

School of Chemical Sciences Strategic Research Plan

2007-2010

Strategic Intent

This Strategic Plan will position us at the forefront of research in EU, Ireland and DCU prioritised fields of science and technology, specifically Nanobiotechnology, Personalised and Societal Healthcare and Environmental Technology. Within this context, the School will be instrumental in the development of Level 4 and 5 education and training, striving to simultaneously increase the quantity and quality of our graduates, especially through significant roles in the development of leading Irish graduate Schools. The School will set targets to grow its number of research active faculty and associated physical research infrastructure and to maintain excellence in postgraduate supervision and training.

Five Goals for Three Years

- 1.** In collaboration across the Faculty, to **actively recruit outstanding researchers** to add to the critical mass in each of the School's focused theme areas (detailed below).
- 2. Develop a resource allocation model**, including academic workload, which supports research excellence in the focused theme areas.
- 3. Increase the number of post-graduate and post-doctoral researchers** by up to 30%, provided such growth is simultaneously supported through Faculty resource allocation.
- 4.** In collaboration with Faculty and University bodies, **create an Infrastructure Development Plan** to establish and maintain state-of-the-art laboratories and equipment.
- 5.** Establish funded multi-partner (Island of Ireland, EU, US, Australia and Asia) **research programmes in each of the focus theme areas.**

1 - Core Activity

The School will actively support the following core research related activities:

- ❖ *All initiatives promoting excellence in postgraduate research training, including within future graduate school programmes.*
- ❖ *Initiatives leading to the school's significant involvement in large scale Faculty and University based research programmes.*
- ❖ *Activities which help develop the national and international research profile of staff, postdoctoral and postgraduate students within the school.*
- ❖ *Initiatives to increase numbers of applications for significant external national and international (e.g. EU) research funding.*

- ❖ *All efforts to simultaneously increase the quality and quantity of the School's research output, as measured using internationally recognised research performance indicators.*
- ❖ *All activities which continue to ensure the School occupies leading and essential roles in the development and sustainability of each National Research Centre within the Faculty.*
- ❖ *All ongoing and future attempts to establish significant external research collaborations, including staff sabbaticals to national/international centres of research excellence, and through the hosting of leading international researchers within the School.*
- ❖ *All activities leading to increased School-Industry collaborations.*
- ❖ *Efforts to increase the proportion of research active staff represented on internationally significant research committees, learned bodies, associations and editorial boards of high impact scientific publications.*

2 - Values

In implementing and promoting the above research activities, the School will guarantee to maintain the following core values:

- ❖ *To strive for, and reward excellence in all School research based activities.*
- ❖ *Through administration of equitable workload models, ensure all staff have the ability to engage in, and grow their research, without being detrimental to the School's goal of maintaining excellent standards in undergraduate teaching.*
- ❖ *To provide fair and equal opportunities for all researchers within the School.*
- ❖ *To foster and develop research careers of young academic staff, including where warranted, the provision of financial and infrastructural support.*
- ❖ *To facilitate increased research activity by providing increased levels of training and support to School technical staff.*
- ❖ *To actively support research activities within the Faculty of Science and Health as a whole.*
- ❖ *To increase awareness and strengthen the impact of the scientific, economic, and societal outcomes of the Schools' discoveries, innovations, and achievements.*
- ❖ *To always promote the application of the highest ethical standards within the School.*
- ❖ *Respect and consideration for the research efforts and achievements of fellow faculty.*

3 - Building on Success and Strategic Focus.

The School of Chemical Sciences recognises the need to simultaneously focus and grow its research portfolio, and obtain the critical mass required in prioritised areas to achieve increased international recognition. Over the past decade the School has played a major role in several of the Faculty's large scale research successes, including the development of the National Centre for Sensor Research (NCSR), the National Institute for Cellular Biotechnology (NICB), the Biomedical Diagnostics Institute (BDI), and most recently the Adaptive Information Cluster (AIC) and the Industry funded Centre for Bioanalytical Sciences (CBAS). The School also recognises the need to continue to support and grow its commitment to these

successful initiatives and focus its research activities in thematic areas of explicit relevance to such Centres. In addition, the School is fully committed to promote all research activities which enhance and develop scientific education at all levels, including playing a leading role in the establishment of a DCU-led Graduate Programme in Bioanalytical Science.

Prioritised Thematic Areas of Research:

(1) Environmental Technologies

- ❖ Environmental monitoring and control technologies
- ❖ Green chemistries
- ❖ Photochemistry
- ❖ Sustainable energy systems

(2) Personalised and Societal Healthcare

- ❖ Drug discovery, development and delivery of novel molecular therapeutics
- ❖ Bioanalytical chemistry
- ❖ Biomedical diagnostics

(3) Nanobiotechnology

- ❖ Interfacial chemistry
- ❖ Intelligent and responsive surfaces
- ❖ Sensors and sensor technologies
- ❖ Nanotechnology and materials
- ❖ Biophotonics and Nanobiophotonics

The School recognises the need for research within individual Schools to be coherent with the Faculty and University Strategic plans and to contribute to the goals set out within 'Leadership through Foresight'.

The above prioritised thematic areas of research within the School of Chemical Sciences are consistent with the highlighted areas of research given Priority 1 and Priority 2 status within the Faculty Strategic Plan for Research, as detailed below:

*Priority 1 (i) **Biomedical Diagnostics**, (ii) **Drug Discovery and Development** (iii) **Cancer Research**, (vi) **Therapeutics** (iv) **Photonic Sciences**, (v) **Plasma**.*

*Priority 2 (i) **Public Health : Environmental Health and Infectious Diseases** (ii) **Healthy Living Centre**, (iii) **Mathematics**.*

*Priority 3 (i) **Sport Performance**.*