Meaningfully Embedding Industry-Relevant Life Sciences Skills in the Undergraduate Biosciences Curriculum

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More than a Decade of Enhancement of Bioscience Skills at Edinburgh Napier University

We will:

- Summarise our journey so far
- Present lessons learned
- Make recommendations for the future
Our Context at Edinburgh Napier University:

- Scottish Modern University
- Applied Sciences undergraduates
  - 1 in 10 from MD20 postcodes
  - 1/3rd are over 21
  - 15% identify as disabled
- Bioscience undergraduate suite
  - 100 – 150 intake per year
  - 50% Biomedical Sciences students
Mid 2000s

Focus on graduate employability across the sector
Concern about confidence of Scottish Graduates
ABPI ‘Sustaining the Skills Pipeline in the pharmaceutical and biopharmaceutical industries’ report in 2005

Our Challenge

Improve graduate employability and confidence through curriculum enhancements
Interventions in Undergraduate Biosciences Curriculum

How do we prepare our students for life beyond their programme?

Surveyed employers
Industry advice

Academic input

Confident futures
Academic skills

Skills passport project development

Implementation, evaluation and embedding

SFC funded Graduate Employability Project £2.7 million over 3 yrs

Sharing practice beyond Napier

2012

2015
Meaningfully Embedding Skills

• Transferable skills strategically offered across programme
  - E.g. time management, networking

• Identified transferable and specialist, industry-relevant skills
  - E.g. problem solving, numeracy, practical lab skills, Good Laboratory Practice

• Mapped or introduced in programme and explicitly signposted to students

• Student self-evaluation
  - Supported by staff with industry backgrounds
  - Self-led reflection as future-proofing

• Student engagement poor until embedded and contextualised
Context, reflection and engagement with stakeholders

Reflection

Industry advisory group

Additional curriculum development e.g. professional practice module
Leading to RSB accreditation

NSS and GOS

Continuing developments

2016

current
ENU Biomedical Sciences
Degree Outcomes:

National Student Survey
100%
Overall satisfaction 2022
Ranked:
1st of 75 in the UK for Biomedical Sciences
1st of 34 for Biosciences

Graduate Outcomes
94%
Positive Destination 2019/20
22% Further study
79% Professional or Managerial Occupation
Lessons Learned: Meaningfully Embedding Means

- Authentic Student Experiences
- Future Proof Skills and Knowledge
- Delivered in Partnership
- Credit Bearing
Lessons Learned: Future Proofing

- Sector changes rapidly
  - Upskilling
  - Reflection, digital skills and lifelong learning
- Graduate Readiness continues to be a challenge for industry
  - Core skills less of a concern (ABPI 2022)
Lessons Learned: How Best to Engage with Stakeholders

- Regularly & strategically
- Institutional level partnerships with shared purpose
  - Industry Advisory Group
  - Collaborative upskilling initiatives
  - Mutually beneficial visits
  - Guest lecturers
Scaling up Impact: the Challenge

ENU BMS Graduates

60 pa

- 6% total Scottish Biomedical Science(s) Graduates (HESA)
- 79% work in professional/managerial occupations
- 22% choose further study

Course constraints:
- Broad range of skills, knowledge and applications
- Practical emphasis limits numbers

Life Sciences Sector Needs

3,500 pa

- Job postings in sector in 2022
- 1/3 skills sourced from new (post)graduates (2021 UK Cell and Gene Therapy Skills Demand Survey Report)
- Digital skills major concern (ABPI 2022)
- Entrepreneurial, scaling programmes and more ‘Employer-Ready Graduates’ needed (2021 Campbell report)
Recommendations

Core skills, embedded reflection and applied experience
Adaptable core skills provision
Lifelong approach to skills development
Flexible provision and workforce

Supported, centralised industry engagement
Authentic learning experiences:
- Placements, Internships, CPD
- Off the shelf curriculum enhancements
- Guest lectureships
- Train the trainer

Strategic, funded cross-sector collaboration
Pooled specialist, applied teaching
Shared curricula
Flexible provision

School of Applied Sciences
Continuing developments

SULSA skills Committee

Professional Services

£100k Upskilling initiatives

Research, evaluation and dissemination

Academic input

Skills Summit, National Agency for Life Sciences, Regional Centres of Excellence for Life Sciences Skills

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Industry Advisory Group input

Student feedback

NSS and GOS

Confident futures

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Summary

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Acknowledgements and Sources

- Colleagues, collaborators and students at Edinburgh Napier University and beyond
  - Campbell Report: a Roadmap to Investment for Health Innovation Life Sciences and Healthtech (2021)
  - UK Cell and Gene Therapy Skills Demand Survey Report (2021)
  - Scottish Funding Council (SFC) review of Coherence and Sustainability: A Review of Tertiary Education and Research (2021)