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Introduction

This report is the final output of a project for the Forth Valley Chemicals Team to gather information on the destinations of graduates who have studied chemistry or chemicals related subjects at Scottish Universities. Using data requested on the destinations of these graduates from the Higher Education Statistics Authority. Data requested was based on indicators such as institution, qualification, location and industry.

The aims of this project have been to discover how many graduates there are from chemistry related disciplines, where they have studied and how many are now in employment. The data has been gathered with the intent of gaining an insight into what industries these graduates have entered after studying specific subjects.

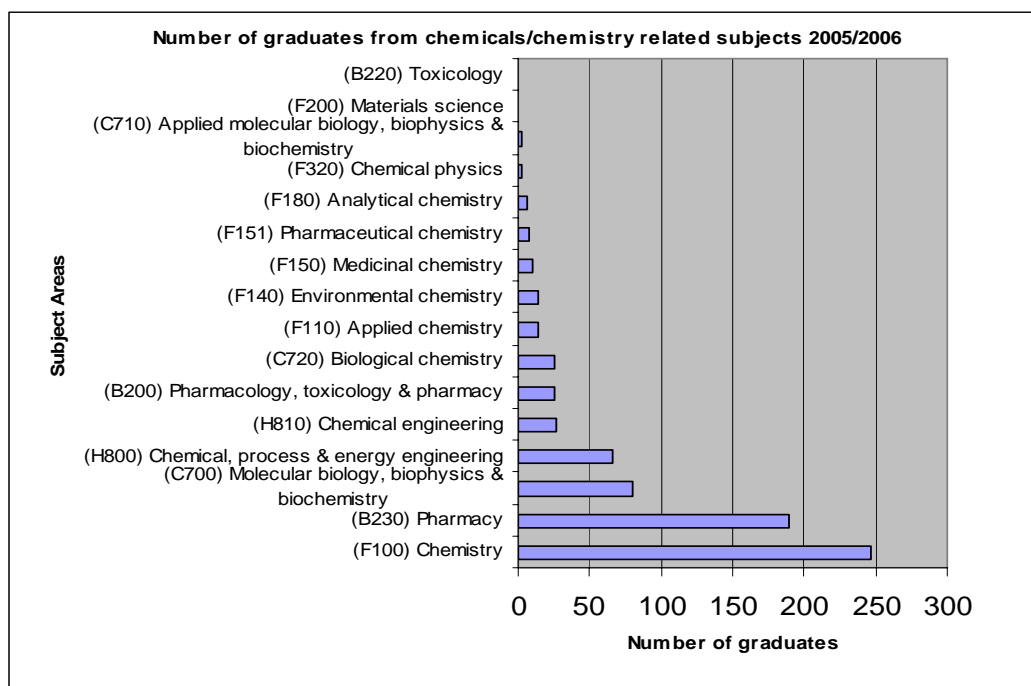
Graduates 2005/2006

In the year 2005/2006 18,140 students graduated from institutions within Scotland, in the same year 718 students graduated from Scottish universities in Subjects related to Chemicals or Chemistry¹. Chemistry related graduates make up 4% of the total number of graduates.

Graduates from subjects that are related to chemistry

Subject of study - 4 digit	Graduates
(F100) Chemistry	246
(B230) Pharmacy	189
(C700) Molecular biology, biophysics & biochemistry	80
(H800) Chemical, process & energy engineering	67
(H810) Chemical engineering	27
(B200) Pharmacology, toxicology & pharmacy	25
(C720) Biological chemistry	25
(F110) Applied chemistry	14
(F140) Environmental chemistry	14
(F150) Medicinal chemistry	10
(F151) Pharmaceutical chemistry	8
(F180) Analytical chemistry	6
(F320) Chemical physics	3
(C710) Applied molecular biology, biophysics & biochemistry	2
(F200) Materials science	2
(B220) Toxicology	1
Grand Total	718

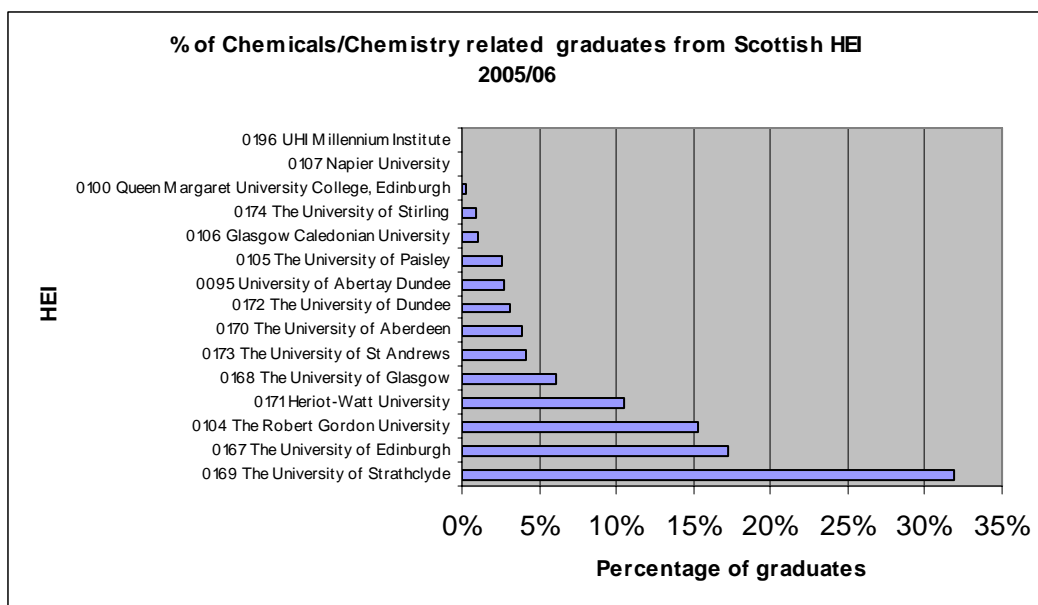
¹This range has been defined by the choice of certain subjects that were provided by HESA and were deemed to be relevant. Not all of these courses are included as some are not provided by Scottish Universities



The Higher Education Institutions that produce graduates with degrees relating to Chemistry

The tables and chart below give a breakdown of the Scottish universities that produce they most chemistry related graduates.

Institution	Graduates
0169 The University of Strathclyde	229
0167 The University of Edinburgh	124
0104 The Robert Gordon University	110
0171 Herriot-Watt University	75
0168 The University of Glasgow	44
0173 The University of St Andrews	30
0170 The University of Aberdeen	28
0172 The University of Dundee	23
0095 University of Abertay Dundee	20
0105 The University of Paisley	19
0106 Glasgow Caledonian University	7
0174 The University of Stirling	6
0100 Queen Margaret University College, Edinburgh	2
0107 Napier University	1
0196 UHI Millennium Institute	1
Grand Total	718



Study and employment Circumstances

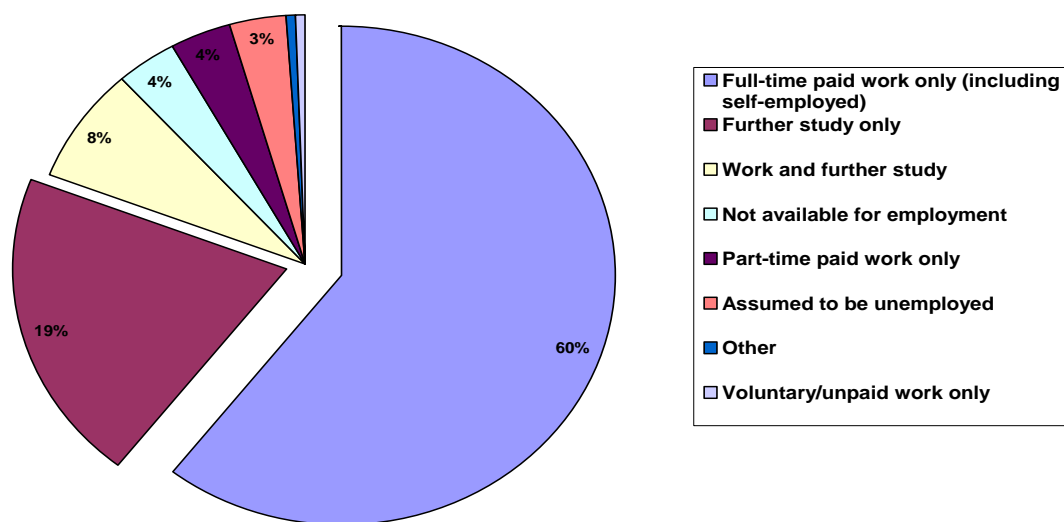
- 65% of chemistry related graduates Found Employment
- 65% of all Scottish graduates found Employment
- 19% of chemistry related graduates are taking further study
- 18% of all Scottish graduates are taking further study
- 3% of chemistry related graduates are assumed unemployed
- 5% of all Scottish graduates are assumed unemployed

Type of Employment

The table and chart below give a breakdown of the activities that the graduates are now taking part in.

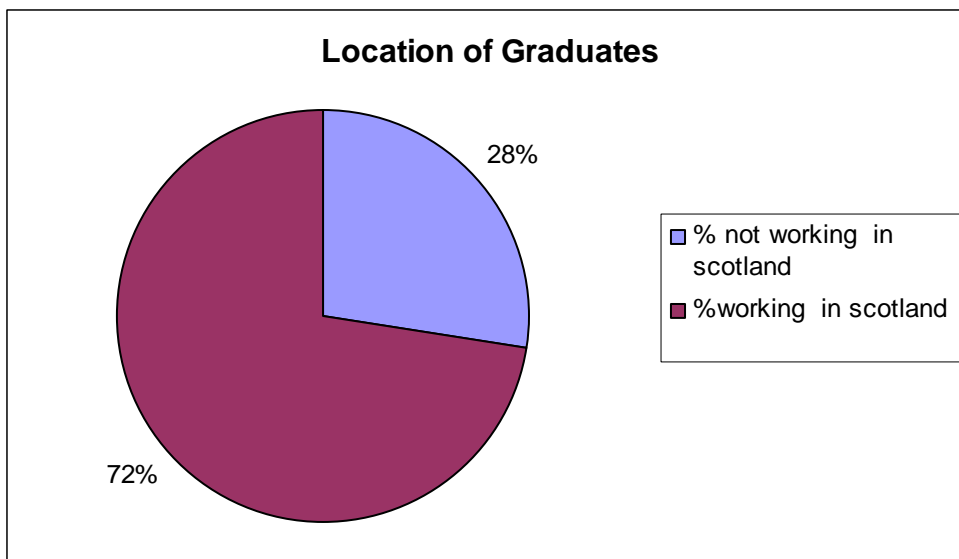
Activity	Total
Full-time paid work only (including self-employed)	435
Further study only	144
Work and further study	55
Not available for employment	27
Part-time paid work only	26
Assumed to be unemployed	23
Other	5
Voluntary/unpaid work only	4
Grand Total	718

Activity of Chemistry related graduates



Location of Graduates

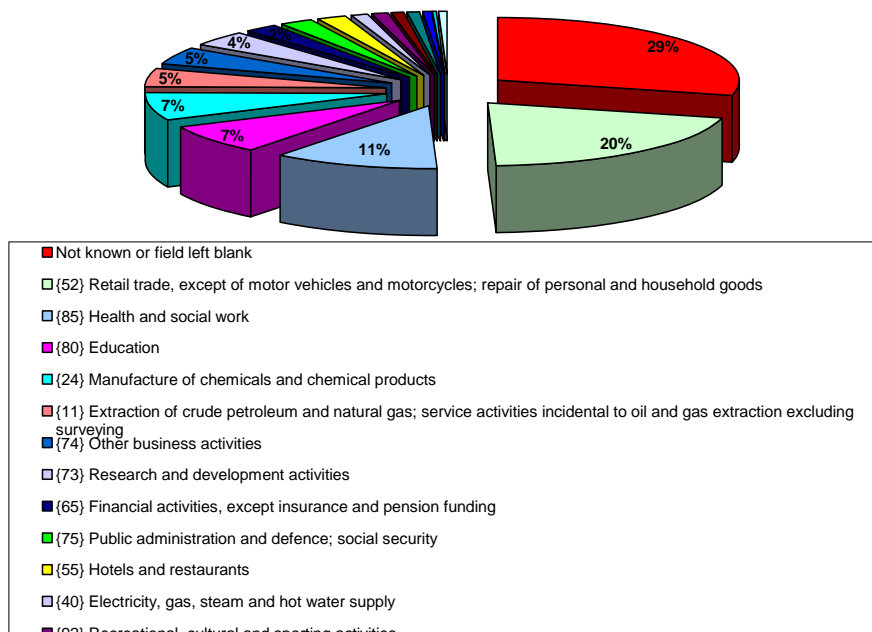
This shows the percentage of chemistry related graduates that are working within the UK



Graduate Industries

This chart outlines the different industries that chemistry related graduates have entered into. There is a large percentage of those who answered the questionnaire that left the field blank.

Sectors that employ chemicals graduates (only sectors with over 3 workers included)



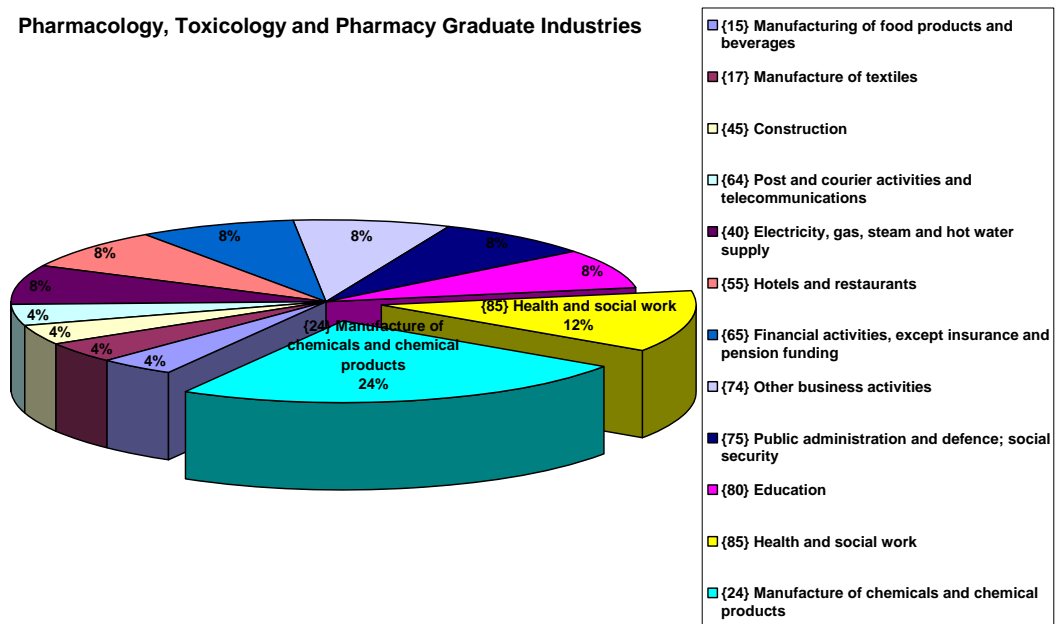
Industrial destination by Qualification

The following charts display the industries that graduates from specific chemistry related courses have entered into, to work on a full time basis.

Pharmacology, Toxicology and Pharmacy

13 people are working fulltime after graduating from pharmacology, toxicology and Pharmacy course. The chart below displays the different industries they are working within.

Pharmacology, Toxicology and Pharmacy Graduate Industries



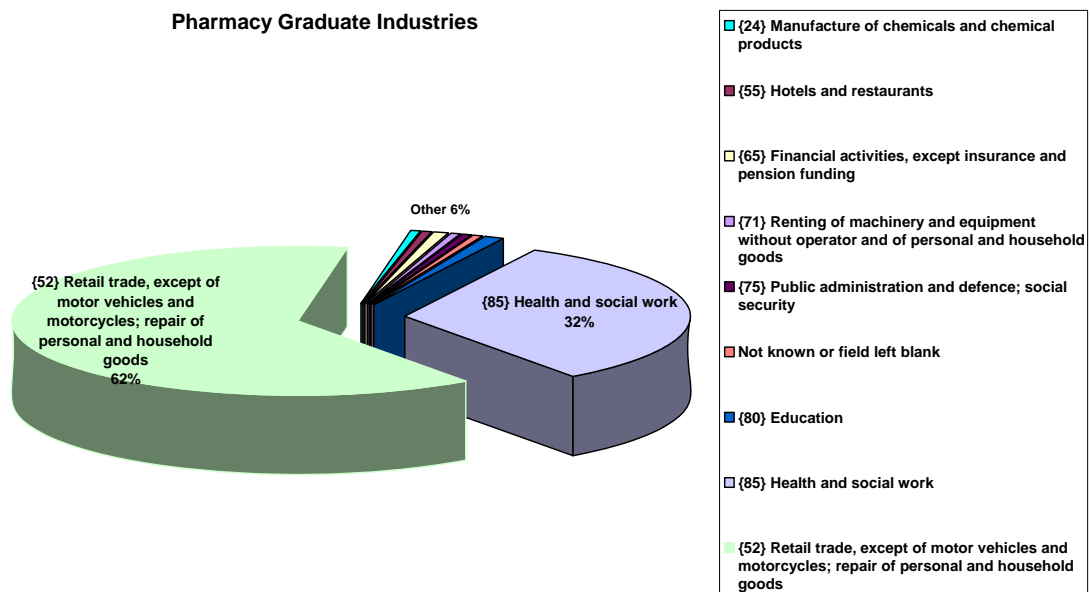
Toxicology

The one person who is in full time employment after graduating in toxicology is working in the financial activities except insurance and pensions industry.

Pharmacy

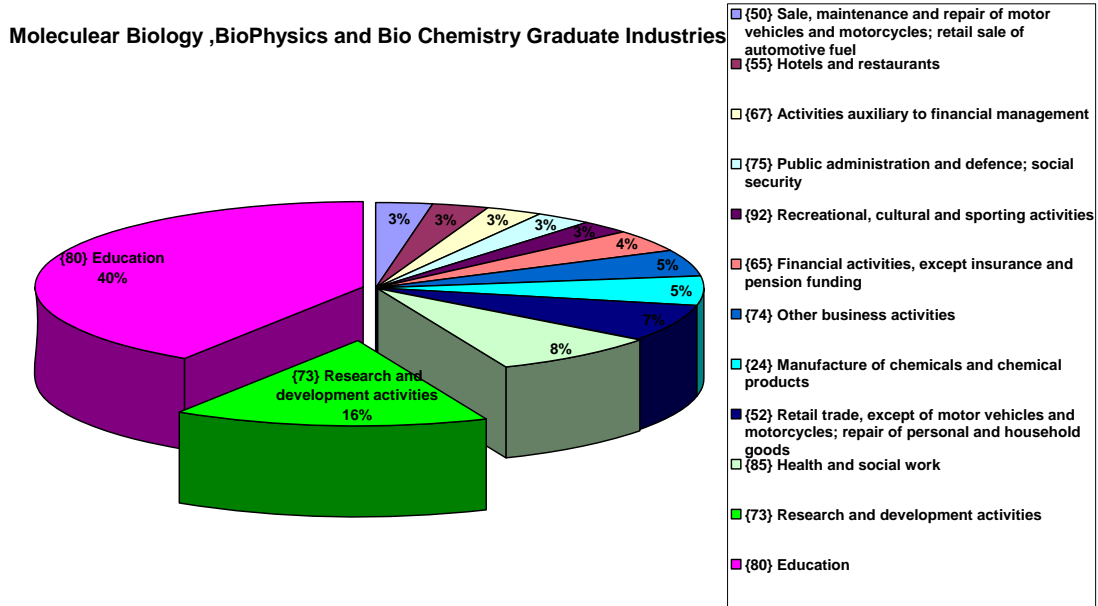
166 people are working fulltime after graduating from a Pharmacy course. The chart below displays the different industries they are working within.

Pharmacy Graduate Industries



Molecular Biology, Biophysics and Biochemistry

36 people are working fulltime after graduating from a Molecular Biology, Biophysics and Biochemistry course. The chart below displays the different industries they are working within.



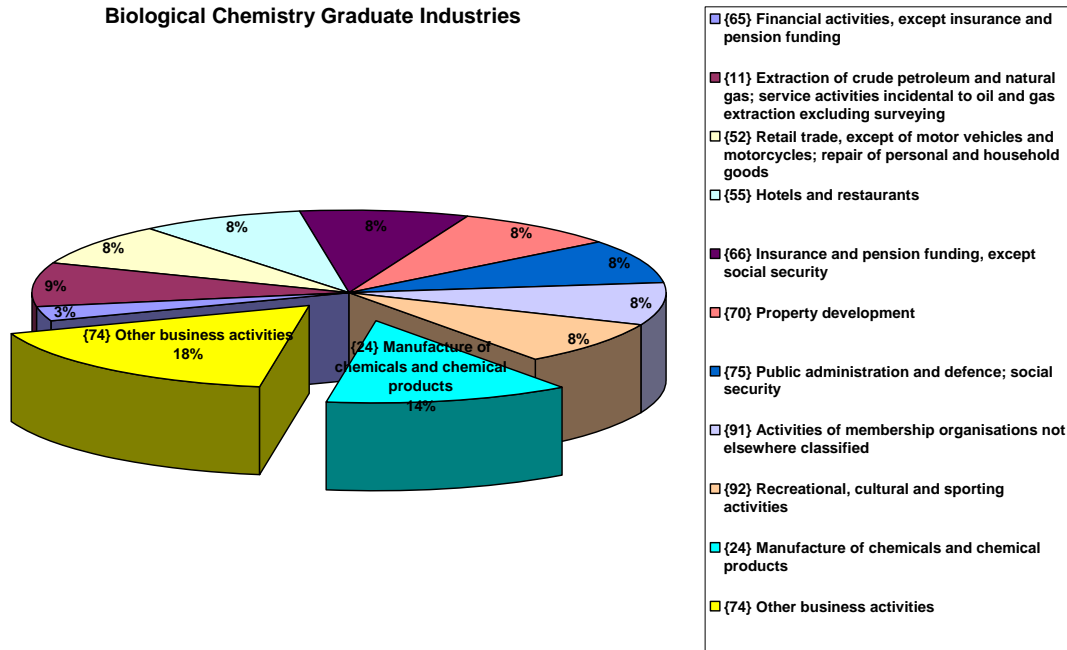
Applied Molecular Biology, Biophysics and Biochemistry

The two people who are in full time employment after graduating in Applied Molecular Biology, Biophysics and Biochemistry are working in Research and development activities and Health and social work

Biological Chemistry

12 people are working fulltime after graduating from a Biological Chemistry course. The chart below displays the different industries they are working within.

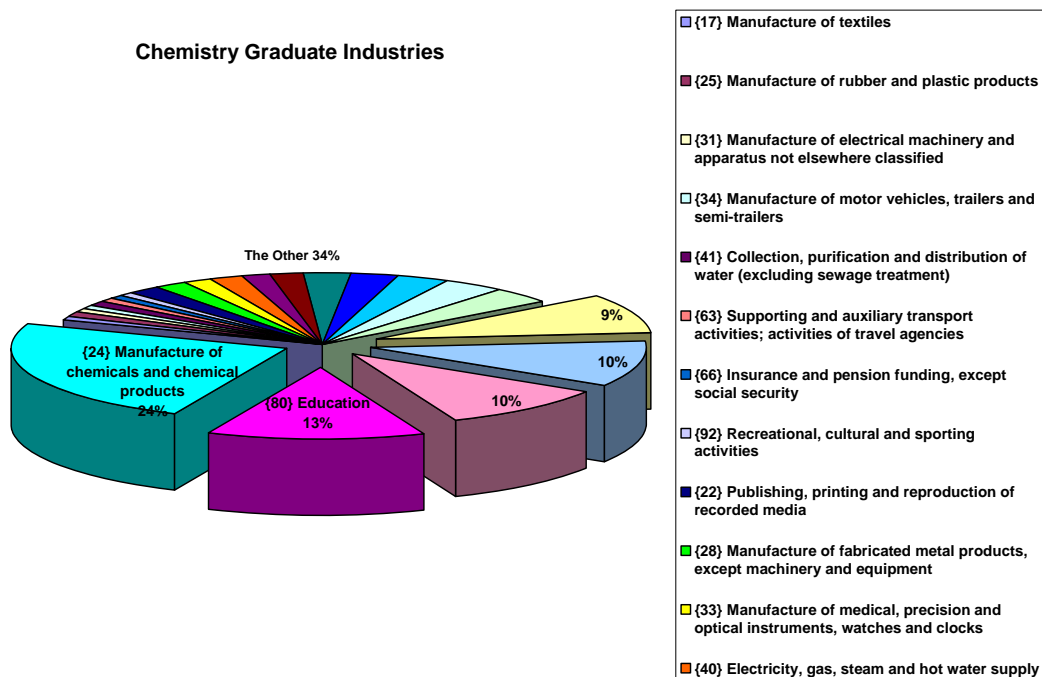
Biological Chemistry Graduate Industries



Chemistry

109 people are working fulltime after graduating from a Chemistry course. The chart below displays the different industries they are working within.

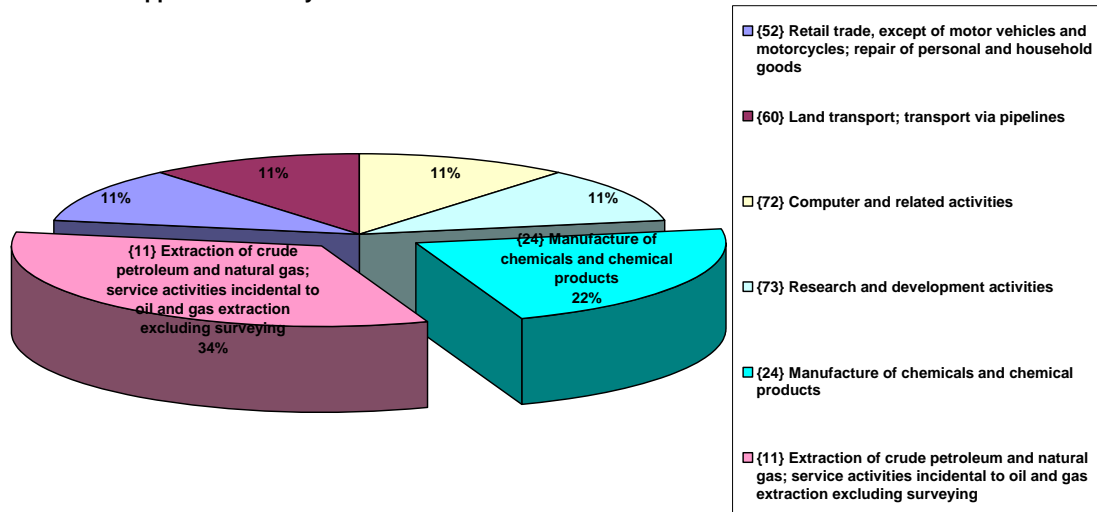
Chemistry Graduate Industries



Applied Chemistry

9 people are working fulltime after graduating from an Applied Chemistry course. The chart below displays the different industries they are working within.

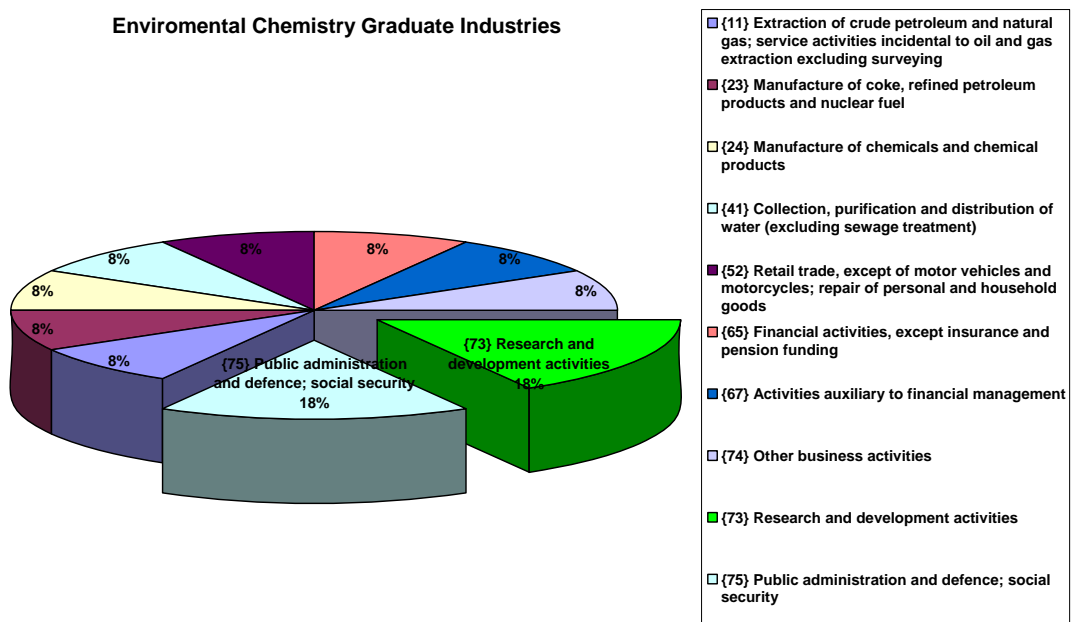
Applied Chemistry Graduate Industries



Environmental Chemistry

12 people are working fulltime after graduating from an Environmental Chemistry course. The chart below displays the different industries they are working within.

Environmental Chemistry Graduate Industries



Medicinal Chemistry

The two people who are in full time employment after graduating in Medicinal Chemistry are working in Manufacture of chemicals and chemical products and Financial activities, except insurance and pension funding

Pharmaceutical Chemistry

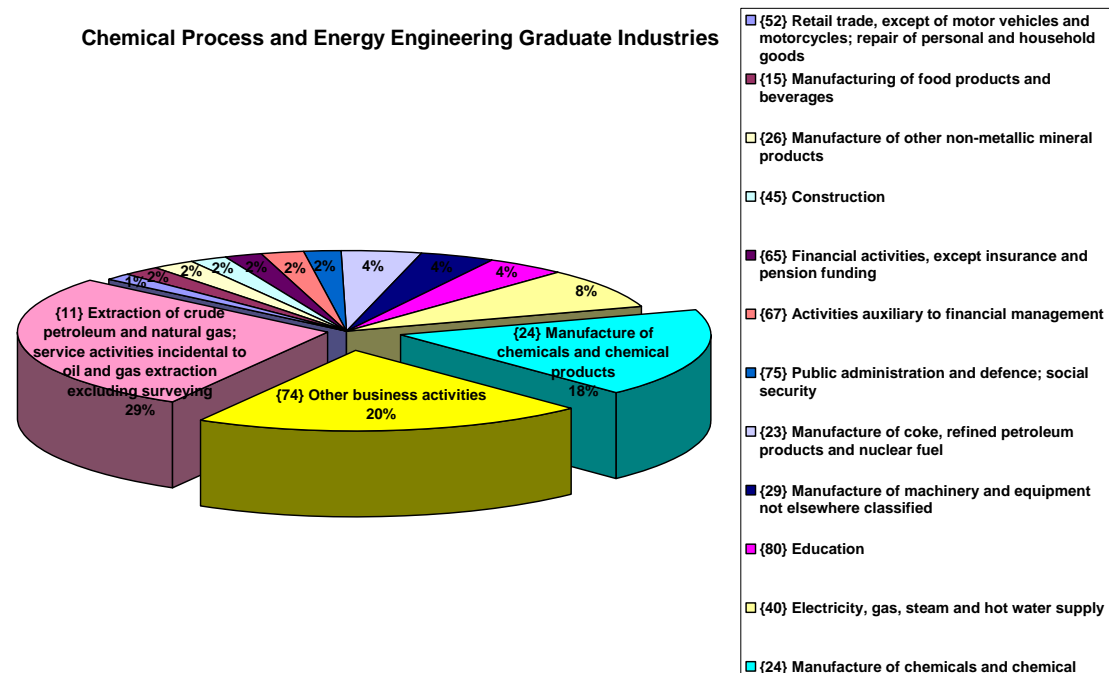
The four people who are in full time employment after graduating in Pharmaceutical Chemistry are working in Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction excluding surveying, Manufacture of chemicals and chemical products, Financial activities, except insurance and pension funding and Research and development activities

Analytical Chemistry

The six people who are in full time employment after graduating in Pharmaceutical Chemistry are working in mainly in the extraction of crude petroleum and natural gas; services activities incidental to oil and gas extraction excluding surveying.

Chemical Process and Energy Engineering

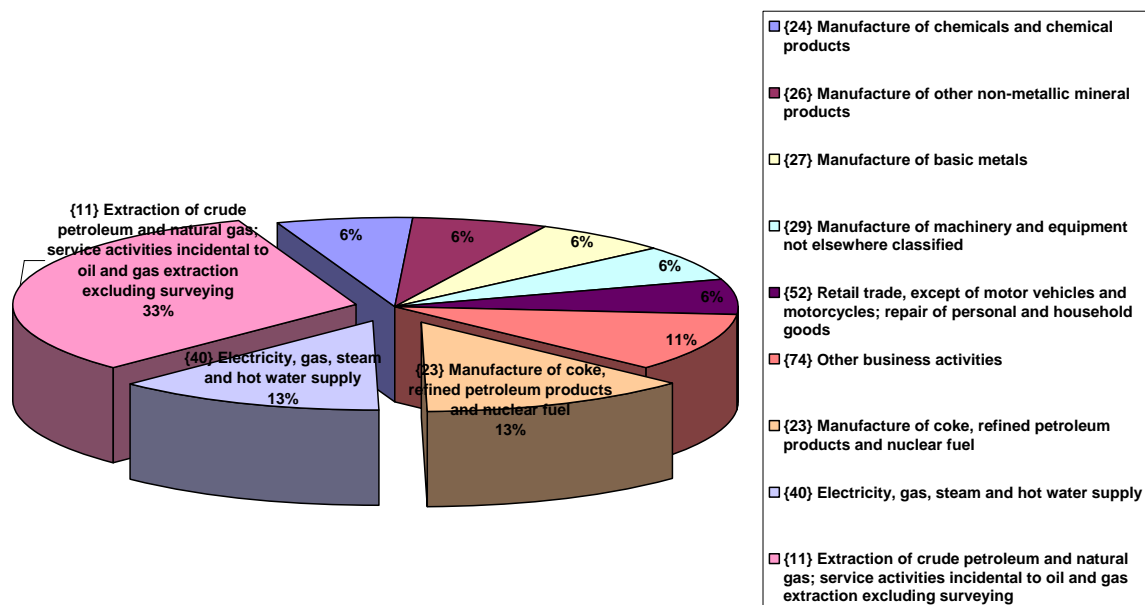
49 people are working fulltime after graduating from a chemical process and energy engineering course. The chart below displays the different industries they are working within.



Chemical Engineering

16 people are working fulltime after graduating from a Chemical Engineering course. The chart below displays the different industries they are working within.

Chemical Engineering Graduate Industries

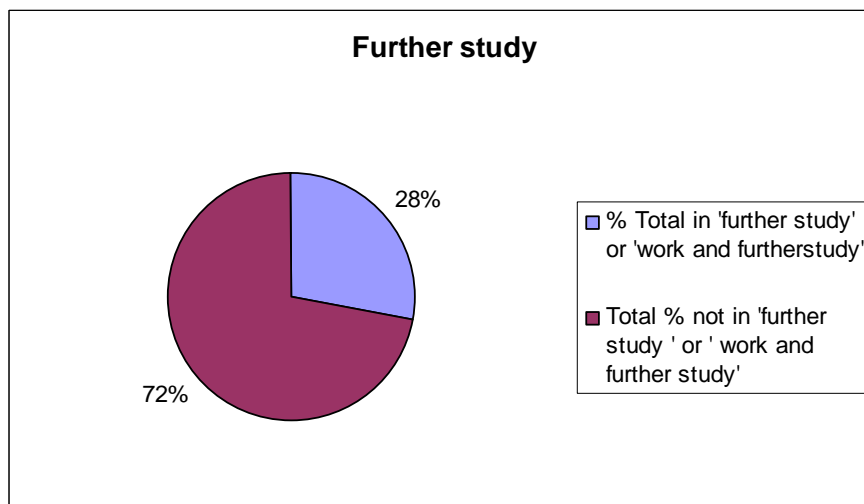


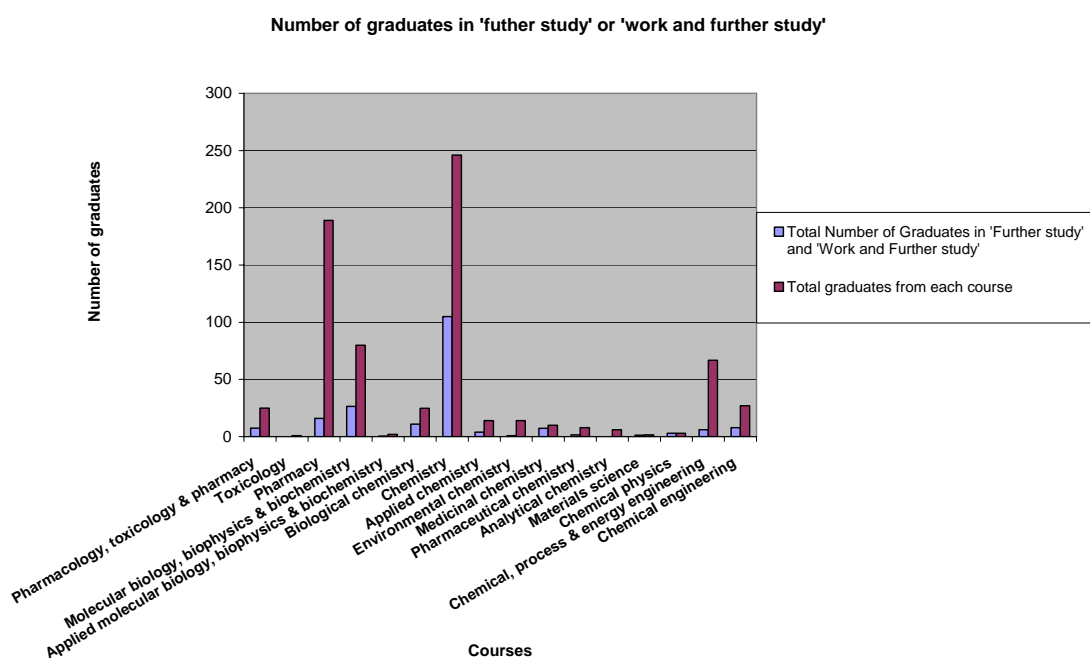
Part time Workers

Part Time work has not been included in this analysis as it would seem that a lot of the results are biased the highest industries being retail and trade and recreational and sports activities. These would appear to be jobs not relating to chemistry the data can be found in the Excel spreadsheet referenced at the end of this document.

Work and further study

- 28% of the those students graduating form chemistry related subjects have gone into further study or work and further study.





Further Analysis

The data that has been gathered from HESA could be used further in a number of different ways.

For example

- The Institution where the graduate studied and the industry they entered
- Industry entered and geographical location
- Further study and institution studied in
- Course studied and further study

These are just a few examples of the data that could be available using the Indicators Institution, Location, Industry and Qualification.

Appendix

The statistics in the SFR are derived by HESA from the data collected from all publicly funded higher education institutions (HEIs) in the UK (including the open university) and from the university of Buckingham which is privately funded. The figures exclude HE qualifications obtained by students at further education colleges and other private and independent HE colleges.

The Hesa DLHE target population contains all UK and European domiciled HE students for whom destinations data is expected and sought. The figures based in the SFR are based on information obtained by institutions and returned to Hesa.

Definitions

Qualifications

Relevant qualification for inclusion in the 2005/2006 DLHE return are postgraduate degrees, postgraduate diplomas and certificates, Postgraduate Certificates in Education (PGCE), first degrees (excluding intercalated degrees), Diplomas of Higher Education (DipHE), Certificates of Higher Education (CertHe), foundation degrees, Higher national diplomas (HND) OR Higher national Certificate (HNC).

Principal Subjects

The 19 broad subjects are disaggregated into 159 principal subjects. Similarly to above; the following rules are used to determine the principal subject:

For split programmes not involving an initial teacher training (ITI) component the apportionment algorithm is as follows:

50%:50% for a balance two way split;
66.667%:33.333% for a major/minor two way split;
33.333%:33.333%:33.333% for a balanced three way split .

Specific courses chosen

B200,B220,C700,C710,C720,C730,C740,D635,D720,D721,F100 UP TO
F290,F320,H800,H810,H811,H830,H890,J160,J421

It is possible that some of the subjects are undercounted as the level of data supplied by UCAS to institutions for the HESA returns is not fully representative of student numbers in subjects below Principal subject level at this time. In simple terms this may mean that some students studying a specific 4 digit subject have actually been classified at a higher level grouping.

Appendix Two: Rounding Strategy²

Due to the provisions of the Data Protection Act 1998 and the Human Rights Act 1998, HESA implements a strategy in published and released tabulations designed to prevent the disclosure of personal information about any individual. These tabulations are derived from the HESA non-statutory populations³ and may differ slightly from those published by related statutory bodies. This strategy involves rounding all numbers to the nearest multiple of 5. A summary of this strategy is as follows:

- 0, 1, 2 are rounded to 0
- All other numbers are rounded to the nearest multiple of 5

So for example 3 is represented as 5, 22 are represented as 20, 3,286 are represented as 3,285 while 0, 20, 55, 3,510 remain unchanged.

This rounding strategy is also applied to total figures, the consequence of which is that the sum of numbers in each row or column rarely matches the total shown precisely. Note that subject level data calculated by apportionment will also be rounded in accordance with this strategy.

Average values, proportions and FTE values prepared by HESA are not usually affected by the above strategy, and are calculated on precise raw numbers. However, percentages calculated on populations which contain 52 or fewer individuals will be suppressed and represented as '.' as will averages based on populations of 7 or fewer.

Sources

For any further information on how the data is collected - www.hesa.ac.uk

The original download is also available for any further manipulation
S:\Teams\Strategy Planning and Research\Student Placement\2007\HESA raw chem

An Excel Document which holds the relevant charts and tables called data analysis -
S:\Teams\Strategy Planning and Research\Student Placement\2007\Chemicals Hesa data\HESA

² <http://www.hesa.ac.uk/holisdocs/pubinfo/destinations/dlhedefs0405.htm>

³ Non-statutory populations omit any contribution from individuals who have notified HESA of their wish to be excluded in circumstances such as the publication of the present volume where inclusion is not defined as a requirement by the bodies whose statutory powers underpin HESA data collections.