3	29.7	134.4	35.8	586.2	42.34	9.45	51.78	7.67	1.11	60.57	2.73	0.61	3.34	0.49	0.07	3.90
0059 The University of Greenwich	715	61	776	65	0	841	15.6	-	-	15.6	313.4	5.1	48.9	10.7	378.1	45.82	3.91	49.72	4.17	-	53.89	1.89	0.16	2.05	0.17	-	2.22
0060 University of Hertfordshire	1,451	403	1,854	200	0	2,054	27.9	2.0	12.7	42.6	406.2	8.0	33.9	50.5	498.7	52.01	14.44	66.45	7.17	-	73.62	2.91	0.81	3.72	0.40	-	4.12
0061 The University of Huddersfield	1,542	316	1,858	253	42	2,153	27.4	-	10.0	37.3	390.4	1.9	13.7	5.2	411.2	56.36	11.55	67.91	9.25	1.54	78.69	3.75	0.77	4.52	0.62	0.10	5.24
0120 The University of Hull	890	257	1,147	215	17	1,379	21.8	-	0.1	21.8	443.6	0.6	15.8	30.2	490.1	40.86	11.80	52.66	9.87	0.78	63.31	1.82	0.52	2.34	0.44	0.03	2.81
0121 The University of Keele	813	167	980	215	0	1,195	17.5	-	2.0	19.5	280.1	0.0	10.8	11.5	302.4	46.46	9.54	56.00	12.29	-	68.29	2.69	0.55	3.24	0.71	-	3.95
0122 The University of Kent(#3)	1,000	222	1,222	265	49	1,536	21.0	-	6.8	27.8	409.3	15.4	39.2	20.2	484.1	47.68	10.58	58.26	12.63	2.34	73.23	2.07	0.46	2.52	0.55	0.10	3.17
0021 King Alfred's College, Winchester	222	38	260	10	1	271	7.3	-	-	7.3	119.3	9.5	0.0	0.0	128.8	30.61	5.24	35.85	1.38	0.14	37.36	1.72	0.30	2.02	0.08	0.01	2.10
0123 The University of Lancaster	1,091	193	1,284	303	9	1,596	21.5	-	10.6	32.1	319.8	1.6	18.3	24.1	363.9	50.74	8.98	59.72	14.09	0.42	74.23	3.00	0.53	3.53	0.83	0.02	4.39
0124 The University of Leeds	1,140	589	1,729	604	3	2,336	28.9	-	15.0	43.9	613.6	13.0	41.5	30.5	698.6	59.45	20.38	59.84	20.90	0.10	80.84	1.63	0.84	2.47	0.86	0.00	3.34
0125 The University of Leicester	1,292	460	1,752	394	9	2,155	32.4	-	3.3	35.7	359.3	2.5	152.5	56.8	571.1	39.93	14.22	54.15	12.18	0.28	66.60	2.26	0.81	3.07	0.69	0.02	3.77
0062 The University of Lincoln	718	117	835	86	0	921	20.0	-	-	20.0	318.8	0.0	1.3	11.7	331.8	35.90	5.85	41.75	4.30	-	46.05	2.16	0.35	2.52	0.26	-	2.78
0023 Liverpool Hope University College(#3)	555	75	630	16	0	646	16.1	-	-	16.1	364.6	32.4	20.0	0.0	417.0	34.39	4.65	39.04	0.99	-	40.03	1.33	0.18	1.51	0.04	-	1.55
0065 Liverpool John Moores University	836	190	1,026	256	11	1,293	21.8	-	2.3	24.1	539.5	3.9	61.8	28.0	633.2	38.33	8.71	47.04	11.74	0.50	59.28	1.32	0.30	1.62	0.40	0.02	2.04
0126 The University of Liverpool	1,361	456	1,817	207	19	2,043	33.1	-	12.9	46.0	537.1	1.8	45.3	34													

cc 7 Psychology & behavioural sciences
2002/03

	source : HESA Finance Return						source : HESA Individualised Staff Return				source : HESA Student Return					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Undergraduate	Other Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	
0182 Royal Welsh College of Music and Drama	46	0	46	0	0	46	1.1	-	-	1.1	0.0	0.0	11.0	0.0	43.19	-	43.19	-	-	43.19	4.19	-	4.19	-	-	4.19	
0180 University of Wales, Swansea	744	218	962	113	28	1,103	20.6	-	1.0	21.6	394.3	0.0	2.7	8.3	36.15	10.59	46.74	5.49	1.36	53.60	1.84	0.54	2.37	0.28	0.07	2.72	
Total Scotland	11,536	2,928	14,464	2,162	99	16,725	272.2	-	98.5	370.7	4,628.0	131.7	160.8	199.5	5,120.0	42.38	10.76	53.13	7.94	0.36	61.44	2.25	0.57	2.83	0.42	0.02	3.27
0170 The University of Aberdeen	1,258	226	1,484	345	22	1,851	26.7	-	12.2	38.9	508.5	0.2	0.4	23.1	532.2	47.08	8.46	55.54	12.91	0.82	69.27	2.36	0.42	2.79	0.65	0.04	3.48
0095 University of Abertay Dundee	1,098	242	1,340	49	0	1,389	33.1	-	-	33.1	710.2	3.0	34.1	34.0	781.3	33.17	7.31	40.48	1.48	-	41.96	1.41	0.31	1.72	0.06	-	1.78
0172 The University of Dundee	964	137	1,101	192	14	1,307	21.4	-	13.4	34.8	367.6	3.2	5.5	7.0	383.4	45.02	6.40	51.41	8.97	0.65	61.03	2.51	0.36	2.87	0.50	0.04	3.41
0167 The University of Edinburgh	902	539	1,441	169	0	1,610	17.3	-	11.9	29.2	314.2	0.9	0.6	16.4	332.1	52.23	31.21	83.44	9.79	-	93.23	2.72	1.62	4.34	0.51	-	4.85
0106 Glasgow Caledonian University	1,157	181	1,338	116	6	1,460	33.8	-	12.1	45.9	588.2	94.3	25.5	20.5	728.5	34.22	5.35	39.57	3.43	0.18	43.18	1.59	0.25	1.84	0.16	0.01	2.00
0168 The University of Glasgow	1,235	436	1,671	274	13	1,958	32.2	-	14.8	47.0	463.0	1.5	3.2	17.2	484.9	38.40	13.56	51.96	8.52	0.40	60.88	2.55	0.90	3.45	0.57	0.03	4.04
0171 Heriot-Watt University	55	5	60	5	0	65	1.0	-	-	1.0	28.3	0.0	0.0	1.2	29.5	55.00	5.00	60.00	5.00	-	65.00	1.87	0.17	2.04	0.17	-	2.21
0107 Napier University	809	84	893	117	0	1,010	12.6	-	-	12.6	169.3	2.5	1.0	2.0	174.8	64.05	6.65	70.70	9.26	-	79.96	4.63	0.48	5.11	0.67	-	5.78
0100 Queen Margaret University College, Edinburgh	759	101	860	28	0	888	11.8	-	-	11.8	223.4	0.0	39.1	0.0	262.5	64.32	8.56	72.88	2.37	-	75.25	2.89	0.38	3.28	0.11	-	3.38
0173 The University of St Andrews	1,042	539	1,581	303	44	1,928	32.2	-	11.4	43.6	302.1	7.5	1.0	52.0	362.7	32.40	16.76	49.16	9.42	1.37	59.95	2.87	1.49	4.36	0.84	0.12	5.32
0174 The University of Stirling	1,364	230	1,594	530	0	2,124	30.3	-	8.1	38.4	397.3	0.6	20.5	17.1	435.5	44.98	7.59	52.57	17.48	-	70.05	3.13	0.53	3.66	1.22	-	4.88
0169 The University of Strathclyde	893	208	1,101	34	0	1,135	18.1	-	14.6	32.7	324.2	2.8	30.0	8.9	365.9	49.27	11.48	60.75	1.88	-	62.63	2.44	0.57	3.01	0.09	-	3.10
Total Northern Ireland	2,825	1,101	3,926	724	40	4,690	63.1	-	16.5	79.6	1,116.2	1.5	170.2	55.6	1,343.4	44.77	17.45	62.22	11.47	0.63	74.32	2.10	0.82	2.92	0.54	0.03	3.49
0184 The Queen's University of Belfast	1,177	542	1,719	489	28	2,236	26.4	-	11.0	37.5	462.4	0.0	67.4	22.8	552.5	44.56	20.52	65.08	18.51	1.06	84.65	2.13	0.98	3.11	0.89	0.05	4.05
0185 University of Ulster	1,648	559	2,207	235	12	2,454	36.7	-	5.5	42.2	653.9	1.5	102.8	32.8	790.9	44.92	15.24	60.16	6.41	0.33	66.89	2.08	0.71	2.79	0.30	0.02	3.10

cc 11 Chemistry
2002/03

	source : HESA Finance Return						source : HESA Individualised Staff Return				source : HESA Student Return					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
	£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Total UK	72,011	33,390	105,401	32,620	7,213	145,234	1,641.3	32.2	1,355.1	3,028.6	13,241.7	1,068.8	711.5	3,735.8	18,757.8	43.88	20.34	64.22	19.87	4.39	88.49	3.84	1.78	5.62	1.74	0.38	7.74
Total England	59,540	27,635	87,175	26,117	6,330	119,622	1,330.5	31.2	1,140.2	2,502.0	10,649.4	1,015.8	628.9	3,105.0	15,399.1	44.75	20.77	65.52	19.63	4.76	89.90	3.87	1.79	5.66	1.70	0.41	7.77
0047 Anglia Polytechnic University	150	39	189	58	1	248	14.6	-	-	14.6	27.8	54.0	12.0	3.5	97.3	10.30	2.68	12.98	3.98	0.07	17.03	1.54	0.40	1.94	0.60	0.01	2.55
0109 The University of Bath	999	416	1,415	220	102	1,737	21.5	-	11.9	33.4	266.1	0.0	0.0	55.0	321.1	46.43	19.33	65.77	10.22	4.74	80.73	3.11	1.30	4.41	0.69	0.32	5.41
0127 Birkbeck College	519	221	740	81	23	844	1.4	-	-	1.4	58.9	66.4	18.5	16.2	159.9	377.73	160.84	538.57	58.95	16.74	614.26	3.25	1.38	4.63	0.51	0.14	5.28
0110 The University of Birmingham	1,622	464	2,086	924	299	3,309	36.1	1.0	32.9	70.0	316.0	0.0	81.9	69.7	467.6	44.94	12.86	57.80	25.60	8.28	91.68	3.47	0.99	4.46	1.98	0.64	7.08
0111 The University of Bradford	377	233	610	37	117	764	6.2	-	1.5	7.7	137.5	0.0	0.0	10.9	148.4	61.09	37.76	98.85	6.00	18.96	123.80	2.54	1.57	4.11	0.25	0.79	5.15
0051 The University of Brighton	189	111	300	96	8	404	5.0	-	3.7	8.7	7.1	0.1	0.0	0.0	7.1	37.80	22.20	60.00	19.20	1.60	80.80	26.50	15.56	42.06	13.46	1.12	56.65
0112 The University of Bristol	2,531	1,341	3,872	517	563	4,952	45.4	0.2	61.0	106.7	453.8	0.0	3.0	201.7	658.5	55.69	29.51	85.19	11.38	12.39	108.96	3.84	2.04	5.88	0.79	0.85	7.52
0114 The University of Cambridge	3,161	1,752	4,913	1,860	430	7,203	36.5	4.0	161.1	201.7	351.1	1.5	0.0	244.4	597.0	86.58	47.99	134.57	50.94	11.78	197.29	5.29	2.93	8.23	3.12	0.72	12.07
0056 Coventry University	513	161	674	90	17	781	11.0	1.0	0.6	12.6	94.6	12.8	0.6	14.5	122.5	46.73	14.67	61.40	8.20	1.55	71.15	4.19	1.31	5.50	0.73	0.14	6.38
0201 Courtauld Institute of Art(#4)	7	0	7	0	0	7	3.5	-	-	3.5	0.0	0.0	7.3	0.0	7.3	2.00	-	2.00	-	-	2.00	0.96	-	0.96	-	-	0.96
0116 University of Durham	1,703	631	2,334	576	338	3,248	43.5	-	44.6	88.1	332.9	11.8	0.0	83.5	428.1	39.15	14.51	53.66	13.24	7.77	74.67	3.98	1.47	5.45	1.35	0.79	7.59
0117 The University of East Anglia	1,245	472	1,717	435	150	2,302	25.9	-	31.3	57.2	217.1	0.0	2.0	61.0	280.2	48.01	18.20	66.21	16.77	5.78	88.76	4.44	1.68	6.13	1.55	0.54	8.22
0016 Edge Hill College of Higher Education	27	6	33	2	9	44	1.0	-	-	1.0	10.1	0.0	0.0	10.1	27.00	10.00	6.00	33.00	2.00	9.00	44.00	2.66	0.59	3.25	0.20	0.89	4.34
0119 The University of Exeter	1,009	338	1,347	306	25	1,678	25.8	-	19.8	45.6	159.8	0.0	6.6	55.3	221.7	39.05	13.08	52.13	11.84	0.97	64.94	4.55	1.52	6.08	1.38	0.11	7.57
0059 The University of Greenwich	735	237	972	479	0	1,451	17.4	-	2.0	19.4	100.6	69.5	44.4	27.5	242.0	42.27	13.63	55.90	27.55	-	83.45	3.04	0.98	4.02	1.98	-	6.00
0060 University of Hertfordshire	262	10	272	15	0	287	4.5	-	5.2	9.7	41.1	1.4	1.1	3.5	47.1	58.03	2.21	60.24	3.32	-	63.57	5.56	0.21	5.77	0.32	-	6.09
0061 The University of Huddersfield	983	367	1,350	217	34	1,601	17.2	-	5.2	22.4	220.5	31.6	6.6	18.2	276.9	57.05	21.30	78.35	12.59	1.97	92.92	3.55	1.33	4.88	0.78	0.12	5.78
0120 The University of Hull	1,478	799	2,277	1,039	222	3,538	36.7	-	21.1	57.8	304.2	0.0	1.3	60.8	366.3	40.27	21.77	62.05	28.31	6.05	96.41	4.03	2.18	6.22	2.84	0.61	9.66
0132 Imperial College of Science, Technology & Medicine	2,114	1,119	3,233	1,228	190	4,651	38.1	12.1	62.9	113.2	287.5	0.3	24.1	135.0	446.9	55.45	29.35	84.80	32.21	4.98	122.00	4.73	2.50	7.23	2.75	0.43	10.41
0121 The University of Keele	651	226	877	106	0	983	13.0	-	12.5	25.5	96.9	0.0	1.0	21.4	119.3	50.08	17.38	67.46	8.15	-	75.62	5.46	1.90	7.35	0.89	-	8.24
0122 The University of Kent(#3)	557	261	818	261	112	1,191	10.0	-	2.6	12.6	132.7	0.0	0.0	28.4	161.1	55.70	26.10	81.80	26.10	11.20	119.10	3.46	1.62	5.08	1.62	0.70	7.39
0134 King's College London	1,095	477	1,572	580	206	2,358	22.7	-	11.7	34.4	185.6	0.0	6.0	45.9	237.4	48.27	21.03	69.29	25.57	9.08	103.94	4.61	2.01	6.62	2.44	0.87	9.93
0063 Kingston University	258	87	345	238	19	602	24.1	-	-	24.1	105.0	0.0	13.5	0.0	118.5	10.70	3.61	14.31	9.87	0.79	24.97	2.18	0.73	2.91	2.01	0.16	5.08
0124 The University of Leeds	2,298	2,159	4,457	1,173	393	6,023	65.2	0.7	44.1	110.0	459.3	23.7	34.9	170.4	688.3	35.22	33.09	68.31	17.98	6.02	92.32	3.34	3.14	6.48	1.70	0.57	8.75
0125 The University of Leicester	982	630	1,612	399	93	2,104	21.3	-	11.3	32.7	150.3	4.1	0.0	43.0	197.4	46.02	29.52	75.54	18.70	4.36	98.60	4.97	3.19	8.16	2.02	0.47	10.66
0065 Liverpool John Moores University	372	85	457	114	5	576	10.5	-	1.3	11.8	104.5	10.0	10.7	16.0	141.2	35.53	8.12	43.64	10.89	0.48	55.01	2.63	0.60	3.24	0.81	0.04	4.08
0126 The University of Liverpool	1,468	914	2,382	87	39	2,508	29.9	-	47.5	77.4	178.7	2.3	11.0	93.1	285.1	49.11	30.58	79.69	2.91	1.30	83.91	5.15	3.21	8.36	0.31	0.14	8.80
0024 The London Institute	128	132	260	50	9	319	11.9	-	-	11.9	34.4	11.9	6.8	0.0	53.0	10.73	11.07	21.80	4.19	0.75	26.75	2.41	2.49	4.90	0.94	0.17	6.01
0202 London Metropolitan University(#1)(#12)	351	36	387	52	0	439	5.1	-	-	5.1	203.8	17.0	0.0	2.5	223.3	69.04	7.08	76.12	10.23	-	86.35	1.57	0.16	1.73	0.23	-	1.97
0152 Loughborough University	1,106	523	1,629	433	48	2,110	25.3	-	19.5	44.8	262.6	0.0	20.4	105.3	388.3	43.71	20.67	64.38	17.11	1.90	83.39	2.85	1.35	4.20	1.12	0.12	5.43
0153 University of Manchester	2,166	636	2,802	1,006	475	4,283	45.4	4.8	34.4	84.5	373.5	0.0	10.2	122.2	505.9	47.76	14.02	61.78	22.18	10.47	94.44	4.28	1.26	5.54	1.99	0.94	8.47
0165 The University of Manchester Institute of Science & Tec	1,641	1,364	3,005	1,176	127	4,308	38.8	-	22.5	61.3	227.5	0.0	30.8	75.4	333.6	42.25	35.12	77.37	30.28	3.27	110.92	4.92	4.09	9.01	3.53	0.38	12.91
0066 The Manchester Metropolitan University	1,294	795	2,089	191	58	2,338	33.5	0.7	4.6	38.8	345.9	83.4	0.4	30.7	460.4	38.64	23.74	62.38	5.70	1.73	69.81	2.81	1.73	4.54	0.41	0.13	5.08
0154 The University of Newcastle-upon-Tyne	1,111	261	1,372	315	53	1,740	21.6	-	17.0	38.6	173.9	5.3	11.3	69.0	259.4	51.53	12.11	63.64	14.61	2.46	80.71	4.28	1.01	5.29	1.21	0.20	6.71
0027 University College Northampton	49	1	50	2	0	52	1.0	-	-	1.0	6.0	0.0	0.2	0.0	6.2	49.00	1.00	50.00	2.00	-	52.00	7.87	0.16	8.03	0.32	-	8.35
0069 The University of Northumbria at Newcastle	398	229	627	205	38	870	10.0	-	-	10.0	131.3	10.9	23.8	11.0	176.9	39.72	22.85	62.57	20.46	3.79	86.83	2.25	1.29	3.54	1.16	0.21	4.92
0071 The Nottingham Trent University	1,189	330	1,519	481	28	2,028	29.6	-	3.8	33.4	463.0	37.0	21.0	39.0	560.0	40.24	11.17	51.40	16.28	0.95	68.63	2.12	0.59	2.71	0.86	0.05	3.62
0155 The University of Nottingham	2,193	1,052	3,245	1,472	54	4,771	50.3	-	48.7	99.1	390.2	0.0	0.1	156.0	546.3	43.57	20.90	64.47	29.25	1.07	94.79	4.01	1.93	5.94	2.69	0.10	8.73
0001 The Open University	1,321	684	2,0																								

cc 12 Physics
2002/03

	source : HESA Finance Return						source : HESA Individualised Staff Return				source : HESA Student Return					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study					Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend
	£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
Total UK	71,379	28,894	100,273	26,980	6,384	133,637	1,506.1	62.5	1,707.0	3,275.7	11,145.8	823.5	404.1	2,392.9	14,766.3	47.39	19.18	66.58	17.91	4.24	88.73	4.83	1.96	6.79	1.83	0.43	9.05
Total England	58,023	22,764	80,787	22,151	5,674	108,612	1,176.3	58.9	1,352.4	2,587.6	8,854.1	808.2	373.6	1,962.2	11,998.1	49.33	19.35	68.68	18.83	4.82	92.33	4.84	1.90	6.73	1.85	0.47	9.05
0109 The University of Bath	995	413	1,408	239	128	1,775	24.8	-	21.5	46.3	307.8	0.0	0.0	30.7	338.5	40.20	16.69	56.88	9.66	5.17	71.71	2.94	1.22	4.16	0.71	0.38	5.24
0110 The University of Birmingham	2,241	900	3,141	825	200	4,166	41.9	0.7	52.7	95.3	361.1	0.3	29.1	82.7	473.2	53.53	21.50	75.03	19.71	4.78	99.51	4.74	1.90	6.64	1.74	0.42	8.80
0051 The University of Brighton	74	53	127	27	4	158	2.0	0.6	-	2.6	0.0	0.0	0.0	2.0	37.00	26.50	63.50	13.50	2.00	79.00	37.00	26.50	63.50	13.50	2.00	79.00	
0112 The University of Bristol	2,219	907	3,126	359	182	3,667	45.2	1.0	37.2	83.5	394.4	0.0	0.5	57.3	452.2	49.04	20.05	69.09	7.93	4.02	81.04	4.91	2.01	6.91	0.79	0.40	8.11
0114 The University of Cambridge	4,730	2,062	6,792	2,531	915	10,238	62.4	4.6	207.1	274.1	434.7	4.0	0.0	273.1	711.7	75.85	33.07	108.92	40.59	14.67	164.18	6.65	2.90	9.54	3.56	1.29	14.38
0053 The University of Central Lancashire	368	232	600	86	8	694	17.1	1.0	4.6	22.7	43.1	47.7	14.5	3.9	109.3	21.54	13.58	35.12	5.03	0.47	40.63	3.37	2.12	5.49	0.79	0.07	6.35
0116 University of Durham	2,083	624	2,707	589	227	3,523	57.0	-	67.9	124.9	445.7	0.0	9.7	68.7	524.0	36.54	10.95	47.49	10.33	3.98	61.81	3.97	1.19	5.17	1.12	0.43	6.72
0016 Edge Hill College of Higher Education	72	18	90	4	22	116	2.0	-	-	2.0	1.3	0.0	33.3	0.0	34.6	36.00	9.00	45.00	2.00	11.00	58.00	2.08	0.52	2.60	0.12	0.64	3.35
0119 The University of Exeter	960	449	1,409	375	91	1,875	21.1	-	23.9	45.1	193.0	0.9	6.0	41.4	241.3	45.45	21.26	66.71	17.75	4.31	88.77	3.98	1.86	5.84	1.55	0.38	7.77
0060 University of Hertfordshire	757	103	860	83	0	943	12.5	1.0	12.0	25.5	110.3	1.7	4.1	22.0	138.1	60.37	8.21	68.58	6.62	-	75.20	5.48	0.75	6.23	0.60	-	6.83
0120 The University of Hull	402	134	536	115	1	652	8.9	-	3.0	11.9	92.1	0.0	16.8	18.5	127.4	45.39	15.13	60.52	12.98	0.11	73.61	3.15	1.05	4.21	0.90	0.01	5.12
0132 Imperial College of Science, Technology & Medicine	4,597	2,059	6,656	1,702	416	8,774	79.9	28.4	117.7	225.9	643.6	1.8	44.7	167.4	857.5	57.57	25.78	83.35	21.31	5.21	109.88	5.36	2.40	7.76	1.98	0.49	10.23
0121 The University of Keele	652	227	879	107	0	986	16.0	1.0	9.0	26.0	129.1	13.1	5.0	14.9	162.0	40.75	14.19	54.94	6.69	-	61.63	4.02	1.40	5.42	0.66	-	6.08
0122 The University of Kent(#3)	611	284	895	284	122	1,301	12.5	-	9.8	22.3	143.3	0.1	2.0	28.5	173.9	48.89	22.73	71.62	22.73	9.76	104.10	3.51	1.63	5.15	1.63	0.70	7.48
0134 King's College London	779	362	1,141	169	4	1,314	13.8	-	10.9	24.7	186.4	0.5	16.8	18.0	204.7	56.61	26.31	82.92	12.28	0.29	95.49	4.18	1.94	6.12	0.91	0.02	7.05
0123 The University of Lancaster	1,061	353	1,414	350	368	2,132	24.1	-	36.0	60.1	154.4	0.0	0.3	32.3	187.0	43.95	14.62	58.57	14.50	15.24	88.31	5.67	1.89	7.56	1.87	1.97	11.40
0124 The University of Leeds	1,688	834	2,522	1,123	108	3,753	37.3	2.0	33.6	72.9	254.5	0.5	6.5	44.8	306.3	45.20	22.33	67.54	30.07	2.89	100.50	5.51	2.72	8.23	3.67	0.35	12.25
0125 The University of Leicester	1,453	713	2,166	478	11	2,655	29.9	1.4	61.6	92.9	230.9	14.4	0.0	44.0	289.3	48.63	23.86	72.49	16.00	0.37	88.85	5.02	2.46	7.49	1.65	0.04	9.18
0065 Liverpool John Moores University	517	144	661	163	10	834	9.4	2.0	12.1	23.5	8.7	23.7	0.0	13.0	45.4	54.79	15.26	70.05	17.27	1.06	88.38	11.38	3.17	14.55	3.59	0.22	18.36
0126 The University of Liverpool	1,127	616	1,743	834	144	2,721	24.1	1.0	32.1	57.3	186.0	1.1	9.7	49.9	246.6	46.72	25.54	72.26	34.58	5.97	112.81	4.57	2.50	7.07	3.38	0.58	11.03
0024 The London Institute	21	14	35	6	1	42	1.0	-	-	1.0	0.0	0.0	3.1	0.0	3.1	21.00	14.00	35.00	6.00	1.00	42.00	6.71	4.48	11.19	1.92	0.32	13.43
0152 Loughborough University	452	129	581	285	0	866	8.3	-	2.4	10.7	133.0	0.0	0.0	15.2	148.2	54.62	15.59	70.21	34.44	-	104.65	3.05	0.87	3.92	1.92	-	5.84
0153 University of Manchester	2,703	1,071	3,774	1,173	329	5,276	60.9	2.1	34.6	97.5	635.7	15.9	21.9	104.5	635.7	44.41	17.60	62.00	19.27	5.41	86.68	4.25	1.68	5.94	1.85	0.52	8.30
0165 The University of Manchester Institute of Science & Technol	1,453	603	2,056	162	133	2,351	33.9	1.0	21.3	56.2	146.8	0.0	0.0	24.3	171.0	42.83	17.77	60.60	4.78	3.92	69.30	8.50	3.53	12.02	0.95	0.78	13.75
0154 The University of Newcastle-upon-Tyne	1,247	297	1,544	356	805	2,705	21.4	-	8.6	30.0	204.0	1.6	5.2	33.0	243.8	58.21	13.86	72.08	16.62	37.58	126.28	5.12	1.22	6.33	1.46	3.30	11.10
0069 The University of Northumbria at Newcastle	86	0	86	11	4	101	2.0	-	-	2.0	0.0	0.0	4.4	4.4	43.00	-	43.00	5.50	2.00	50.50	19.70	-	19.70	2.52	0.92	23.13	
0071 The Nottingham Trent University	207	58	265	84	5	354	6.0	-	-	6.0	83.0	11.0	1.0	0.0	95.0	34.50	9.67	44.17	14.00	0.83	59.00	2.18	0.61	2.79	0.88	0.05	3.73
0155 The University of Nottingham	1,608	877	2,485	656	217	3,358	36.2	-	37.9	74.0	383.7	0.0	0.1	66.7	450.5	44.46	24.25	68.70	18.14	6.00	92.84	3.57	1.95	5.52	1.46	0.48	7.45
0001 The Open University	1,351	532	1,883	471	11	2,365	22.3	-	2.7	24.9	0.0	587.3	0.0	0.0	587.3	60.63	23.87	84.50	21.14	0.49	106.13	2.30	0.91	3.21	0.80	0.02	4.03
0156 The University of Oxford	4,463	1,957	6,420	2,852	256	9,528	91.7	3.2	139.8	234.7	636.2	0.0	0.0	222.7	859.0	48.65	21.33	69.98	31.09	2.79	103.86	5.20	2.28	7.47	3.32	0.30	11.09
0139 Queen Mary and Westfield College	1,780	540	2,320	281	0	2,601	34.3	2.0	37.9	74.2	234.7	5.1	13.7	27.7	281.3	51.85	15.73	67.58	8.19	-	75.76	6.33	1.92	8.25	1.00	-	9.25
0157 The University of Reading	878	236	1,114	222	0	1,336	15.3	-	3.1	18.4	161.6	5.2	12.5	18.6	197.8	57.26	15.39	72.65	14.48	-	87.13	4.44	1.19	5.63	1.12	-	6.75
0141 Royal Holloway and Bedford New College	836	216	1,052	185	53	1,290	21.1	-	14.5	35.6	76.0	0.0	12.6	23.8	112.4	39.62	10.24	49.86	8.77	2.51	61.14	7.44	1.92	9.36	1.65	0.47	11.48
0158 The University of Salford	550	130	680	100	75	855	10.2	-	1.5	11.7	138.9	0.0	11.5	28.8	179.2	54.03	12.77	66.80	9.82	7.37	84.00	3.07	0.73	3.80	0.56	0.42	4.77
0075 Sheffield Hallam University	462	201	663	158	125	946	13.2	-	5.4	18.6	78.5	22.7	0.0	14.6	115.8	35.10	15.27	50.37	12.00	9.50	71.87	3.99	1.74	5.73	1.36	1.08	8.17
0159 The University of Sheffield	1,232	520	1,752	447	56	2,255	24.7	-	31.3	56.1	194.9	3.5	7.0	48.5	253.9	49.80	21.02	70.82	18.07	2.26	91.15	4.85	2.05	6.90	1.76	0.22	8.88
0160 The University of Southampton	1,555	544	2,099	877	264	3,240	31.9	1.0	47.2	80.1	173.4	0.0	0.0	46.2	219.6	48.81	17.08	65.89	27.53	8.29	101.70	7.08	2.48	9.56	3.99	1.20	14.76
0161 The University of Surrey	1,709	534	2,243	474	57	2,774	29.2	-	29.4	58.6	178.7	0.0	38.2	48.5	265.4	58.61	18.31	76.92	16.26	1.95	95.13	6.44	2.01	8.45	1.79		

All academic cost centres (1 - 41)
2002/03

	source : HESA Finance Return						source : HESA Individualised Staff Return				source : HESA Student Return						Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study						Academic Staff FTE						Academic Staff FTE					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	
£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	
Total UK	3,839,031	1,155,999	4,995,030	1,292,207	107,519	6,394,756	82,453.2	1,810.5	33,419.7	117,683.5	1,014,354.6	274,683.2	216,729.1	69,587.5	1,575,354.3	46.56	14.02	60.58	15.67	1.30	77.56	2.44	0.73	3.17	0.82	0.07	4.06	
Total England	3,143,103	938,721	4,081,824	1,085,188	88,464	5,255,476	66,618.8	1,618.3	27,129.7	95,366.8	822,661.8	238,283.5	182,681.2	58,932.6	1,302,559.1	47.18	14.09	61.27	16.29	1.33	78.89	2.41	0.72	3.13	0.83	0.07	4.03	
0047 Anglia Polytechnic University	24,412	5,215	29,627	16,973	65	46,665	740.0	0.7	-	740.7	8,372.4	6,787.8	2,061.5	158.5	17,380.1	32.99	7.05	40.04	22.94	0.09	63.06	1.40	0.30	1.70	0.98	0.00	2.68	
0108 Aston University	14,011	3,819	17,830	3,803	451	22,084	331.6	-	65.5	397.1	5,219.6	0.0	677.2	261.1	6,157.9	42.26	11.52	53.77	11.47	1.36	66.60	2.28	0.62	2.90	0.62	0.07	3.59	
0048 Bath Spa University College	7,047	843	7,890	2,457	134	10,481	210.6	-	-	210.6	2,883.7	453.6	828.9	27.0	4,193.2	33.47	4.00	37.47	11.67	0.64	49.78	1.68	0.20	1.88	0.59	0.03	2.50	
0109 The University of Bath	22,420	10,652	33,072	8,541	1,231	42,844	492.7	4.0	263.6	760.3	6,733.9	672.1	1,238.4	585.7	9,230.1	45.50	21.62	67.12	17.34	2.50	86.96	2.43	1.15	3.58	0.93	0.13	4.64	
0127 Birkbeck College	16,288	4,955	21,243	3,955	143	25,341	408.2	-	-	408.2	2,585.5	2,336.0	1,558.3	651.9	7,131.8	39.90	12.14	52.03	9.69	0.35	62.07	2.28	0.69	2.98	0.55	0.02	3.55	
0200 Birmingham College of Food, Tourism and Creative	7,350	0	7,350	2,297	0	9,647	165.1	-	-	165.1	1,640.0	1,195.2	157.5	0.0	2,992.7	44.53	-	44.53	13.92	-	58.45	2.46	-	2.46	0.77	-	3.22	
0110 The University of Birmingham	66,922	21,006	87,928	26,587	3,934	118,449	1,191.0	33.9	889.3	2,114.2	15,435.5	1,711.0	3,890.8	2,164.5	23,201.9	56.19	17.64	73.83	22.32	3.30	99.45	2.88	0.91	3.79	1.15	0.17	5.11	
0007 Bishop Grosseteste College	1,764	100	1,864	356	36	2,256	42.8	-	1.0	43.8	872.0	0.0	199.1	0.0	1,071.1	41.24	2.34	43.57	8.32	0.84	52.74	1.65	0.09	1.74	0.33	0.03	2.11	
0049 Bolton Institute of Higher Education	9,267	2,153	11,420	1,970	84	13,474	194.4	42.8	8.3	245.6	3,475.5	750.7	638.0	19.3	4,883.6	47.67	11.08	58.75	10.13	0.43	69.31	1.90	0.44	2.34	0.40	0.02	2.76	
0197 The Arts Institute at Bournemouth	2,229	506	2,735	543	0	3,278	71.4	-	-	71.4	928.5	183.2	0.0	0.0	1,111.6	31.23	7.09	38.32	7.61	-	45.92	2.01	0.46	2.46	0.49	-	2.95	
0050 Bournemouth University	20,219	4,559	24,778	9,744	1,147	35,669	589.7	1.0	11.1	601.8	7,630.9	2,491.6	1,159.7	156.0	11,438.3	34.29	7.73	42.02	16.52	1.95	60.49	1.77	0.40	2.17	0.85	0.10	3.12	
0111 The University of Bradford	22,024	4,768	26,792	8,227	615	35,634	403.0	4.0	118.5	525.4	5,877.0	1,008.9	1,071.8	478.3	8,436.0	54.65	11.83	66.49	20.42	1.53	88.43	2.61	0.57	3.18	0.98	0.07	4.22	
0051 The University of Brighton	26,434	9,141	35,575	8,653	196	44,424	648.1	5.2	90.8	744.1	9,011.8	3,449.1	1,829.9	229.9	14,520.7	40.79	14.10	54.89	13.35	0.30	68.54	1.82	0.63	2.45	0.60	0.01	3.06	
0112 The University of Bristol	55,885	19,961	75,846	15,185	2,853	93,884	1,009.6	52.0	864.8	1,926.4	10,640.9	624.5	2,188.3	1,426.3	14,879.9	55.35	19.77	75.13	15.04	2.83	92.99	3.76	1.34	5.10	1.02	0.19	6.31	
0113 Brunel University	23,577	6,574	30,151	3,987	406	34,544	559.1	3.9	124.2	687.2	9,713.5	233.2	1,584.0	538.7	12,069.5	42.17	11.76	53.93	7.13	0.73	61.79	1.95	0.54	2.50	0.33	0.03	2.86	
0009 Buckinghamshire Chilterns University College	12,822	2,795	15,617	5,046	0	20,663	259.1	3.5	59.4	322.0	4,434.9	2,699.7	220.9	78.6	7,434.1	49.48	10.79	60.27	19.47	-	79.74	1.72	0.38	2.10	0.68	-	2.78	
0114 The University of Cambridge	92,293	30,967	123,260	44,582	5,434	173,276	1,236.1	76.1	2,478.6	3,790.8	11,386.7	801.3	1,503.4	4,564.3	18,255.6	74.67	25.05	99.72	36.07	4.40	140.18	5.06	1.70	6.75	2.44	0.30	9.49	
0188 The Institute of Cancer Research	4,003	593	4,596	1,265	355	6,216	204.9	3.7	233.1	441.8	0.0	0.0	0.0	109.9	109.9	19.53	2.89	22.43	6.17	1.73	30.33	36.42	5.40	41.82	11.51	3.23	56.56	
0012 Canterbury Christ Church University College	17,197	1,881	19,078	7,428	145	26,651	430.4	6.9	4.0	441.3	4,640.4	3,201.8	2,218.6	59.3	10,120.0	39.96	4.37	44.33	17.26	0.34	61.92	1.70	0.19	1.89	0.73	0.01	2.63	
0052 University of Central England in Birmingham	31,462	11,232	42,694	11,350	1,054	55,098	771.7	35.5	171.6	978.9	9,661.5	5,313.1	2,241.8	111.8	17,328.1	40.77	14.55	55.32	14.71	1.37	71.40	1.82	0.65	2.46	0.66	0.06	3.18	
0053 The University of Central Lancashire	29,478	10,078	39,556	13,008	376	52,940	769.4	2.0	50.0	821.3	12,935.2	5,036.7	1,183.4	197.0	19,352.2	38.32	13.10	51.41	16.91	0.49	68.81	1.52	0.52	2.04	0.67	0.02	2.74	
0010 Central School of Speech and Drama	1,552	474	2,026	605	34	2,665	35.8	-	-	35.8	436.8	0.0	242.1	0.0	678.9	43.35	13.24	56.59	16.90	0.95	74.44	2.29	0.70	2.98	0.89	0.05	3.93	
0011 Chester College of HE	11,844	1,910	13,754	3,992	72	17,818	252.3	-	73.9	326.1	4,252.2	1,646.5	441.2	44.5	6,384.4	46.95	7.57	54.52	15.82	0.29	70.63	1.86	0.30	2.15	0.63	0.01	2.79	
0082 University College Chichester	5,844	791	6,635	2,176	106	8,917	157.8	-	-	157.8	2,539.6	217.1	1,082.9	45.6	3,885.3	37.05	5.01	42.06	13.79	0.67	56.53	1.50	0.20	1.71	0.56	0.03	2.30	
0115 City University	33,464	10,424	43,888	13,155	759	57,802	591.0	1.0	72.6	664.5	5,388.9	2,152.3	3,767.8	329.6	11,638.6	56.62	17.64	74.26	22.26	1.28	97.81	2.88	0.90	3.77	1.13	0.07	4.97	
0199 Conservatoire for Dance and Drama	0	0	0	3,898	0	3,898	23.5	-	-	23.5	218.3	83.4	26.6	4.0	332.3	-	-	165.80	-	-	165.80	-	-	-	11.73	-	11.73	
0056 Coventry University	25,733	7,528	33,261	8,380	1,493	43,134	640.0	5.0	11.2	656.2	10,263.7	1,672.9	1,568.3	199.4	13,704.3	40.21	11.76	51.97	13.09	2.33	67.40	1.88	0.55	2.43	0.61	0.11	3.15	
0201 Courtauld Institute of Art(#4)	151	0	151	0	0	151	23.8	-	3.9	27.7	116.3	0.0	150.7	68.2	335.1	6.35	-	6.35	-	-	6.35	0.45	-	0.45	-	-	0.45	
0192 Cumbria Institute of the Arts	1,634	0	1,634	90	167	1,891	46.9	-	-	46.9	898.0	27.1	9.5	0.0	934.6	34.87	-	34.87	1.92	3.56	40.36	1.75	-	1.75	0.10	0.18	2.02	
0015 Dartington College of Arts	970	196	1,166	172	102	1,440	28.7	-	-	28.7	377.2	0.0	18.3	23.8	419.3	33.74	6.82	40.56	5.98	3.55	50.09	2.31	0.47	2.78	0.41	0.24	3.43	
0068 De Montfort University	37,185	6,016	43,201	7,964	0	51,165	903.8	1.9	56.0	961.7	12,036.8	3,737.3	2,041.2	507.3	18,322.7	41.14	6.66	47.80	8.81	-	56.61	2.03	0.33	2.36	0.43	-	2.79	
0057 University of Derby	18,303	3,978	22,281	4,121	694	27,096	560.7	3.0	3.8	567.6	7,804.9	1,338.1	866.7	133.4	10,143.2	32.64	7.09	39.74	7.35	1.24	48.32	1.80	0.39	2.20	0.41	0.07	2.67	
0116 University of Durham	32,698	5,269	37,967	7,663	1,124	46,754	813.7	1.0	277.6	1,092.3	10,205.3	289.4	1,577.1	860.2	12,932.0	40.18	6.48	46.66	9.42	1.38	57.46	2.53	0.41	2.94	0.59	0.09	3.62	
0117 The University of East Anglia	23,604	9,228	32,832	9,215	1,174	43,221	554.1	2.9	336.0	892.9	6,248.3	1,128.4	1,482.7	795.9	9,655.3	42.60	16.65	59.26	16.63	2.12	78.01	2.44	0.96	3.40	0.95	0.12	4.48	
0058 The University of East London	20,013	4,354	24,367	6,169	94	30,630	444.4	1.3	31.8	477.6	7,534.1	920.7	2,634.1	77.1	11,165.9	45.03	9.80	54.83	13.88	0.21	68.92	1.79	0.39	2.18	0.55	0.01	2.74	
0016 Edge Hill College of Higher Education	12,233	2,594	14,827	3,202	228	18,257	212.1	2.5	106.6	321.2</																		

All academic cost centres (1 - 41)
2002/03

source : HESA Finance Return

source : HESA Individualised Staff Return

source : HESA Student Return

	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study						Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	
	£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s
0072 Oxford Brookes University	29,115	6,936	36,051	8,004	135	44,190	738.2	6.9	29.3	774.5	9,045.9	1,209.4	3,139.6	269.3	13,664.2	39.44	9.40	48.83	10.84	0.18	59.86	2.13	0.51	2.64	0.59	0.01	3.23	
0156 The University of Oxford	71,278	23,335	94,613	48,101	3,210	145,924	1,637.4	54.5	1,876.9	3,568.8	11,279.0	956.8	2,099.7	3,207.0	17,542.5	43.53	14.25	57.78	29.38	1.96	89.12	4.06	1.33	5.39	2.74	0.18	8.32	
0073 The University of Plymouth	33,357	9,947	43,304	23,856	936	68,096	879.1	2.8	112.0	993.9	12,649.8	4,941.8	2,188.3	294.3	20,074.2	37.94	11.31	49.26	27.14	1.06	77.46	1.66	0.50	2.16	1.19	0.05	3.39	
0074 The University of Portsmouth	31,524	8,870	40,394	10,200	1,416	52,010	768.0	13.6	112.5	894.1	11,883.3	1,268.4	2,255.8	289.2	15,696.6	41.05	11.55	52.60	13.28	1.84	67.72	2.01	0.57	2.57	0.65	0.09	3.31	
0139 Queen Mary and Westfield College	40,926	12,563	53,489	12,565	1,573	67,627	658.1	17.1	583.2	1,258.4	7,225.4	54.9	1,065.5	684.0	9,029.8	62.19	19.09	81.27	19.09	2.39	102.76	4.53	1.39	5.92	1.39	0.17	7.49	
0030 Ravensbourne College of Design and Communicat	1,966	391	2,357	805	0	3,162	36.2	-	-	36.2	588.4	260.8	24.7	0.0	873.9	54.26	10.79	65.06	22.22	-	87.28	2.25	0.45	2.70	0.92	-	3.62	
0157 The University of Reading	38,278	9,179	47,457	12,059	320	59,836	736.0	10.5	287.2	1,033.8	7,704.2	463.2	2,281.3	859.7	11,308.4	52.01	12.47	64.48	16.38	0.43	81.30	3.38	0.81	4.20	1.07	0.03	5.29	
0031 University of Surrey, Roehampton	12,318	1,271	13,589	1,033	164	14,786	294.1	-	8.0	302.1	5,211.7	567.1	1,146.9	125.3	7,050.9	41.89	4.32	46.21	3.51	0.56	50.28	1.75	0.18	1.93	0.15	0.02	2.10	
0032 Rose Bruford College	1,333	126	1,459	452	245	2,156	33.7	-	-	33.7	653.5	3.0	21.0	0.4	677.9	39.58	3.74	43.32	13.42	7.27	64.01	1.97	0.19	2.15	0.67	0.36	3.18	
0033 Royal Academy of Music	4,124	0	4,124	475	109	4,708	45.4	-	-	45.4	312.4	0.0	289.6	16.0	618.0	90.93	-	90.93	10.47	2.40	103.80	6.67	-	6.67	0.77	0.18	7.62	
0195 Royal Agricultural College	1,790	103	1,893	655	69	2,617	41.7	-	1.0	42.7	386.6	58.0	126.3	7.0	577.9	42.98	2.47	45.45	15.73	1.66	62.83	3.10	0.18	3.28	1.13	0.12	4.53	
0003 Royal College of Art	2,670	2,110	4,780	1,779	157	6,716	51.4	1.7	19.5	72.6	0.0	0.0	758.1	62.6	820.7	51.90	41.01	92.91	34.58	3.05	130.55	3.25	2.57	5.82	2.17	0.19	8.18	
0034 Royal College of Music	3,633	0	3,633	330	0	3,963	33.9	4.6	1.0	39.5	374.6	0.0	209.0	8.0	591.6	107.06	-	107.06	9.72	-	116.78	6.14	-	6.14	0.56	-	6.70	
0006 The Royal College of Nursing(#3)	2,909	103	3,012	1,499	46	4,557	30.6	-	1.8	32.4	119.3	86.2	76.8	3.2	285.5	95.00	3.36	98.36	48.95	1.50	148.81	10.19	0.36	10.55	5.25	0.16	15.96	
0141 Royal Holloway and Bedford New College	19,282	3,747	23,029	3,454	263	26,746	422.0	-	116.3	538.3	4,058.7	406.7	762.0	449.3	5,676.7	45.69	8.88	54.57	8.18	0.62	63.38	6.40	0.66	4.06	0.61	0.05	4.71	
0035 Royal Northern College of Music	3,186	272	3,458	371	0	3,829	38.4	-	1.3	39.7	349.5	22.5	125.0	5.0	502.0	82.95	7.08	90.03	9.66	-	99.69	3.35	0.54	6.89	0.74	-	7.63	
0143 The Royal Veterinary College	4,321	1,809	6,130	1,091	195	7,416	104.5	1.0	45.8	151.4	789.1	0.0	89.7	69.2	947.9	41.34	17.31	58.65	10.44	1.87	70.95	4.56	1.91	6.47	1.15	0.21	7.82	
0145 St George's Hospital Medical School	17,602	6,112	23,714	5,186	600	29,500	147.7	12.2	363.3	523.1	1,586.6	144.0	190.8	91.7	2,013.1	119.21	41.39	160.61	35.12	4.06	199.79	8.74	3.04	11.78	2.58	0.30	14.65	
0014 College of St Mark and St John	4,736	859	5,595	2,350	0	7,945	103.2	10.0	10.5	114.7	2,036.6	78.6	843.7	18.5	2,977.3	45.90	8.33	54.23	22.78	-	77.01	1.59	0.29	1.88	0.79	-	2.67	
0038 St Martin's College	13,127	1,982	15,109	3,942	0	19,051	328.4	-	-	328.4	3,418.3	1,552.2	1,599.2	26.4	6,596.1	39.97	6.03	46.00	12.00	-	58.01	1.99	0.30	2.29	0.60	-	2.89	
0039 St Mary's College	5,027	674	5,701	811	184	6,696	111.5	-	1.5	113.0	2,162.0	152.2	303.9	7.0	2,625.2	45.07	6.04	51.11	7.27	1.65	60.03	1.91	0.26	2.17	0.31	0.07	2.55	
0158 The University of Salford	35,530	8,789	44,319	8,183	2,290	54,792	874.9	-	64.3	939.2	10,620.0	4,399.9	1,940.1	387.3	17,347.3	40.61	10.05	50.66	9.35	2.62	62.63	2.05	0.51	2.55	0.47	0.13	3.16	
0146 The School of Oriental and African Studies	13,690	1,225	14,915	1,955	0	16,870	273.7	0.1	35.4	309.1	1,597.4	330.1	855.3	391.8	3,174.7	50.02	4.48	54.49	7.14	-	61.63	4.31	0.39	4.70	0.62	-	5.31	
0147 The School of Pharmacy	2,699	1,020	3,719	856	549	5,124	51.2	1.0	52.9	105.1	638.4	0.0	73.6	92.3	804.3	52.73	19.93	72.65	16.72	10.72	100.10	3.36	1.27	4.62	1.06	0.68	6.37	
0075 Sheffield Hallam University	37,974	11,372	49,346	10,724	2,085	62,155	800.8	105.9	206.6	1,113.3	16,291.3	2,128.8	3,313.0	354.1	22,087.2	47.42	14.20	61.62	13.39	2.60	77.61	1.72	0.51	2.23	0.49	0.09	2.81	
0159 The University of Sheffield	68,558	15,757	84,315	17,559	420	102,294	1,333.6	23.4	973.5	2,330.5	14,460.2	2,834.6	2,667.5	2,108.5	22,070.8	51.41	11.82	63.22	13.17	0.31	76.70	3.11	0.71	3.82	0.80	0.02	4.63	
0037 Southampton Institute	14,954	5,591	20,545	4,393	636	25,574	393.6	-	-	393.6	7,191.9	1,712.9	413.1	72.0	9,389.8	37.99	14.20	52.19	11.16	1.62	64.97	1.59	0.60	2.19	0.40	0.07	2.72	
0160 The University of Southampton	55,955	17,488	73,443	12,305	1,810	87,558	1,141.7	58.6	796.6	1,996.8	10,921.9	2,262.1	2,069.5	1,197.6	16,451.1	49.01	15.32	64.33	10.78	1.59	76.69	3.40	1.06	4.46	0.75	0.11	5.32	
0077 Staffordshire University	19,764	8,555	28,319	8,683	1,488	38,490	521.7	3.6	76.2	601.5	8,884.1	1,744.6	1,294.1	152.5	12,075.3	37.89	16.40	54.29	16.65	2.85	73.79	1.64	0.71	2.35	0.72	0.12	3.19	
0078 The University of Sunderland	18,974	5,823	24,797	7,919	761	33,477	593.4	-	35.2	628.5	8,180.2	1,670.4	1,360.8	140.0	11,351.4	31.98	9.81	41.79	13.35	1.28	56.42	1.67	0.51	2.18	0.70	0.07	2.95	
0044 The Surrey Institute of Art and Design, University Cc	5,040	1,912	6,952	1,567	0	8,519	108.3	-	-	108.3	2,771.9	0.0	44.1	14.5	2,830.5	46.54	17.65	64.19	14.47	-	78.66	1.78	0.68	2.46	0.55	-	3.01	
0161 The University of Surrey	33,916	6,664	40,580	11,150	1,466	53,196	621.1	2.0	259.6	882.7	5,180.3	1,673.7	1,728.0	889.0	9,471.0	54.61	10.73	65.34	17.95	2.36	85.65	3.58	0.70	4.28	1.18	0.15	5.62	
0162 The University of Sussex	22,578	7,397	29,975	6,725	553	37,253	640.5	1.0	127.6	769.1	6,467.4	540.9	1,412.6	702.8	9,123.7	35.25	11.55	46.80	10.50	0.86	58.17	2.47	0.81	3.29	0.74	0.06	4.08	
0079 The University of Teesside	20,941	5,113	26,054	8,442	459	34,955	365.7	16.0	186.8	568.5	6,655.8	4,093.6	949.1	120.5	11,818.9	57.27	13.98	71.25	23.09	1.26	95.59	1.77	0.43	2.20	0.71	0.04	2.96	
0080 Thames Valley University	17,545	9,711	27,256	4,868	358	32,482	258.0	-	201.5	459.5	4,823.9	6,364.8	1,023.1	27.0	12,238.8	68.01	37.64	105.65	18.87	1.39	125.91	1.43	0.79	2.23	0.40	0.03	2.65	
0040 Trinity and All Saints College	3,927	555	4,482	940	107	5,529	99.4	0.7	-	100.1	1,960.4	67.0	288.2	4.0	2,319.6	39.51	5.58	45.09	9.46	1.08	55.62	1.69	0.24	1.93	0.41	0.05	2.38	
0041 Trinity College of Music	2,242	373	2,615	448	125	3,188	26.2	-	-	26.2	350.7	0.0	105.3	0.0	456.0	85.42	14.21	99.63	17.07	4.76	121.46	4.92	0.82	5.73	0.98	0.27	6.99	
0149 University College London	104,366	29,395	133,761	19,687	3,060	156,508	1,631.0	156.0	2,003.3	3,790.3	10																	

All academic cost centres (1 - 41)
2002/03

	source : HESA Finance Return						source : HESA Individualised Staff Return				source : HESA Student Return						Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Expenditure						Academic Staff FTE by Principal Source of Salary				Student FTE by Level of Study						Expenditure per WIF Academic Staff FTE						Expenditure per FTE Student					
	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Wholly Institutionally Financed	Principally Institutionally Financed	Other Sources of Finance	Total	First Degree	Other Undergraduate	Postgraduate Taught	Postgraduate Research	Total Student FTE	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	Academic Staff costs	Other Staff costs	Total Staff costs	Other operating expenses	Depreciation	Total expend	
£000s	£000s	£000s	£000s	£000s	£000s	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	FTE	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	£000s	
0193 Stranmillis University College	2,557	131	2,688	227	0	2,915	62.0	-	1.5	63.5	1,060.6	9.8	73.0	0.0	1,143.4	41.24	2.11	43.35	3.66	-	47.02	2.24	0.11	2.35	0.20	-	2.55	
0185 University of Ulster	42,131	9,643	51,774	6,639	463	58,876	1,010.8	-	166.6	1,177.4	14,007.3	1,803.2	2,446.6	578.8	18,835.8	41.68	9.54	51.22	6.57	0.46	58.24	2.24	0.51	2.75	0.35	0.02	3.13	

Courses which use a Bioscience input

Forensic Science

RSC guidelines: Chemistry
 Biochemistry
 Molecular Biology
 Law
 Photography
 Ballistics
 Materials Science

Also Scene of Crime analysis

Problems:

Breadth of programme
Shortage of academic forensic scientists

Pharmacy

Heavily regulated by Royal Pharmaceutical Society

Chemistry
Biochemistry
Molecular Biology
Microbiology

Specialist activities required for accreditation eg. Dispensing

Problems:

Shortage of academic pharmacists
Requirements of RPS

Distance Learning

Niche markets

Potential in eg. Biomedical Science

Competition with OU

High start-up costs – need to establish a robust business plan

The Mixed Economy Maximising Income from Research and Teaching

- Research Councils and other major funders have clear priority areas which often do not map on to areas of undergraduate demand
- Areas popular with undergraduates e.g. sports science, forensic science often have few job opportunities
- Teaching staff in these areas are in short supply and have few opportunities for research funding

Research Intensive Departments need Teaching Income

- Even when FEC arrives few research-led departments will be viable without strong teaching income
- Having “teaching only” staff can help deliver the teaching but they must have a proper career structure
- Specialist researchers must be willing to deliver service teaching and they must make it interesting/relevant
- Specialist teaching activities can be shared across Institutions (Pooling)
- Sometimes we are too generous with the selection of modules that we offer undergraduates

Essential activities that we need to make interesting/relevant and retain for all students

- Problem Solving/Calculations
- Practical Work
- Transferable Skills e.g. IT, giving presentations, writing reports
- Entrepreneurship



Commercialising the Biosciences: Challenges & Opportunities

Kevan MA Gartland
Iain M Young
John W Palfreyman
Abertay Centre for the Environment
University of Abertay



Abertay & the Environment Working Together

- How to integrate successful small Research Centres?
- SIMBIOS: International Class Soil Sciences & Modellers
- Urban Water Technology Centre: SUDS and sewers
- Bioscientists: Plants, Microbes, Avians, Chemists
- Environmentally Relevant Colleagues
- Create Sustainable Future



Promoting Enterprise or Hype?

- £100M Government R&D MUST go to SMEs
- SRIF3 requires more access to Univ. facilities for private sector - THES 18/03/05
- UK R&D to grow from 1.9 – 2.5% GDP by 2014
- Tax credits to promote R&D intensive SME growth
- Scottish Enterprise budgets exceed £500M
- SHEFC increases Knowledge Transfer funds 32%
- **'Sustainable development is central to all our activities'** - SHEFC Guidance Letter 2005



Challenges

- Create Vision
- Overcome Risk Aversion
- Obtain Funding
- Build ACE Facilities
- People Power & Cooperation
- Planning & Management
- Delivery
- Sustainable Future



Opportunities

- Niche Reinforcement
- Expansion into Adjacent Spaces
- Integration
- Economic Advantage
- Reputational Enhancement
- Diversify Income Streams
- RAE Outputs, Facilities, Profile
- Sustainable Future



ABERTAY CENTRE for the ENVIRONMENT ACE VISION

- Develop an environmental powerhouse at Scotland's top University for Environmental Research
- Apply environmental sustainability principles to SME creation and development
- Help SMEs overcome environmental challenges
- Integrate and expand Abertay environmental expertise
- Access to 85 Environmental Biosciences R&D staff



ACE ERDF Project

- European Regional Development Fund grant aid
- Partial support to encourage SME innovation & increase competitiveness
- Matching funding from existing projects
- Develop 2000 m² high quality space for environmental innovation
- Create and safeguard jobs in E. Scotland
- £2.13M for ACE related projects





Working with SMEs

- Environmental Scientists
- Biotechnologists
- Physicists
- Engineers
- Chemists
- Engineers
- Statisticians & Modellers
- Computer Scientists
- Lawyers
- Environmental Economists
- Entrepreneurs







ACE Facilities

- New Laboratories & Support Facilities
- Trebling Glasshouse Area
- New Office and Product Development Suites
- Environmental Innovation Facility for Scotland
- Enhancing Sustainable R&D Base
- 3 Knowledge Transfer Partnerships
- Developing National Biowaste Analysis Facility



SME SUPPORT DETAILS

- SMEs in E Scotland eligible & transitional wards receive free support to address environmental challenges until June 2006
- Cost-based services to other businesses
- Extending UAD environmental reputation and influence
- Commercial services after 2006
- Building upon environmental excellence at UAD





Abertay Centre for the Environment

– The ACE Team offers a wide range of skills and expertise which includes

- Practical waste management





Abertay Centre for the Environment

– Practical waste management services include;

- Composting
- Bioremediation

Product Marketing



Plant Growth Trials



Product Testing



Process Management



Planning

Case 1



- Caledonian Railway, Brechin
- Advised on environmental legislation, water quality, waste management and rural funding.
- Benefits
 - Revenue stream protected
 - Opportunity to exploit water source confirmed.
 - Signpost additional funding
 - Joint publicity!

Case 2



- A number of Tayside Golf / Sports facilities
- Testing soil for leisure industry
- Benefits
 - Reduction in volume of chemical / water use
 - Developing competitive advantage protects existing jobs



Case 3



- Textile Manufacturer, Tayside
- Advised on environmental legislation (IPPC) for new plant, and markets for green products. Staff training programme – environmental issues
- Benefits
 - Potential 2 – 4 jobs created
 - New product exploits green markets and protects existing jobs



Case 4



- Paper Sector, Tayside
- Wide ranging support to integrate quality management and environmental management systems. (ISO14001 and ISO9000). Develop role as a “Green Business”
- Benefits
 - New Management Post created
 - Developing competitive advantage protects existing jobs

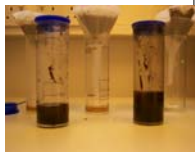
Case 5

- Farmer Tom Composting, Perthshire
- Development of successful rural green waste composting operation
- ACE specialists provided a tailor-made guide to efficiently managing the process, lab analysis of the composts and market products
- Benefits:
 - Rural diversification
 - Supports local sustainability initiatives
 - Product quality ensured



Case 6

- Andrew Cook Group Ltd, Fife
- Development of novel products from waste streams; manufactured top soil and cement stabilised reclaimed aggregate material. Product testing services
- Benefits:
 - New revenue stream
 - Job protection



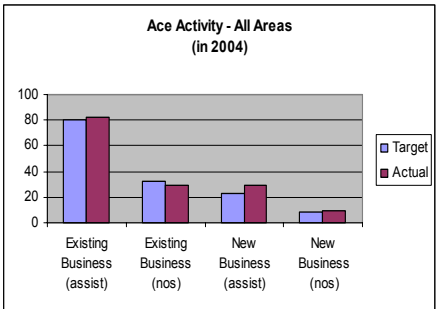
Case 7

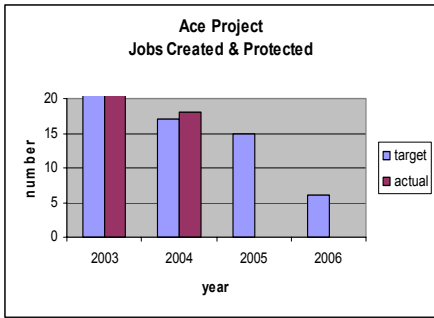


- Cairngorm Mountain Ltd Aviemore
- New project to support CML in a number of environmental activities. Includes waste minimisation, a transport audit and plan; and
- Anticipated benefits
 - Protect reputation for stewardship of a pristine environment
 - Developing competitive advantage protects existing jobs



The ACE website shows links to these partners
<http://www.ace.abertay.ac.uk>





Benefits

- Superb Working Environment
- Interactions between Disciplines
- Enhanced Reputation & Profile
- Innovative Approach
- Media Coverage
- Increased External Income
- Step Change in Attitude & Behaviour
- Vibrant Future



ace

abertay centre for the environment

<http://www.ace.abertay.ac.uk>

k.gartland@abertay.ac.uk

01382 308000



Full Economic Costing

Rodney Eastwood
Imperial College London

April 2005

Infrastructure

- Under-investment in university infrastructure highlighted in the Dearing Report in 1997
- Transparency Review detailed
 - Backlog
 - Recurrent gap
- “Persistent failure to invest in research infrastructure” (*Investing in Innovation*)

TRAC

- Transparent Approach to Costing
- Treasury instigated
- Activity based costing methodology
- Cost of public and privately funded teaching and research and ‘other’ reported annually
- Includes **Infrastructure Adjustment** and **Cost of Capital Employed** (c. £M48 pa for IC)
- Large part of costs driven by staff time survey (TOAST)

TOAST

- Most reliable method of costing is to measure time spent on different activities
- Imperial College first did this for academic time in 1991-3
- Repeated and refined TOAST survey in 2001
- 2 sample weeks for each academic
- 20 different categories of activity for academic staff – in 30 minute slots
- 59% response rate

Page 4

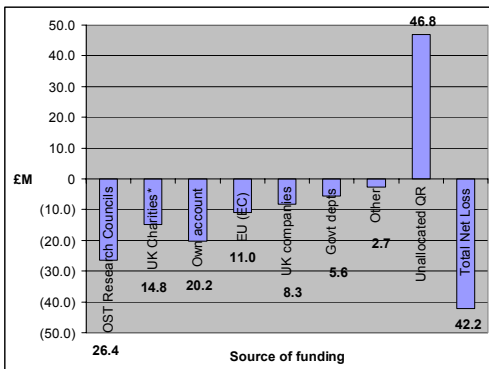
The Transparency Review



- Institutions now know
 - the cost of their major activities in teaching and research
 - the deficit or surplus on each
- The challenge is to become financially sustainable and maintain academic quality

Page 5

IC's research financials 2001-02

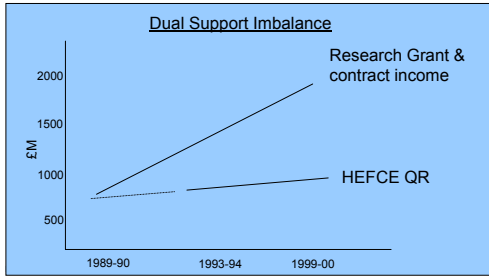


Page 6 *net of allocated HEFCE QR grant

Source: TRAC data 2001-02

Dual Support imbalance

- As a sector, there is an imbalance between research grant / contract income and HEFCE QR.



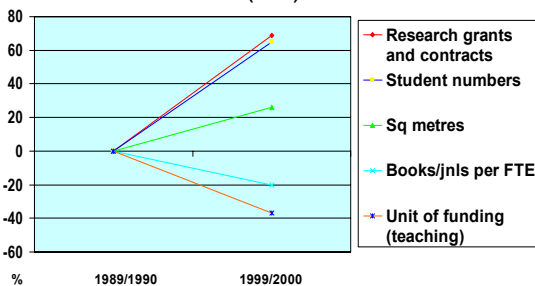
Page 7

Loss on Teaching (2003-4)

- Lab undergraduates cost £K11 pa
- Income from HEFCE is £K6.4 pa
- Income from fee is £K1.1 pa
- Loss is £K3.5 per student per year

Page 8

Relative growth in HE activity and funding (UK)



Page 9

Government Policy Background

- Universities should be financially sustainable
- Govt accepts that publicly funded research should cover its full costs
- Govt provided additional funds in SR2002 and SR2004 to pay for more of full costs of research
- SRIF covers some of backlog
- Dual support system maintained but reformed

Reform of Dual Support system

1. Institutions will be responsible for the:
 - a) full cost recovery of projects
 - b) sustainability of their research
2. The full economic costs (fEC) of individual research projects will be calculated using the extended 'Transparent Approach to Costing' (TRAC) methodology
3. Research Councils will pay a fixed proportion of the fEC of each research project (80%) -HEFCE QR grant intended to cover remainder

Full economic cost

- A price which, if applied across an institute's full programme, would recover the total cost (direct, indirect and total overhead) of the institute, including an adequate recurring investment in the institute's infrastructure.
- Includes academic time and consumables, libraries and admin, cost of capital and depreciation

Old system – what RCs funded

FULL ECONOMIC COSTS	
Direct costs	Indirect costs
Eligible staff costs (e.g. Research Assistants)	46% of eligible staff costs
Other eligible costs (e.g. equipment)	The institution must find the rest from other sources, including QR
Ineligible Costs (e.g. salary of PI)	

Shaded area – what RC will fund

Page 13

New system – what RCs will fund

FULL ECONOMIC COSTS	
Direct costs	Indirect costs
Research Council pays 80% of full costs	
The institution must find the rest from other sources, including QR.	

Shaded area – what RC will fund

Page 14

Changes to costing of research council grants

- PI time to be included
 - PI cost = PI time x standard £/hr (based on 1650 hrs a year)
- Estates costs directly allocated to projects on a £/FTE or £/m² for lab and non-lab (derived from 4 different categories eg high-cost lab, std lab, office, 'barn')
- Major central facilities included; costs to be directly allocated to projects, where possible
- Indirect costs calc'd using a £/FTE method
- Cost of capital and cost of providing for infrastructure renewal included

What are the implications?

Principal (and Co-)Investigators

1. Estimate their time on proposals
2. Validate actual time spent on projects (no time sheets)
3. Time survey every 3 years
4. Need separately to identify PGR supervision time from research time

Requirements for PIs to be "light-touch"

Page 16

What are the implications?

Faculties

1. Manage bids to different sponsors
2. Monitor extent of cost recovery of projects

Research Services and ICT

1. Develop guidance and training on new methods, processes and costing systems
2. Provide support to PIs

College centrally

1. Provides: Estates and indirect cost rates
Banded academic staff costs based on 1650 hour year
2. Reconciles expenditure on Research Council projects with grants received
3. Undertakes benchmarking and HEFCE audit

Sustainability raises many questions ...

- What are the implications for projects funded by other sponsors e.g. industry, EC and charities?
 - Industry – HEFCE grant cannot be used to subsidise commercial research in the future
 - Government departments have been told to pay 100% of fEC
- How will the price of research be set? What price will be accepted? What will our competitors do?
- Faculties will need to manage their research portfolio to ensure sustainability is met. Grants/contracts, in theory, should be refused when funds available to make up difference between price and 100% fEC have been used

Page 18 up.

When is this all happening?

2004: Establish systems for full economic costing

Establish project teams
Develop IT systems and new processes
Develop training
Involve all those who will be impacted!

May 2005: Audit sign-off

From Sept 2005: Research Council applications made and funded on new full economic basis

From April 2006: Research Council awards made under new methodology

Page 19

Sustainability requires

- Discipline needed not to spend capital for infrastructure on increased volume of work



Page 20



Costing the Biosciences

David Coates
HUBS Leicester 2005

HUBS Leicester 2005



Rationale

- We think we need more money
- We need the evidence to convince the policymakers
- We need the evidence to show our institutions
- It would help us to understand each others provision



Process

- Small group (Wendy Purcell, David Coates) coordinating process
- Stage 1: collect ball-park figures from range of institutions to get flavour of delivery
- Stage 2: Choose appropriate examples for detailed look

Stage 1

- Based on hours/FTE and extraordinary costs
- 'work in progress'
- 10 returns good enough to use for ball park estimate
- Quote: 'people fill in forms in different ways...'

So far...

- Today showing SSR data for Undergraduate provision, and hour/load averages for teaching at levels 1 – 3 (English rules...)
- Lots of other data, but need a bit more time to think about it!

Costing the Biosciences			Average Contact Hours per fte per academic year	Lectu total hours	Pract total hours	Tutor total hours	Othe total hours	Field work non-residential (in hours)	Field work residential (in days)
Degree Programme/Scheme	Level	Cohort size (fte)							
Level 1 (average)		92.6	430.9	218.1	164.1	44.7	18.5	9.8	5.3
StDev		104.2	195.3	63.8	101.5	46.3	14.7	2.4	4.0
max		464.0	824.0	342.0	352.0	130.0	36.0	13.0	10.0
min		7.0	276.0	140.0	64.0	8.0	0.0	8.0	3.0
Level 2 (average)		43.2	391.8	173.5	175.5	30.9	22.7	22.3	8.1
StDev		40.8	143.5	60.3	80.5	34.9	19.8	26.1	5.2
max		160.0	824.0	342.0	352.0	130.0	79.0	95.0	21.0
min		3.9	250.0	118.0	64.0	3.0	3.0	4.0	3.0
Level 3 (average)		34.2	252.1	153.4	120.8	28.8	19.3	12.0	13.5
StDev		37.1	215.5	72.5	127.8	41.0	12.2	6.9	3.3
max		176	824	342	352	130	40	20	17
min		2	63	108	0	0	0	8	9
Total									
