

Digest of

Statistics of Chemistry Education

2008

Royal Society of Chemistry

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INTRODUCTION

This material is produced by the Royal Society of Chemistry's Education Department in response to frequent demands for up-to-date statistical information on chemical education. The first edition was published in 1992 and the material is now published at www.chemsoc.org/networks/learnnet/statistics.htm where it can be updated more frequently than a hard copy could be.

It is intended primarily for those who advise young people on courses and careers in chemistry. It is also relevant to those with an interest in chemistry as a subject.

The data included are those considered to be the most relevant and reliable and are not intended to be comprehensive. Other subjects are included to place the chemistry statistics in perspective. N/A indicates not yet available.

The Society thanks the many organisations and professional bodies that helped in supplying these statistics.

Statistics on a whole range of educational contexts can be found at www.dfes.gov.uk/rsgateway/index.shtml.

The following organisations also provide data relevant to this digest:

ONS: Office of National Statistics (www.statistics.gov.uk) Data applies to the UK

QCA: The Qualifications and Curriculum Authority (www.qca.org.uk)

JCQ: The Joint Council for Qualifications (www.jcq.org.uk)

UCAS: Universities and Colleges Admissions Service (www.ucas.com)

HESA: Higher Education Statistics Agency (www.hesa.ac.uk)

SQA: Scottish Qualifications Authority (www.sqa.org.uk)

GTTR: Graduate Teacher Training Registry (www.gttr.ac.uk)

GENERAL CERTIFICATE OF SECONDARY EDUCATION

For students in maintained schools in England, Wales and Northern Ireland, it is a legal requirement to study either Single Award Science or Double Award Science or Biology and Chemistry and Physics. The only exception is when dis-application is sanctioned by the Secretary of State. In independent schools the same situation is the norm. The data below therefore applies to students in England, Wales and Northern Ireland.

The number of entries for GCSE **double** award science has **increased** since 1996. This means that the number and proportion of students studying some chemistry to age 16 has **increased**. The figures given below are the total number of entries for GCSE, irrespective of age.

Number of GCSE Entries

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	46924	45797	46275	46968	46917	46862	47068	48802	51225	53428	56764	59219	76656
Physics	46452	44892	45687	46685	46627	46477	46511	47953	50404	52568	56035	58391	75383
Biology	61158	47743	49267	47957	48715	48958	49171	51156	53389	56522	60082	63208	85521
Double Science	468652	464761	475232	474405	489913	509242	511871	519575	527017	494450	479789	478028	8433
Single Science	77067	75968	71006	68670	66036	66702	68393	71184	74095	89348	96374	98485	4445
Science*	-	-	-	-	-	-	-	-	-	-	-	57316	537316
Additional** Science	-	-	-	-	-	-	-	-	-	-	-	-	433468
Total Entries for Science***	592171	585621	591925	589760	602576	622421	626741	638712	651516	636366	632198	692220	625577

GENERAL CERTIFICATE OF EDUCATION - ADVANCED LEVEL

The figures given below are the total number of entries for GCE A Level in the UK, irrespective of age. However, it should be noted that the majority of entries will be students in England, Wales and Northern Ireland.

Number of A-level Entries

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	40418	42262	41893	40920	40261	38602	36648	36110	37254	38851	40064	40285	41680
Physics	33033	33243	34209	33880	31794	30701	31543	30583	28698	28119	27368	27466	28096
Biology	52053	56706	58439	56036	54650	52647	52132	51716	52264	53968	54890	54563	56010
Maths	67072	68880	69919	69945	65836	66247	53940	55917	58508	58830	63252	67965	73684
English	87343	95223	95316	90340	86562	76808	72196	78746	81649	85858	86640	85275	89111
French	27487	25881	23923	21072	18341	17939	15614	15531	15149	14484	14650	14477	14885
Business Studies	29085	33458	37644	37926	36201	36834	27680	33133	32253	30719	30648	30193	31025
Total Entries in all Subjects	740470	777710	794262	783692	774364	748866	701380	750537	766247	783878	805698	805657	827737

The above figures have been translated into the following table showing the A-level entries as a percentage of the total number of entries.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	5.5	5.4	5.3	5.2	5.2	5.2	5.2	4.8	4.9	4.9	5.0	5.0	5.0
Physics	4.5	4.3	4.3	4.3	4.1	4.1	4.5	4.1	3.7	3.6	3.4	3.4	3.4
Biology	7.0	7.3	7.4	7.2	7.1	7.0	7.4	6.9	6.8	6.9	6.8	6.8	6.8
Maths	9.1	8.8	8.8	8.9	8.5	8.8	7.7	7.5	7.6	7.5	7.9	8.4	8.9
English	11.8	12.2	12.0	11.5	11.2	10.3	10.3	10.5	10.7	11.0	10.8	10.6	10.8
French	3.7	3.3	3.0	2.7	2.4	2.4	2.2	2.1	2.0	1.9	1.8	1.8	1.8
Business Studies	3.9	4.3	4.7	4.8	4.8	4.9	3.9	4.4	4.2	3.9	3.8	3.7	3.7

The table below shows the A-level entries as a percentage of the 18-year old population (number of 18-year olds taken from the Government Actuary Department 2000 and 2006-based population projection)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
18-year-old population (000's)	729	738	738	768	777	792	810	797	809
Chemistry	5.5	5.2	5.0	4.7	4.8	4.9	4.9	5.1	5.2
Physics	4.4	4.2	4.3	4.0	3.7	3.6	3.4	3.4	3.5
Biology	7.5	7.1	7.1	6.7	6.8	6.8	6.8	6.8	6.9
Maths	9.0	9.0	7.3	7.3	7.6	7.4	7.8	8.5	9.1
English	11.9	10.4	9.8	10.3	10.5	10.8	10.7	10.7	11.0
French	2.5	2.4	2.1	2.0	2.0	1.8	1.8	1.8	1.8
Business Studies	5.0	5.0	3.8	4.3	4.2	3.9	3.8	3.8	3.8

Overleaf is a table of data showing the number of entries and passes for the period 1965-2008. The data are not available for some years in the 1980s.

Chemistry A Level Entries and Passes 1965-2008

Year	Number of entries	Number of passes	% of passes
1965	32,017	21,810	68.1
1966	31,314	21,582	68.9
1967	31,023	20,966	67.6
1968	30,883	20,971	67.9
1969	29,722	20,475	68.9
1970	30,770	21,437	69.7
1971	31,963	22,158	69.3
1972	32,371	23,736	73.3
1973	33,598	23,782	70.8
1974	33,656	23,741	70.5
1975	33,637	23,828	70.8
1976	34,558	24,508	70.9
1977	39,948	27,948	70.0
1978	39,651	18,079	45.6
1979	41,857	30,086	71.9
1980	42,973	30,797	71.7
1981	44,850	32,592	72.7
1982	47,035	34,557	73.5
1983	47,792	35,417	74.1
1984	48,068	35,712	74.3
1985	40,337	34,650	85.9
1986	38,770		
1987	38,078		

1988	43,314		
1989	44,593		
1990	46,197	35,550	77.0
1991	44,440	34,579	77.8
1992	42,967	34,343	79.9
1993	40,975	32,719	79.9
1994	41,231	33,456	81.1
1995	42,293	34,689	82.0
1996	40,418	34,878	86.3
1997	42,262	37,199	88.0
1998	41,893	37,317	89.1
1999	40,920	37,126	90.7
2000	40,261	36,782	91.4
2001	38,602	33,468*	86.7
2002	36,648	31,883*	87.0
2003	36,110	34,341*	95.1
2004	37,254	35,689*	95.8
2005	38,851	37,142*	95.6
2006	40,064	38,502*	96.1
2007	40,285	38,835*	96.4
2008	41,680	40,222*	96.5

* These numbers were calculated using the fact that a certain percentage was reported as having passed and therefore cannot be quoted as exact figures.

CURRICULUM 2000 ADVANCED SUBSIDIARY EXAMINATIONS

As of 2001, Curriculum 2000 came into effect in England, Wales and Northern Ireland, with the first students taking Advanced Subsidiary (AS) examinations and then A2 examinations to complete a full A level in 2002. The figures below represent the total number of entries for AS examinations.

This data should be treated with caution as not all students will have claimed their award either because they may wish to retake or so they do not have to list the result on their UCAS application form.

Number of AS entries

	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	39058	45605	46586	48166	49951	50855	52835	54157
Physics	33254	38996	36921	36700	35828	36258	37323	38129
Biology	57261	67295	67845	70035	71346	72246	73572	72239
Maths	57677	67268	67212	66078	68178	70805	77387	84613
English	77856	93504	96428	99690	100515	99591	104222	106184
French	19618	22377	21663	20514	20913	20321	20747	19167
Business Studies	36655	42968	43891	40823	40696	40378	40681	42452
Total Entries in all Subjects	794117	995404	1030919	1039379	1079566	1086634	1114424	1128150

The above figures have been translated into the table on the following page showing the AS entries as a percentage of the total entries.

	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	4.9	4.6	4.5	4.6	4.6	4.7	4.7	4.8
Physics	4.2	3.9	3.6	3.5	3.3	3.3	3.3	3.4
Biology	7.2	6.8	6.6	6.7	6.6	6.6	6.6	6.4
Maths	7.3	6.8	6.5	6.4	6.3	6.5	6.9	7.5
English	9.8	9.4	9.4	9.6	9.3	9.2	9.4	9.4
French	2.5	2.2	2.1	2.0	1.9	1.9	1.9	1.7
Business Studies	4.6	4.3	4.3	3.9	3.8	3.7	3.7	3.8

These figures should not be directly compared with those previously given for A level since some of the students will not take AS levels as a separate exam. In addition the norm is now 4 AS levels compared to a 3 A level package in the first year of post-16 study pre Curriculum 2000.

SCOTTISH HIGHER GRADES

(Note: the decreasing trend in entries for biology does not take into account the increasing number of students taking the new Human Biology course.)

Number of Higher Grade entries

	1994	1995	1996	1997	1998	1999	2000	2001
Chemistry	12108	11651	11880	11876	11072	10489	10103	9923
Physics	12464	11951	12225	11680	11449	10560	10029	10039
Biology	12739	12137	11979	11921	11347	10729	9863	9352
Maths	19751	20262	20375	20469	20221	20038	20782	20779
English*	34271	33955	34441	34989	34160	33551	32535	28950
Total entries in all subjects	160602	160925	164701	167233	163807	160908	163239	161074

* Title changed from 'English and Communications' to English in 2003.

	2002	2003	2004	2005	2006	2007	2008
Chemistry	9560	9292	9271	9405	9128	9489	9500
Physics	9580	9489	9286	8951	8565	8580	8762
Biology	9274	8920	8852	8941	8995	9169	9130
Maths	19790	19966	19394	19173	18533	18786	19633
English*	29379	29624	28873	28678	27004	27750	27178
Total entries in all subjects	164473	166885	165575	164053	158053	160988	162502

The above figures have been translated into the following table showing the Higher entries as a percentage of the total number of entries.

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Chemistry	7.5	7.2	7.2	7.1	6.8	6.5	6.2	6.1	5.8
Physics	7.8	7.4	7.4	7.0	7.0	6.6	6.1	6.2	5.8
Biology	7.9	7.5	7.3	7.1	6.9	6.7	6.0	5.6	5.7
Maths	12.3	12.6	12.4	12.2	12.3	12.5	12.3	12.2	12.1
English	21.3	21.1	20.9	20.9	20.9	20.9	19.9	18.1	17.6

	2003	2004	2005	2006	2007	2008
Chemistry	5.6	5.6	5.7	5.8	5.9	5.8
Physics	5.7	5.6	5.5	5.4	5.3	5.4
Biology	5.3	5.3	5.5	5.7	5.7	5.6
Maths	12	11.7	11.7	11.7	11.7	12.1
English	17.8	17.4	17.5	17.1	17.2	16.7

Scottish Higher Passes

	1994	1995	1996	1997	1998	1999	2000	2001
Chemistry	8732	8399	8544	8481	7947	7562	7383	7222
Physics	8358	8169	8393	8059	8102	7426	7048	7518
Biology	8225	7981	7898	7742	7250	7066	6412	6217
Maths	13292	13574	13692	13888	13809	13781	14796	14559
English*	23473	23178	23314	23946	22910	22642	22610	20750
Total entries in all subjects	110259	111826	114029	116784	115096	114149	120481	119954

	2002	2003	2004	2005	2006	2007	2008
Chemistry	6871	6812	6831	7169	6858	7239	7347
Physics	7008	7050	6856	6685	6284	6264	6496
Biology	6157	6194	6725	6385	6198	6218	6417
Maths	13055	13473	13284	13229	12706	13154	14063
English*	19695	18434	19153	19580	17305	18009	18567
Total entries in all subjects	119248	120277	121125	120616	111963	115403	119331

Scottish Higher Chemistry Entries and Passes 1986-2008

	Number of entries	Number of passes	% of passes
1986	14751	10074	68.3
1987	13902	9567	68.8
1988	13880	9412	67.8
1989	13524	9249	68.4
1990	12128	8347	68.8
1991	11650	8135	69.8
1992	11817	8340	70.6
1993	12092	8488	70.2
1994	12108	8732	72.1
1995	11651	8399	72.1
1996	11880	8544	71.9
1997	11876	8481	71.4
1998	11072	7947	71.8
1999	10489	7562	72.1
2000	10103	7383	73.1
2001	9923	7222	72.8
2002	9560	6871	71.9
2003	9292	6812	73.3
2004	9271	6831	73.7
2005	9405*	7619	76.2
2006	9128	6858	75.1
2007	9489	7239	76.3
2008	9500	7347	77.3

*this figure is not consistent across the statistics spreadsheets on the SQA website (in previous data it is shown as 9411) however the % of passes is the same

SCOTTISH HIGHER GRADES

(Note: the decreasing trend in entries for biology does not take into account the increasing number of students taking the new Human Biology course.)

Number of Higher Grade entries

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	12,108	11,651	11,880	11,876	11,072	10,489	10,103	9,923	9,560	9,292	9,271	9,405	9,128	9,489	9,500
Physics	12,464	11,951	12,225	11,680	11,449	10,560	10,029	10,039	9,580	9,489	9,286	8,951	8,565	8,580	8,762
Biology	12,739	12,137	11,979	11,921	11,347	10,729	9,863	9,352	9,274	8,920	8,852	8,941	8,995	9,169	9,130
Maths	19,751	20,262	20,375	20,469	20,221	20,038	20,782	20,779	19,790	19,966	19,394	19,173	18,533	18,786	19,633
English*	34,271	33,955	34,441	34,989	34,160	33,551	32,535	28,950	29,379	29,624	28,873	28,678	27,004	27,750	27,178
Total entries in all subjects	160,602	160,925	164,701	167,233	163,807	160,908	163,239	161,074	164,473	166,885	165,575	164,053	158,053	160,988	162,502

* Title changed from 'English and Communications' to English in 2003.

The above figures have been translated into the following table showing the Higher entries as a percentage of the total number of entries.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	7.5	7.2	7.2	7.1	6.8	6.5	6.2	6.1	5.8	5.6	5.6	5.7	5.8	5.9	5.8
Physics	7.8	7.4	7.4	7.0	7.0	6.6	6.1	6.2	5.8	5.7	5.6	5.5	5.4	5.3	5.4
Biology	7.9	7.5	7.3	7.1	6.9	6.7	6.0	5.6	5.7	5.3	5.3	5.5	5.7	5.7	5.6
Maths	12.3	12.6	12.4	12.2	12.3	12.5	12.3	12.2	12.1	12.0	11.7	11.7	11.7	11.7	12.1
English	21.3	21.1	20.9	20.9	20.9	20.9	19.9	18.1	17.6	17.8	17.4	17.5	17.1	17.2	16.7

Scottish Higher Passes

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	8,732	8,399	8,544	8,481	7,947	7,562	7,383	7,222	6,871	6,812	6,831	7,169	6,858	7,239	7,347
Physics	8,358	8,169	8,393	8,059	8,102	7,426	7,048	7,518	7,008	7,050	6,856	6,685	6,284	6,264	6,496
Biology	8,225	7,981	7,898	7,742	7,250	7,066	6,412	6,217	6,157	6,194	6,725	6,385	6,198	6,218	6,417
Maths	13,292	13,574	13,692	13,888	13,809	13,781	14,796	14,559	13,055	13,473	13,284	13,229	12,706	13,154	14,063
English*	23,473	23,178	23,314	23,946	22,910	22,642	22,610	20,750	19,695	18,434	19,153	19,580	17,305	18,009	18,567
Total entries in all subjects	110,259	111,826	114,029	116,784	115,096	114,149	120,481	119,954	119,248	120,277	121,125	120,616	111,963	115,403	119,331

Scottish Higher Chemistry Entries and Passes 1986-2008

	Number of entries	Number of passes	% of passes
1986	14,751	10,074	68.3
1987	13,902	9,567	68.8
1988	13,880	9,412	67.8
1989	13,524	9,249	68.4
1990	12,128	8,347	68.8
1991	11,650	8,135	69.8
1992	11,817	8,340	70.6
1993	12,092	8,488	70.2
1994	12,108	8,732	72.1
1995	11,651	8,399	72.1
1996	11,880	8,544	71.9
1997	11,876	8,481	71.4
1998	11,072	7,947	71.8
1999	10,489	7,562	72.1
2000	10,103	7,383	73.1
2001	9,923	7,222	72.8
2002	9,560	6,871	71.9
2003	9,292	6,812	73.3
2004	9,271	6,831	73.7
2005	9,405*	7,619	76.2
2006	9,128	6,858	75.1
2007	9,489	7,239	76.3
2008	9,500	7,347	77.3

*this figure is not consistent across the statistics spreadsheets on the SQA website (in previous data it is shown as 9,411) however the % of passes is the same

THE POPULARITY OF CHEMISTRY DEGREES

The number of applicants and acceptances for 1996-2005 are combined under the UCAS scheme. Under this scheme each applicant may make a maximum of up to six different courses/institutions.

The number of acceptances includes both accepted applicants (i.e. applicants who were made one or more offers and who accepted one such offer) and those who accepted places offered through clearing. This explains how the number of acceptances can be higher than the number of applications.

Further information can be found on the UCAS website www.ucas.co.uk.

Applications to UCAS for Chemistry Degrees

	UK domiciled	EU	Other overseas	Total	Total (all subjects)	% due to chemistry
1996	3612	169	129	3910	418400	0.93
1997	3674	176	127	3977	458781	0.87
1998	3571	140	122	3833	446457	0.86
1999	3256	184	135	3575	442931	0.81
2000	2966	116	127	3209	442028	0.73
2001	2846	96	155	3097	453833	0.68
2002	2623	82	155	2860	461365	0.62
2003	2434	95	184	2713	476467	0.57
2004	2563	123	206	2892	486028	0.60
2005	2815	119	240	3174	522155	0.61
2006	2894	130	198	3222	506304	0.64
2007	3166	175	248	3589	534495	0.67
2008	3399	194	278	3871	588689	0.66

Acceptances for Chemistry Degrees

	UK domiciled	EU	Other overseas	Total	Total (all subjects)	% due to chemistry
1996	3818	195	97	4110	273032	1.51
1997	4003	215	94	4312	308236	1.40
1998	3731	154	95	3980	302683	1.31
1999	3452	160	108	3720	307677	1.21
2000	3083	126	103	3312	311635	1.06
2001	2887	67	105	3059	329218	0.93
2002	2836	77	132	3045	344581	0.88
2003	2754	97	191	3042	355531	0.86
2004	2790	92	198	3080	362985	0.85
2005	3191	106	189	3486	405369	0.86
2006	3267	123	207	3597	390890	0.92
2007	3525	164	208	3897	413430	0.94
2008	3627	154	248	4029	456627	0.88

Gender Breakdown for Chemistry (for total Acceptances)

Year	% Male	% Female
2008	58	42
2007	58	42
2006	59	41
2005	60	40
2004	59	41
2003	57	43
2002	57	43
2001	57	43
2000	56	44
1999	58	42
1998	60	40
1997	62	38
1996	63	37

GRADUATE QUALIFICATIONS IN CHEMISTRY

	DEGREE AWARDS			Total of UK domiciled graduates in chemistry	Total of all graduates in chemistry
	<i>University</i>	CNA A	GRSC Part II		
1981	2159	428	271	2858	-
1982	2210	381	260	2851	-
1983	2399	346	291	3036	-
1984	2415	439	313	3167	-
1985	2254	627	277	3158	-
1986	2123	651	341	3115	-
1987	2204	732	339	3275	-
1988	2073	713	295	3081	-
1989	2005	731	245	2981	-
1990	2210	795	229	3234	-
1991	2332	1028	141	3501	-
1992	2499	1134	127	3760	-
1993	3772*		54	3826*	-
1994	3853*		40	3893*	-
1995	3846		6	3852	-
1996	3879		-	3879	4144
1997	3514		-	3514	3753
1998	3081		-	3081	3393
1999	N/A		-	N/A	3624
2000	N/A		-	N/A	3420
2001	N/A		-	N/A	3285
2002	N/A		-	N/A	3215

	DEGREE AWARDS		Total of UK domiciled graduates in chemistry	Total of all graduates in chemistry
2003	N/A	-	2760	2950
2004	N/A	-	2550	2725
2005	N/A	-	2530	2710
2006	N/A	-	2335	2530
2007	N/A	-	2435	2680
2008				

The last CNAAs were awarded in the summer of 1992.

From 1991, GRSC was offered as a joint award with BSc in some institutions (individuals are only counted once). The last GRSC Part II awards were in 1995. The figures for 1998 onwards should subsequently be viewed with caution due to the unknown but increasing proportion of students studying for MChem or MSci courses.

* These figures are estimates as no complete figures are available.

CHEMISTRY AT HIGHER DEGREE

When chemistry is compared to other subjects it is found to be one of the most commonly studied subjects at higher degree level. However, growth in postgraduate studies has been rapid in some other disciplines, which has led to a reduction in the proportion of all higher degrees that are in chemistry.

'Higher degree' refers to degrees at Masters or Doctorate level that are obtained by research and/or taught courses. Higher doctorates (such as DSc), which are normally awarded based on the accumulation of published work, are not included.

The criteria for collecting data changed in 1995. Data are now combined for all higher education institutions. As a result, data from 1995 cannot be compared directly with those from previous years.

Old Data on University Chemistry Higher Degree Graduates

	Total Chemistry	Chemistry as a % of all Higher Degrees
1987	1017	4.1
1988	1038	3.8
1989	1014	3.7
1990	1138	3.5
1991	1167	3.7
1992	1217	3.4
1993	1171	2.8
1994	1281	2.9

University Chemistry Higher Degree Graduates

	Total Chemistry	Chemistry as a % of all Higher Degrees
1995	1156	2.5
1996	1323	2.4
1997	1291	2.2
1998	1354	2.1
1999	1282	1.9
2000	1270	1.8
2001	1380	1.6
2002	1270	1.4
2003	1380	1.4
2004	1495	1.4
2005	1455	1.2
2006	1370	1.1
2007	1450	1.1
2008		

University Higher Degree Graduates 1992-95

	% of total graduates		
	1992-93	1993-94	1994-95
Chemistry	2.8	2.9	2.5
Physics	2.4	2.4	1.7
Biology	1.4	1.6	1.1
Maths	1.0	1.1	1.5
English	2.3	2.3	1.8
French	0.2	0.2	0.2

University Higher Degree Graduates 1996-2004

	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04
Chemistry	2.2	2.1	1.9	1.8	1.6	1.4	1.4	1.4
Physics	1.5	1.3	1.2	1	1	0.9	0.9	0.8
Biology	1.2	1.3	1.1	1.1	1.2	1.2	1.3	1.1
Maths	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7
English	1.8	1.8	1.7	1.6	1.8	1.7	1.9	1.8
French	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1

University Higher Degree Graduates 2005-2008

	2004-2005	2005-2006	2006-2007	2007-2008
Chemistry	1.2	1.1	1.1	
Physics	0.7	0.8	0.8	
Biology	1.1	1.1	1.1	
Maths	0.8	0.8	0.7	
English	1.7	1.8	1.8	
French	0.1	0.1	0.1	

GENDER BREAKDOWN OF UNIVERSITY CHEMISTRY GRADUATES

The percentage of female chemistry graduates is increasing.

When compared to other subjects the percentage of female graduates is higher in chemistry than in physics and mathematics but is lower than in biology, English and French.

The percentage of females achieving higher degrees in chemistry is smaller than at first degree but it is **increasing** overall. The figures quoted relate to UK and overseas domiciled females.

The criteria for collecting data changed in 1995, with data now combined for all higher education institutions. As a result data for 1995-2002 cannot be compared directly with previous years.

Old University First Degree Chemistry Graduates

	Men	Women	Total	% Women in chemistry	% Women in all subjects
1988	1393	680	2073	32.8	42.7
1989	1350	655	2005	32.7	42.9
1990	1455	755	2210	34.2	43.9
1991	1500	832	2332	35.7	44.4
1992	1619	880	2499	35.2	44.7
1993	1663	937	2600	36.0	45.5
1994	1679	1004	2683	37.0	46.1

University First Degree Chemistry Graduates

	Men	Women	Total	% Women in chemistry	% Women in all subjects
1995	2609	1507	4116	36.6	50.6
1996	2573	1571	4144	37.9	50.9
1997	2356	1397	3753	37.2	51.8
1998	2018	1375	3393	40.5	52.7
1999	2138	1486	3624	41.0	54.6
2000	2086	1334	3420	39.0	54.9
2001	1872	1413	3285	43.0	55.6
2002	1865	1350	3215	42.0	55.9
2003	1605	1345	2950	45.7	56.3
2004	1435	1290	2725	47.4	56.0
2005	1405	1305	2710	48.2	56.3
2006	1360	1170	2530	46.2	56.6
2007	1185	1250	2680	51.3	56.7
2008					

Old University Higher Degree Chemistry Graduates

	Men	Women	Total	% Women in chemistry	% Women in all subjects
1988	807	231	1038	22.2	30.8
1989	783	231	1014	22.7	31.8
1990	890	248	1138	21.8	32.9
1991	875	292	1167	25.0	34.2
1992	898	319	1217	26.2	38.5
1993	851	320	1171	27.3	36.6
1994	902	379	1281	29.6	37.7

University Higher Degree Chemistry Graduates

	Men	Women	Total	% Women in chemistry	% Women in all subjects
1995	785	371	1156	32.1	38.9
1996	879	444	1323	33.5	39.2
1997	872	419	1291	32.5	41.6
1998	853	501	1354	37.0	43.5
1999	808	474	1282	37.0	45.9
2000	825	445	1270	35.0	47.5
2001	883	497	1380	36.0	46.4
2002	775	495	1270	39.0	47.5
2003	845	535	1380	38.8	48.4
2004	900	595	1495	39.7	48.9
2005	900	555	1455	38.1	49.0
2006	835	535	1370	39.1	49.6
2007	870	580	1450	40.0	50.0

TEACHER TRAINING

Since 1980 the number of chemistry graduates applying for teacher training has fluctuated considerably. The most striking feature of the data is the dramatic fall in applications between 1993 and 1999, which mirrors the trend between 1983 and 1988. However, it should be noted that a number of PGCE providers now entitle their PGCE courses 'Science' or 'Combined Science' rather than specifying which particular discipline is the specialist subject.

In September 1989 the government extended its bursary scheme, and other employment opportunities declined. Both applications and acceptances to PGCE courses in Chemistry increased until 1993. The variety of new training schemes being introduced means that statistics should be closely monitored and treated with some caution.

NB The difference between the application and acceptance figures does not imply rejection.

Post Graduate Certificate of Education in Chemistry

APPLICATIONS				ACCEPTANCES
	Men	Women	Total	Total
1980	544	258	802	519
1981	680	307	987	518
1982	614	132	746	505
1983	630	416	1046	436
1984	559	359	918	392
1985	472	332	804	363
1986	387	453	840	331
1987	396	325	721	378
1988	262	266	528	322
1989	351	298	649	420
1990	340	324	664	412
1991	535	400	935	538
1992	535	527	1062	505

1993	622	483	1105	578
1994	557	496	1053	610
1995	460	424	884	525
1996	438	376	814	514
1997	354	268	622	409
1998	294	268	562	369
1999	278	267	545	390
2000	364	351	715	427
2001	410	402	812	469
2002	470	408	878	510
2003	430	422	852	551
2004	430	458	888	552
2005	462	490	952	575
2006	424	501	925	595
2007	371	447	818	506
2008	343	408	751	513

Comparison of Post Graduate Certificate of Education Acceptances

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Chemistry	525	514	409	369	390	427	469	510	551	552	575	595	506	513
Biology	791	861	901	816	849	935	913	1018	1010	960	996	978	884	931
Physics	411	332	275	201	245	228	242	327	415	413	428	397	361	330
Mathematics	1321	1996	1038	877	1442	1136	1311	1528	1904	2061	2124	1950	1659	1640
English	1631	1828	1907	1839	1730	1800	1872	2265	2302	2342	2324	2207	1927	1701
Modern languages	1654	1701	996	1605	1509	1745	1688	1729	1838	1649	1577	1455	1332	13315
Combined Science	-	-	711	611	699	969	743	716	848	913	1012	998	1041	1097

THE CHEMICAL INDUSTRY

From 1975-1999 employment in research and development increased within the pharmaceutical and chemical industries but decreased within the manufacturing industry as a whole.

Employment in research and development

	All Manufacturing Industry 000's	Chemical Industry		Pharmaceutical Industry	
		000's	%	000's	%
1975	174.6	32.2	18.4	10.1	5.7
1978	183.9	33.8	18.4	12.2	6.6
1981	183.2	29.5	16.1	12.5	6.8
1985	157.2	30.8	19.6	14.8	9.4
1989	151.4	36.3	24.0	17.7	11.7
1993	117.0	36.0	30.8	20.0	17.1
1994	115.0	33.0	28.7	19.0	16.5
1995	105.0	30.0	28.6	17.0	16.2
1996	105.0	30.0	28.6	19.0	18.1
1997	102.0	31.0	30.4	20.0	19.6
1998	111.0	33.0	29.7	21.0	18.9
1999	114.0	36.0	31.9	24.0	21.2

It was not possible to obtain the same data for the years after 1999. The data below shows the number of people employed in the UK in the Office of National Statistics (ONS) employment class 73.10 'Research and experimental development in natural sciences and engineering'

The ONS defines class 73.10 as follows:

'This class includes systematic studies and creative efforts in natural sciences (mathematics, physics, astronomy, chemistry, life sciences, medical sciences, earth sciences, agriculture, etc) and engineering. They are intended to increase the stock of knowledge and to improve the use of this stock of knowledge.'

Number of UK Employees in Class 73.10

	Male 000's	Female 000's	Total 000's
1998	52.9	38.8	91.7
1999	49.4	40.9	90.3
2000	53.0	38.4	91.4
2001	59.6	41.9	101.5
2002	58.6	41.7	100.3
2003	55.4	37.7	93.1
2004	58.4	38.4	96.8
2005	-	-	99.0
2006	-	-	98.0
2007			98.0

N.B. Statistics are only made available a year later (i.e. 2008 stats will be made available at the end of 2009). As of 2005 data on gender is not available.