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Physics Students in UK Higher Education Institutions

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Summary

- The total number of full-time students in the first year of first-degree physics courses increased by 25% between 2004/05 and 2009/10, from 3190 to 3975. The number of students starting enhanced first-degree courses, i.e. courses leading to the award of an MPhys/MSci qualification, increased by 51% and those starting bachelor-degree courses increased by 5%.
- Enhanced first-degree courses are more popular in physics, astronomy and chemistry than in other subjects. In 2009/10, 51% of physics, 52% of astronomy, and 46% of chemistry full-time first-year students are registered on enhanced first-degree courses compared to 19% of mathematics, 17% of electronic & electrical engineering, and less than 2% of biological science students.
- The proportion of students starting first degrees and enhanced first degrees in physics that are women increased slightly between 2004/05 to 2009/10 and was 21.1% for enhanced first-degree courses and 21% for bachelor-degree courses in 2009/10.
- In 2009/10, 90% of first-year physics students are UK domiciled representing a fall from 93% since 2004/05, although the number of UK-domiciled students had increased by about 900 during that time. A similar proportion of chemistry students are UK domiciled in 2009/10, 89%. Biological sciences had a higher proportion, 93%, and mathematics a lower proportion, 85%. Electrical & electronic engineering had a significantly lower proportion of UK-domiciled students, 63%.
- In 2004/05, 88% of first-year first-degree students in physics are studying full-time, and 84% in 2009/10. In 2009/10, 84% of male students and 83% of female students are full time.
- Between 2004/05 and 2009/10 around 90% of full-time UK-domiciled physics students who specified their ethnicity are white. In 2009/10, higher proportions of male physics students (91%) than female physics students (85%) are white.
- There is considerable variation between subjects in the proportion of full-time black and minority ethnic (BME) students. Physics and astronomy have relatively low proportions of BME students at 11% and 10%, respectively. Biological sciences, chemistry and mathematics have higher proportions of BME students at 17%, 20% and 24%, respectively, and electrical & electronic engineering has the highest proportion at 30%.
- There has been some variation in the proportions of physics students with different categories of parental occupations between 2004/05 and 2009/10, but around a third of the occupations of physics students' parents fall into the higher managerial and professional category and another third fall into the lower managerial and professional category.
- There is variation in the distribution of students' categories of occupations between subjects. Between 2004/05 and 2009/10, 64% of the occupations of full-time physics students' parents fall into the higher managerial and professional, and the lower managerial and professional categories. In contrast, 49%, of the occupations of electronic and electrical engineering students' parents fall into the higher managerial and professional, and the lower managerial and professional categories.

Summary

- In 2004/05, 33% of men and 28% of women completing full-time first degrees in physics did so with MPhys/MSci qualifications. In 2009/10, the proportions had increased to 47% and 41%, respectively. The data suggest that men are more likely than women to remain on enhanced first-degree courses from entry to graduation.
- Between 2004/05 and 2009/10, 87% of men and 88% of women graduating with an MPhys/MSci first-degree qualification gained a first-class or upper-second-class degree compared to 48% and 59% of men and women, respectively, graduating with a bachelor-degree qualification. This is in part because only stronger students are allowed to complete enhanced first-degree courses.
- The proportions of students who get different degree classes varies from subject to subject but in all cases higher proportions of men and women graduating with enhanced first-degree qualifications gain first- and upper-second-class degrees than those graduating with bachelor-degree qualifications.
- Higher proportions of white male and female students graduating with enhanced first-degree and bachelor-degree qualifications in physics, and across all subjects, are awarded first-class degrees than the respective groups of BME students.
- Between 2004/05 and 2009/10, the number of male graduates from masters courses, excluding those graduating from enhanced first-degree courses leading to MPhys/MSci qualifications, increased by 50%, while the number of female masters graduates remained the same. The proportion of UK-domiciled masters graduates who are female in 2009/10 was 25%, compared to 33% in 2004/05. 85% of UK-domiciled masters graduates in physics between 2004/05 and 2009/10 are white.
- The number of UK-domiciled doctoral graduates rose between 2004/05 and 2009/10 from 385 to 465, and the proportion of doctoral graduates who are female remained steady: the proportion was 22% in 2004/09 and 23% in 2009/10. 93% of UK-domiciled doctoral graduates between 2004/05 and 2009/10 are white.

1: Introduction

This report presents an overview of the students on first-degree, masters and doctoral programmes in physics and a number of selected other subjects in UK higher education institutions (HEIs).

The data source for the report is the Higher Education Statistics Agency (HESA). HESA is the central source for the collection and dissemination of statistics about publicly funded UK higher education.

1.1: The data

HESA holds data on students registered for courses in UK HEIs. Individual students are recorded as FTEs split between the subjects that they study: a full-time physics student is recorded as 1.0 FTE, while a student splitting their time equally between physics and another subject will be recorded as 0.5 FTE physics.

The HESA standard registration population records students registered on a course in the period 1 August to 31 July of a particular year. This is the population used as the source of the data presented in section 2.

The population splits the student experience into “years of study”. The first year is deemed to start on the commencement date of the student, with second and subsequent years starting on, or near, the anniversary of that date.

The HESA qualifications obtained population is a count of students associated with the award of an HE qualification (excluding HE institutional credits) during the period 1 August to 31 July of a particular year, which were returned to HESA by 31 October in that year. This includes qualifications awarded from dormant, writing-up and sabbatical status students. This is the population used as the source of the data presented in section 3.

HESA implements a strategy in published and released tabulations designed to prevent the disclosure of personal information about any individual that has been followed in this report. This strategy involves

rounding all numbers to the nearest multiple of five. 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 is represented as 20, 3286 is represented as 3285 while 0, 20, 55 and 3510 remain unchanged. All proportions and ratios presented in the report are calculated using unrounded figures.

1.2: Definition of a physics student

For the purposes of this report a physics student is defined as a student who spends 50% or more of their time studying the single subject physics (subject code F3). In other words, instances are only counted where a student is recorded against physics as 0.5 FTE or more. Data in the report are presented as headcounts of such students. To take specific examples, HEIs code students based on how much time they spend studying particular subjects. A student registered on a physics and mathematics course may be recorded as 0.5 FTE physics and 0.5 FTE mathematics. In this case that individual will count in the physics data and the mathematics data. Alternatively, a student registered on a physics with a mathematics course may be recorded as 0.67 FTE physics and 0.33 FTE mathematics. In this case the student will just be counted in the physics data.

Equivalent definitions are applied to the other subjects considered in the report.

It should be noted that as a consequence of the definition used, the figures reported in this report may not match the numbers reported in other publications. In some cases, authors report total FTEs reading a specific subject, in other cases authors may report a headcount of students who are reported as studying a subject for any amount of time.

2: First-year students undertaking first-degree programmes in UK HEIs

2.1: First-year students undertaking first-degree courses

Physics courses in HEIs are normally available as three-year first-degree courses leading to a bachelor-degree qualification, normally BSc, and as four-year enhanced first-degree courses leading usually to a MPhys or MSci qualification. Students are generally allowed to switch between the two-degree programmes, which means that it is difficult to compare those entering specific courses and those graduating three or four years later. Enhanced first-degree qualifications are also available in other subjects, for example, chemistry courses leading to a MChem/MSci and a number of engineering courses that lead to a MEng. Many HEIs expect students entering doctoral study to hold an enhanced first-degree qualification, however, students are not generally prevented from entering PhD study with a

bachelor-degree qualification or a bachelor-degree qualification together with a masters degree.

Table 1 presents data on the number of full-time first-year students registered on enhanced first-degree courses and first-degree courses in physics between 2004/05 and 2009/10, and table 2 shows the number of students registered on the same courses across all years of study.

The total number of full-time students in the first year of first-degree physics courses increased by 25% between 2004/05 and 2009/10. The number of full-time students in the first year of enhanced degree courses increased by 51% and those on bachelor-degree courses increased by 5%. The popularity of enhanced first-degree courses is increasing at a faster rate than bachelor-degree courses. However, it should be noted that many HEIs encourage most, if not all,

Table 1: The number of full-time first-year students on first-degree courses in physics* 2004/05 to 2009/10

Year	Enhanced first degree	Proportion on enhanced first-degree courses	Bachelor degree	Proportion on bachelor-degree courses	Total
2004/05	1355	42.4%	1835	57.6%	3190
2005/06	1680	51.0%	1610	49.0%	3290
2006/07	1660	50.4%	1635	49.6%	3300
2007/08	1770	49.7%	1790	50.3%	3560
2008/09	1855	49.3%	1900	50.7%	3755
2009/10	2040	51.3%	1935	48.7%	3975

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

Table 2: The number of full-time students across all years of study on first-degree courses in physics* 2004/05 to 2009/10

Year	Enhanced first degree	Proportion on enhanced first-degree courses	Bachelor degree	Proportion on bachelor-degree courses	Total
2004/05	4480	43.4%	5855	56.6%	10,335
2005/06	5205	50.5%	5105	49.5%	10,305
2006/07	5225	50.6%	5105	49.4%	10,330
2007/08	5635	52.8%	5035	47.2%	10,670
2008/09	5955	52.0%	5495	48.0%	11,450
2009/10	6325	52.4%	5750	47.6%	12,080

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

of their students to register for enhanced first-degree courses.

Table 3 presents data on the number of part-time students registered on bachelor-degree courses in physics in their first year and across all years between 2004/05 and 2009/10. There are no part-time students registered on enhanced first-degree courses between 2004/05 and 2009/10; the number of part-time students in the first year of bachelor degrees in physics increased from 440 to 750, an increase of 70%, and the overall number increased from 1260 to 2200, an increase of 75%. The vast majority of the part-time students are registered at the Open University.

Table 4 presents data on the number of full-time first-year students on first-degree courses in selected subjects in 2009/10, and table 5 presents data on the number of full-time students across all years of study on first-degree courses. Enhanced first-degree courses are more popular in physics, astronomy and chemistry

Table 3: The number of part-time students on bachelor-degree courses* in physics** in their first year and across all years 2004/05 to 2009/10

Year	First year	All years
2004/05	440	1260
2005/06	565	1490
2006/07	575	1585
2007/08	560	1740
2008/09	700	1940
2009/10	750	2200

* There are no students registered part-time on enhanced first-degree courses.

** These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

Table 4: Full-time first-year students on first-degree courses in selected subjects 2009/10

Subject	Enhanced first degree		Bachelor degree		Total
	Number	Proportion	Number	Proportion	
Physics	2040	51.3%	1935	48.7%	3975
Astronomy	145	51.8%	135	48.2%	280
Mathematics	1885	18.7%	8185	81.3%	10,075
Chemistry	2145	45.4%	2575	54.6%	4715
Electronic & electrical engineering	1280	17.2%	6135	82.8%	7415
Biological sciences*	465	1.6%	28,315	98.4%	28,780
All subjects	21,505	4.3%	472,865	95.7%	494,370

* Biological sciences comprises the following subjects (shown with the number of full-time first-year students on first-degree courses in 2009/10): biochemistry (3050); biology (7635); botany (50); broadly based programmes within biological sciences (5); genetics (465); microbiology (645); molecular biology and biophysics (13,515); other biological sciences (2120); and zoology (1290).

Source: HESA student data (counts of students are rounded to the nearest five).

Table 5: The number of full-time students across all years of study on first-degree courses in selected subjects 2009/10

Subject	Enhanced first degree		Bachelor degree		Total
	Number	Proportion	Number	Proportion	
Physics	6325	52.4%	5750	47.6%	12,080
Astronomy	545	58.0%	395	42.0%	945
Mathematics	5455	20.0%	21,820	80.0%	27,275
Chemistry	7315	51.0%	7025	49.0%	14,340
Electronic & electrical engineering	4205	22.5%	14,505	77.5%	18,710
Biological sciences	1525	2.0%	72,950	98.0%	74,475
All subjects	71,070	5.3%	1,269,480	94.7%	1,340,555

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

than in other subjects. 51% of physics, 52% of astronomy and 46% of chemistry full-time first-year students are registered on enhanced first-degree courses in 2009/10 compared to 19% of mathematics, 17% of electronic & electrical engineering and less than 2% of biological science students.

Table 6 shows the number of full-time first-year students in selected subjects in 2004/05 and 2009/10. Full-time student numbers have increased in all the subjects under consideration except astronomy ranging from 38% for mathematics to 12% in electronic & electrical engineering. The number of first-year astronomy students has fallen by 14%. The percentage increase in the number full-time first-year students in the majority of the subjects under consideration is greater than the average percentage increase in the number of full-time first-year students across all subjects.

2.2: The gender of first-year students

A breakdown by gender of full-time first-year students on first-degree physics courses between 2004/05 to 2009/10 is shown in table 7. The proportion of those in the first year of bachelor degrees and enhanced first degrees in physics who are women was about 21% in 2009/10: this proportion increased between 2004/05 and 2009/10 from 18%. Comparing the numbers of men and women in the first year of enhanced first degrees and bachelor degrees shows that there are similar proportions of women.

Table 8 presents data on the gender breakdown of full-time first-year first-degree students in selected subjects that illustrate the variation between subjects in the proportion of students who are women. Of the subjects under consideration, electronic & electrical engineering has the lowest proportion of students who are women (12%) and biological sciences the highest (46%). There is no clear pattern whether the proportion of students who are women is higher on enhanced first degrees or bachelor degrees.

Table 6: The total number of full-time first-year students on first-degree courses in selected subjects in 2004/05 and 2009/10

Subject	2004/05	2009/10	Percentage change
Physics	3190	3975	24.6
Astronomy	325	280	-13.8
Mathematics	7290	10,075	38.2
Chemistry	3675	4715	28.3
Electronic & electrical engineering	6650	7415	11.5
Biological sciences	21,670	28,780	32.8
All subjects	415,295	494,370	19.0

Source: HESA student data (counts of students are rounded to the nearest five).

2.3: The domicile of first-year students

Table 9 shows a breakdown of the domicile of first-year physics students between 2004/05 and 2009/10. In 2009/10, 90% of physics students are UK domiciled: that represented a fall from 93% since 2004/05, although the number of UK-domiciled students had increased by 900 students, 27%. The number of students from elsewhere in the EU increased by about 75, and that from outside the EU by about 125. In other words, although the number of UK-domiciled physics students has increased, proportionately, the numbers of non-UK students have increased more.

Table 10 shows a breakdown of the domicile of all first-year first-degree students in selected subjects in 2009/10.

Physics had a similar proportion of UK-domiciled students to chemistry, 90% and 89% respectively, in 2009/10. Biological sciences has a higher proportion, 93%, and mathematics a lower proportion, 85%. Electrical & electronic engineering has a significantly lower proportion of UK-domiciled students, 63%.

Table 7: First-year full-time students on enhanced first-degree and bachelor-degree courses in physics* by gender 2004/05 to 2009/10

Degree	Gender	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Enhanced first degree	Male	1110	1330	1320	1440	1455	1610
		81.9%	79.4%	79.5%	81.5%	78.5%	78.8%
	Female	245	345	340	325	400	430
		18.1%	20.6%	20.5%	18.5%	21.5%	21.2%
Bachelor degree	Male	1500	1275	1290	1425	1510	1525
		81.6%	79.1%	78.9%	79.6%	79.5%	79.0%
	Female	335	335	345	365	390	405
		18.4%	20.9%	21.1%	20.4%	20.5%	21.0%

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

2.4: The mode of study of first-year students

Data on the mode of study of first-year first-degree physics students are shown in table 11. The proportion of students who study full-time has fallen between 2004/05 and 2009/10: in 2004/05, 88% of first-year students are studying full-time, and 84% in 2009/10.

Similar proportions of male and female students study full-time. In 2009/10, 84% of male students and 83% of female students are full-time.

Data on the mode of study of first-year first-degree students in selected subjects are shown in table 12. There is variation in the proportion of first-year students who study full-time ranging from astronomy, 27%, to

Table 8: The distribution of full-time first-year students between enhanced first-degree and bachelor-degree courses in selected subjects by gender 2009/10

Degree	Gender	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
Enhanced first degree	Male	1610	105	1260	1270	1125	205	14,485
		78.8%	72.9%	66.8%	59.4%	87.8%	44.6%	67.3%
	Female	430	40	625	870	155	255	7020
		21.2%	27.1%	33.2%	40.6%	12.2%	55.4%	32.7%
Bachelor degree	Male	1525	100	4645	1370	5395	15,200	213,455
		79.0%	73.1%	56.7%	53.3%	87.9%	53.7%	45.1%
	Female	405	35	3540	1200	745	13,115	259,405
		21.0%	26.9%	43.3%	46.7%	12.1%	46.3%	54.9%

Source: HESA student data (counts of students are rounded to the nearest five).

Table 9: The domicile of all first-year students on first-degree courses in physics* 2004/05 to 2009/10

Domicile	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
UK	3360	3570	3510	3745	4070	4260
	92.6%	92.6%	90.7%	91.0%	91.3%	90.1%
EU (ex-UK)	145	140	180	190	180	220
	4.1%	3.7%	4.6%	4.6%	4.1%	4.6%
Non-EU	125	145	185	180	205	250
	3.4%	3.7%	4.8%	4.4%	4.6%	5.3%

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

Table 10: The domicile of all first-year students on first-degree courses in selected subjects in 2009/10

Domicile	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
UK	4260	1000	10,075	4565	5010	28,800	491,830
	90.1%	96.9%	84.9%	89.1%	62.6%	93.2%	86.0%
EU (ex-UK)	220	15	345	195	470	1035	27,080
	4.6%	1.5%	2.9%	3.8%	5.9%	3.3%	4.7%
Non-EU	250	15	1450	360	2520	1080	52,955
	5.3%	1.6%	12.2%	7.1%	31.5%	3.5%	9.3%

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

biological sciences, 93%. 745 of the part-time students in astronomy are registered at the Open University.

2.5: The ethnicity of first-year students

The ethnicity of UK-domiciled full-time first-year students on first-degree courses in physics between 2004/05 and 2009/10 is shown table 13; between 89% and 91% of students who specify their ethnicity are white, over that period.

Data on the ethnicity of full-time first-year students

on first-degree physics courses by gender and whether they are registered for an enhanced first degree or a bachelor degree are presented in table 14. A lower proportion of females than males is white, and a lower proportion of those on enhanced first-degree courses is white compared to those on bachelor-degree courses.

Table 15 shows the ethnic breakdown of full-time BME first-year first-degree students on physics courses. Asian or Asian British – Indian is the largest BME group, with the exception of the other and mixed ethnic back-

Table 11: The mode of study of first-year students on first-degree courses in physics* by gender 2004/05 to 2009/10

Year	Full-time			Part-time			Proportion of full-time students		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2004/05	2610	580	3190	335	100	440	88.6%	85.1%	87.9%
2005/06	2605	680	3290	460	105	565	85.0%	86.5%	85.3%
2006/07	2610	685	3300	425	150	575	86.0%	82.3%	85.2%
2007/08	2865	695	3560	420	140	560	87.2%	83.4%	86.4%
2008/09	2965	790	3755	550	150	700	84.4%	83.8%	84.2%
2009/10	3135	840	3975	580	170	750	84.4%	83.2%	84.1%

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

Table 12: The mode of study of first-year students on first-degree courses in selected subjects 2009/10

Subject	Full-time			Part-time			Proportion of full-time students		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Physics	3135	840	3975	580	170	750	84.4%	83.2%	84.1%
Astronomy	205	75	280	585	170	755	25.8%	30.9%	27.0%
Mathematics	5905	4170	10,075	1180	625	1800	83.4%	87.0%	84.8%
Chemistry	2645	2075	4715	225	180	405	92.2%	92.1%	92.1%
Electronic & electrical engineering	6515	900	7415	540	45	585	92.3%	95.4%	92.7%
Biological sciences	15,410	13,370	28,780	845	1290	2135	94.8%	91.2%	93.1%
All subjects	227,940	266,430	494,365	30,845	46,655	77,500	88.1%	85.1%	86.4

Source: HESA student data (counts of students are rounded to the nearest five).

Table 13: The ethnicity of full-time first-year UK-domiciled students on first-degree courses in physics* 2004/05 to 2009/10

Ethnicity		2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
White	Count	3060	2665	2585	2775	2910	3060
	Proportion of known	90.5%	91.1%	90.2%	89.8%	89.2%	89.5%
BME	Count	270	260	280	315	355	360
	Proportion of known	9.5%	8.9%	9.8%	10.2%	10.8%	10.5%
Unknown	Count	90	75	70	120	105	90

* These data do not include astronomy.
Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

ground group. Black students are less prevalent than Asian students.

Table 16 shows the ethnicity of full-time first-year UK-domiciled students on first-degree courses in selected subjects in 2009/10. There is considerable variation in the proportion of BME students. Physics and astronomy have relatively low proportions at 11% and 10%,

respectively. Biological sciences, chemistry and mathematics have higher proportions at 17%, 20% and 24%, respectively, and electrical & electronic engineering has the highest proportion at 30%. Overall, BME students account for around 21% of full-time first-year UK-domiciled students studying for first degrees in the UK.

Table 17 shows a breakdown of the ethnicities of

* These data do not include astronomy.
Source: HESA student data (counts of students are rounded to the nearest five).

Table 14: The ethnicity of full-time first-year UK-domiciled students on enhanced first-degree and bachelor-degree courses in physics* by gender 2009/10

Ethnicity		Male			Female		
		Enhanced first degree	Bachelor degree	Total	Enhanced first degree	Bachelor degree	Total
White	Count	1275	1190	2465	320	275	595
	Proportion of known	90.0%	91.5%	90.7%	83.8%	85.9%	84.8%
BME	Count	140	110	250	60	45	105
	Proportion of known	10.0%	8.5%	9.3%	16.2%	14.1%	15.2%
Unknown	Count	40	40	80	5	5	10

Table 15: The ethnicity of full-time first-year BME UK-domiciled students on first-degree courses in physics* 2004/05 to 2009/10

Ethnicity	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Asian or Asian British – Bangladeshi	10	5	10	10	10	10
Asian or Asian British – Indian	85	50	65	80	95	100
Asian or Asian British – Pakistani	25	30	25	20	35	25
Other Asian background	35	25	20	25	25	40
Black or black British – African	10	15	15	25	20	10
Black or black British – Caribbean	5	10	10	5	10	10
Other black background	0	0	0	0	0	0
Chinese	25	30	30	30	30	40
Other and mixed ethnic background	70	95	95	125	130	125

* These data do not include astronomy.
Source: HESA student data (counts of students are rounded to the nearest five).

Table 16: The ethnicity of full-time first-year UK-domiciled students on first-degree courses in selected subjects 2009/10

Ethnicity		Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
White	Count	3060	220	6220	3300	3120	21,810	324,015
	Proportion of known	89.5%	90.1%	76.0%	80.4%	69.9%	82.7%	78.7%
BME	Count	360	25	1965	805	1345	4560	86,600
	Proportion of known	10.5%	9.9%	24.0%	19.6%	30.1%	17.3%	21.3%
Unknown	Count	90	5	95	75	120	340	7205

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

full-time UK-domiciled students in the first year of first-degree courses in selected subjects in 2009/10 and the distribution of each ethnic group between subjects.

The data underline the variation in the popularity of different degree subjects by ethnic group. This area has been covered in more detail previously by the Institute of Physics and the Royal Society of Chemistry.¹ Considering the entire HEI population of first-year first-degree students of white ethnicity, 1% study physics. Similarly, among the population of first-year students of Chinese ethnicity, 1% study physics. Physics is less popular among other ethnic groups, particularly black groups. Relative to the white student group, subjects such as mathematics and electronic & electrical engineering are more popular among some BME groups.

Figure 1 shows the breakdown of the ethnicities of full-time first-year BME students registered for first degrees in selected subjects.

2.6: The socio-economic status of first-year students

The categories of parental occupation of full-time first-year UK-domiciled students on first-degree courses in physics between 2004/05 and 2009/10 are shown in table 18. There has been some year on year variation in the proportions of students with different categories of parental occupation but essentially about a third of physics students' parental occupations fall into the higher managerial and professional category and another third fall into the lower managerial and

¹ Representation of Ethnic Groups in Chemistry and Physics, Royal Society of Chemistry and Institute of Physics, 2006 (www.iop.org/publications/iop/2006/page_38240.html).

Table 17: The distribution of full-time first-year UK-domiciled students on first-degree courses between selected subjects by ethnicity 2009/10

Ethnicity	Total number of students in ethnic group in all subjects	Number of students and the proportion of each ethnic group studying selected subjects					
		Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences
White	324,015	3060	220	6220	3300	3120	21,810
		0.9%	0.1%	1.9%	1.0%	1.0%	6.7%
Asian or Asian British – Bangladeshi	4500	10	0	110	40	60	215
		0.2%	0.0%	2.4%	0.9%	1.3%	4.8%
Asian or Asian British – Indian	15,790	100	10	630	145	200	705
		0.6%	0.1%	4.0%	0.9%	1.3%	4.5%
Asian or Asian British – Pakistani	11,470	25	0	195	125	150	595
		0.2%	0.0%	1.7%	1.1%	1.3%	5.2%
Other Asian background	6275	40	5	235	65	155	380
		0.6%	0.1%	3.7%	1.0%	2.5%	6.1%
Black or black British – African	18,180	10	0	165	160	395	930
		0.1%	0.0%	0.9%	0.9%	2.2%	5.1%
Black or black British – Caribbean	6900	10	0	55	30	70	400
		0.1%	0.0%	0.8%	0.4%	1.0%	5.8%
Other black background	1365	0	0	5	10	20	70
		0.0%	0.0%	0.4%	0.7%	1.5%	5.1%
Chinese	3815	40	0	260	70	75	165
		1.0%	0.0%	6.8%	1.8%	2.0%	4.3%
Other and mixed ethnic background	18,305	125	5	310	165	220	1100
		0.7%	0.0%	1.7%	0.9%	1.2%	6.0%
All students	370,305	3510	245	8280	4180	4590	26,710
		0.9%	0.1%	2.2%	1.1%	1.2%	7.2%

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

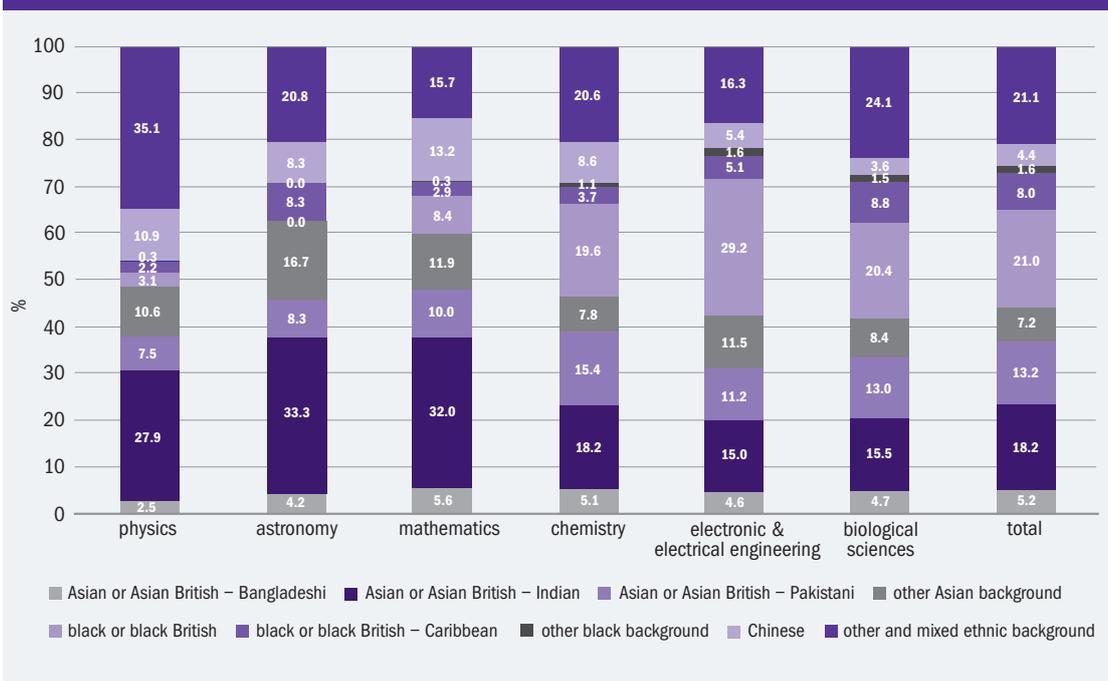
Table 18: The category of parental occupations of first-year UK-domiciled students on full-time first-degree courses in physics* 2004/05 to 2009/10

Category of parental occupation of students	Distribution of students by year**					
	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Higher managerial and professional occupations	795	770	810	925	870	950
	31.3%	30.7%	32.8%	34.6%	32.4%	33.3%
Lower managerial and professional occupations	790	765	770	845	805	890
	31.1%	30.5%	31.2%	31.6%	29.9%	31.2%
Intermediate occupations	375	375	330	355	375	380
	14.7%	15.0%	13.4%	13.3%	14.0%	13.3%
Small employers and own account workers	150	150	130	120	130	165
	5.9%	6.0%	5.3%	4.5%	4.8%	5.8%
Lower supervisory and technical occupations	115	125	115	110	115	115
	4.5%	5.0%	4.7%	4.1%	4.3%	4.0%
Semi-routine occupations	230	225	230	230	285	260
	9.0%	9.0%	9.3%	8.6%	10.6%	9.1%
Routine occupations	90	85	85	85	100	100
	3.5%	3.4%	3.4%	3.2%	3.7%	3.5%
Unknown/not classified	375	500	470	535	680	655
Total	2920	3005	2940	3210	3370	3510

* These data do not include astronomy. ** Proportional distributions are shown only for known/classified parental occupations.

Source: HESA student data. Counts of students are rounded to the nearest five and thus the total for each column may differ from that arrived at by summing the individual values in each row.

Figure 1: Distribution of ethnicities of full-time first-year BME students on first-degree courses in selected subjects 2009/10



Source: HESA student data.

2: First-year students undertaking first-degree programmes in UK HEIs

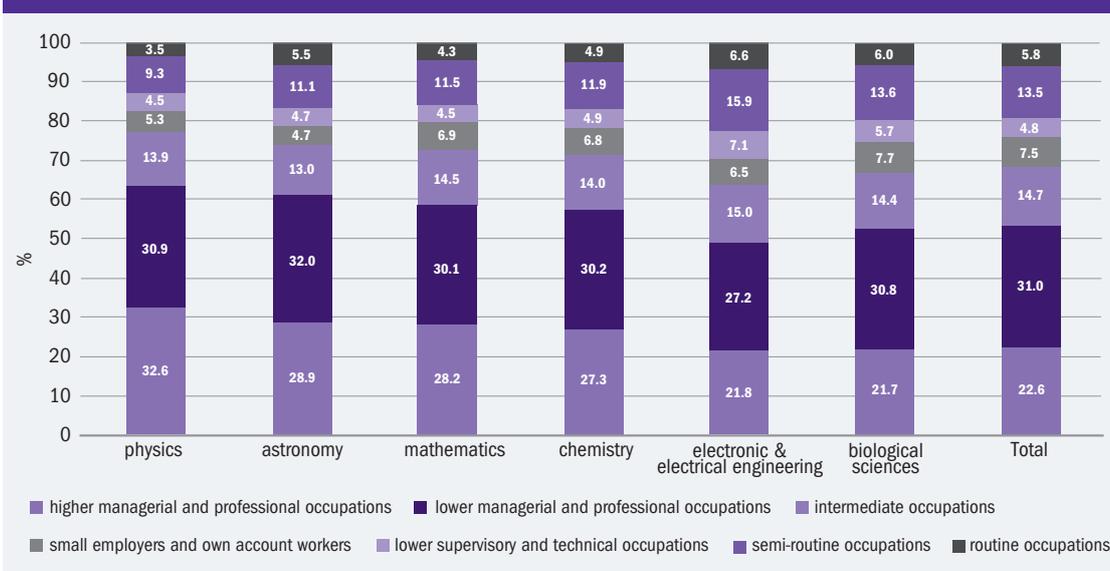
Table 19: The category of parental occupation and gender of full-time first-year UK-domiciled students on enhanced first-degree and bachelor-degree courses in physics* from 2004/05 to 2009/10 combined

Category of parental occupation of students	Distribution of students by gender and first-degree course**					
	Male			Female		
	Enhanced first degree	Bachelor degree	Total	Enhanced first degree	Bachelor degree	Total
Higher managerial and professional occupations	2215	1895	4110	600	415	1015
	34.9%	30.1%	32.5%	37.7%	27.8%	32.9%
Lower managerial and professional occupations	1930	1985	3915	495	450	945
	30.4%	31.5%	31.0%	31.1%	30.1%	30.6%
Intermediate occupations	895	890	1785	190	215	405
	14.1%	14.1%	14.1%	11.9%	14.4%	13.1%
Small employers and own account workers	315	355	670	75	95	170
	5.0%	5.6%	5.3%	4.7%	6.4%	5.5%
Lower supervisory and technical occupations	280	290	575	50	80	130
	4.4%	4.6%	4.5%	3.1%	5.4%	4.2%
Semi-routine occupations	520	630	1150	140	175	315
	8.2%	10.0%	9.1%	8.8%	11.7%	10.2%
Routine occupations	190	250	445	45	60	105
	3.0%	4.0%	3.5%	2.8%	4.0%	3.4%
Unknown/not classified	1165	1455	2620	260	335	595

* These data do not include astronomy. ** Proportional distributions are shown only for known/classified parental occupations.

Source: HESA student data (counts of students are rounded to the nearest five).

Figure 2: Categories of parental occupation of full-time first-year students on first-degree courses in selected subjects 2004/05 to 2009/10



Source: HESA student data.

2: First-year students undertaking first-degree programmes in UK HEIs

Table 20: The category of parental occupation and ethnicity of full-time UK-domiciled students on first-degree courses in physics* from 2004/05 to 2009/10 combined

Ethnicity		Category of parental occupation of students							
		Higher managerial and professional occupations	Lower managerial and professional occupations	Intermediate occupations	Small employers and own account workers	Lower supervisory and technical occupations	Semi-routine occupations	Routine occupations	Unknown/not classified
White	Count	4610	4395	1955	710	640	1235	470	475
	Proportion of known	91.9%	92.5%	91.1%	86.3%	92.9%	86.1%	86.5%	85.5%
BME	Count	405	360	190	115	50	200	75	75
	Proportion of known	8.1%	7.5%	8.9%	13.7%	7.1%	13.9%	13.5%	14.5%
Unknown	Count	110	105	45	15	15	30	5	0

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

Table 21: The category of parental occupation of full-time UK-domiciled students on first-degree courses in selected subjects from 2004/05 to 2009/10 combined

Category of parental occupation of students	Distribution of students by gender and first-degree course*						
	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
Higher managerial and professional occupations	5125	365	9760	4965	3695	22,825	380,780
	32.6%	28.9%	28.2%	27.3%	21.8%	21.7%	22.6%
Lower managerial and professional occupations	4860	405	10,425	5485	4600	32,375	522,815
	30.9%	32.1%	30.1%	30.2%	27.2%	30.8%	31.0%
Intermediate occupations	2190	165	5020	2540	2535	15,155	246,870
	13.9%	13.1%	14.5%	14.0%	15.0%	14.4%	14.7%
Small employers and own account workers	840	60	2380	1230	1095	8130	126,805
	5.3%	4.8%	6.9%	6.8%	6.5%	7.7%	7.5%
Lower supervisory and technical occupations	700	60	1540	890	1205	5980	81,320
	4.4%	4.8%	4.5%	4.9%	7.1%	5.7%	4.8%
Semi-routine occupations	1465	140	3975	2165	2685	14,290	228,115
	9.3%	11.1%	11.5%	11.9%	15.9%	13.6%	13.5%
Routine occupations	545	70	1505	895	1110	6250	97,400
	3.5%	5.5%	4.3%	4.9%	6.6%	6.0%	5.8%
Unknown/not classified	3220	290	7900	4875	8385	33,975	625,715

*Proportional distributions are shown only for known/classified parental occupations.

Source: HESA student data (counts of students are rounded to the nearest five).

2: First-year students undertaking first-degree programmes in UK HEIs

professional category. The growth in the number of UK-domiciled full-time first-year physics students from 2920 to 3510 is largely accounted for by growth in the number of students with parental occupations in the higher managerial and professional occupations (155), lower managerial and professional occupations (100), and unknown/not classified (280) categories.

Data on the categories of parental occupation of first-year first-degree physics students by gender and whether they are registered for an enhanced first degree or a bachelor degree are shown in table 19. The data suggest that overall there is little difference between the categories of parental occupation of males and females. However, both male and female students registered for enhanced first-degree courses are more likely to have parental occupations in the higher managerial and professional category than students registered for bachelor degrees. The difference is most stark for females. In 2009/10, 38% of females registered for enhanced first degrees had parents with

occupations in the higher managerial and professional category compared to 28% of females registered for bachelor degrees; the figures for males are 35% and 30%, respectively.

Table 20 presents data on the categories of parental occupation and ethnicity of full-time first-year first-degrees physics students aggregated from 2004/05 to 2009/10. There is some variation in the proportions of white and BME students by category of parental occupation.

The categories of parental occupation of full-time first-year UK-domiciled students on first-degree courses in selected subjects between 2004/05 and 2009/10 are shown in table 21, and the distribution of categories of parental occupation by subject is shown in figure 2. 64% of the occupations of physics students' parents fall into the higher managerial and professional, and the lower managerial and professional categories, which is the highest proportion among the subjects under consideration.

3: Graduates from first-degree programmes in UK HEIs

3.1: Graduates from first-degree programmes

This section is concerned with those who have completed first-degree courses in physics and other selected subjects.

Table 22 shows the number of full-time students completing enhanced first-degree and bachelor-degree courses in physics between 2004/05 and 2009/10 broken down by gender. In each year the proportion of men completing enhanced first degree courses as opposed to bachelor degrees is higher than the proportion of women. In 2004/05, 33% of men and 28% of women completing full-time first degree courses did so with enhanced first degrees. In 2009/10, the proportions had increased to 47% and 41%, respectively. It is instructive to compare the figures in table 22 to those in table 1 on the proportions of men and women starting enhanced first-degree and bachelor-degree courses in physics. It is not possible to link a particular year of students beginning degrees courses with those completing as some students are likely to have changed from bachelor- to enhanced first-degree courses or vice versa. However, the data do suggest that men are more likely than women to remain on enhanced degree courses from entry to graduation.

The degree classes of students completing first-

degree courses in physics between 2004/05 and 2009/10 are shown in table 23. The degree classes of students completing first-degree courses in physics between 2004/05 and 2009/10 combined are shown in figure 3. The proportions of students who get different degree classes varies from year to year but there are some clear patterns. Higher proportions of men and women graduating with enhanced first-degree qualifications gain first-class and upper-second-class degrees than those graduating with bachelor-degree qualifications. Between 2004/05 and 2009/10, 87% of men and 88% of women graduating with an enhanced first-degree qualification gained a first-class or upper-second-class degree compared to 48% and 59% of men and women, respectively, graduating with a bachelor-degree qualification and a first-class or upper-second-class degree. This is in part because only students with a certain minimum level of attainment are allowed to progress to the final years of enhanced first-degree courses.

At bachelor-degree level a significantly greater proportion of female than male graduates gain first- or upper-second-class degrees showing that there is a larger group of women than men who graduate with bachelor-level degrees because they choose to for reasons other than attainment.

Data in table 24 show the numbers of those

Table 22: Full-time students completing courses in physics* with enhanced first-degree and bachelor-degree qualifications by gender 2004/05 to 2009/10

Gender	Qualification	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Male	Enhanced first degree	620	780	755	810	885	975
		32.5%	39.6%	40.2%	44.8%	43.8%	46.9%
	Bachelor degree	1285	1190	1125	995	1130	1100
		67.5%	60.4%	59.8%	55.2%	56.2%	53.1%
Female	Enhanced first degree	145	230	200	180	195	220
		28.2%	42.6%	38.3%	35.8%	36.6%	40.7%
	Bachelor degree	365	310	320	320	335	325
		71.8%	57.4%	61.7%	64.2%	63.4%	59.3%
Male and female	Enhanced first degree	765	1015	955	990	1075	1195
		31.6%	40.3%	39.8%	42.9%	42.3%	45.6%
	Bachelor degree	1650	1505	1445	1315	1470	1425
		68.4%	59.7%	60.2%	57.1%	57.7%	54.4%
Total		2415	2515	2400	2305	2545	2620

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

3: Graduates from first-degree programmes in UK HEIs

Table 23: Degree classification of students completing courses in physics* with enhanced first-degree and bachelor-degree qualifications by gender 2004/05 to 2009/10

Gender	Qualification	Degree class	Distribution of students by year						
			2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	Overall
Male	Enhanced first degree	First class	275	350	360	360	430	485	2260
			44.0%	44.6%	47.4%	44.3%	48.6%	49.5%	46.6%
		Upper second class	255	320	295	340	345	395	1955
			41.1%	40.8%	38.6%	42.0%	38.8%	40.7%	40.3%
		Lower second class	85	105	100	105	105	90	590
			13.5%	13.3%	13.0%	13.0%	11.7%	9.4%	12.2%
		Third class/pass	10	10	10	5	5	5	40
	1.3%		1.0%	1.0%	0.5%	0.8%	0.3%	0.8%	
	Unclassified	0	0	0	0	0	0	5	
		0.2%	0.3%	0.0%	0.1%	0.1%	0.0%	0.1%	
	Bachelor degree	First class	255	240	195	215	235	210	1355
			19.0%	19.1%	16.6%	19.7%	19.5%	17.9%	18.6%
		Upper second class	415	350	320	300	370	350	2105
			30.9%	27.6%	27.2%	27.9%	30.3%	29.6%	29.0%
Lower second class		400	420	395	355	405	400	2375	
		29.6%	33.1%	33.2%	32.6%	33.4%	34.1%	32.6%	
Third class/pass		240	215	230	170	170	185	1215	
	17.8%	17.2%	19.6%	15.8%	14.1%	15.6%	16.7%		
Unclassified	35	40	40	45	30	35	225		
	2.7%	3.0%	3.5%	4.0%	2.6%	2.9%	3.1%		
Female	Enhanced first degree	First class	70	85	90	75	85	120	530
			47.9%	36.9%	46.5%	43.0%	43.1%	54.0%	45.1%
		Upper second class	50	110	80	80	95	85	500
			35.4%	46.4%	39.9%	45.3%	48.2%	38.8%	42.6%
		Lower second class	20	35	25	20	15	15	130
			14.6%	14.6%	12.6%	10.6%	8.7%	7.1%	11.3%
		Third class/pass	0	5	0	0	0	0	10
	1.4%		2.1%	1.0%	1.1%	0.0%	0.0%	0.9%	
	Unclassified	0	0	0	0	0	0	0	
		0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	
	Bachelor degree	First class	85	95	75	75	85	85	500
			21.9%	28.5%	21.9%	22.4%	25.1%	23.7%	23.9%
		Upper second class	120	105	115	135	130	130	735
			32.2%	30.9%	33.7%	40.3%	37.9%	37.0%	35.3%
Lower second class		115	85	90	100	90	100	580	
		30.6%	25.2%	26.0%	30.1%	26.0%	28.5%	27.8%	
Third class/pass		45	40	50	15	35	30	215	
	11.9%	12.3%	14.2%	5.1%	10.1%	8.2%	10.3%		
Unclassified	15	10	15	5	5	10	55		
	3.4%	3.0%	4.1%	2.1%	0.9%	2.5%	2.7%		

* These data do not include astronomy.

Source: HESA student data (counts of students are rounded to the nearest five).

3: Graduates from first-degree programmes in UK HEIs

Table 24: Full-time and part-time students completing courses in selected subjects with enhanced first-degree and bachelor-degree qualifications by gender 2009/10

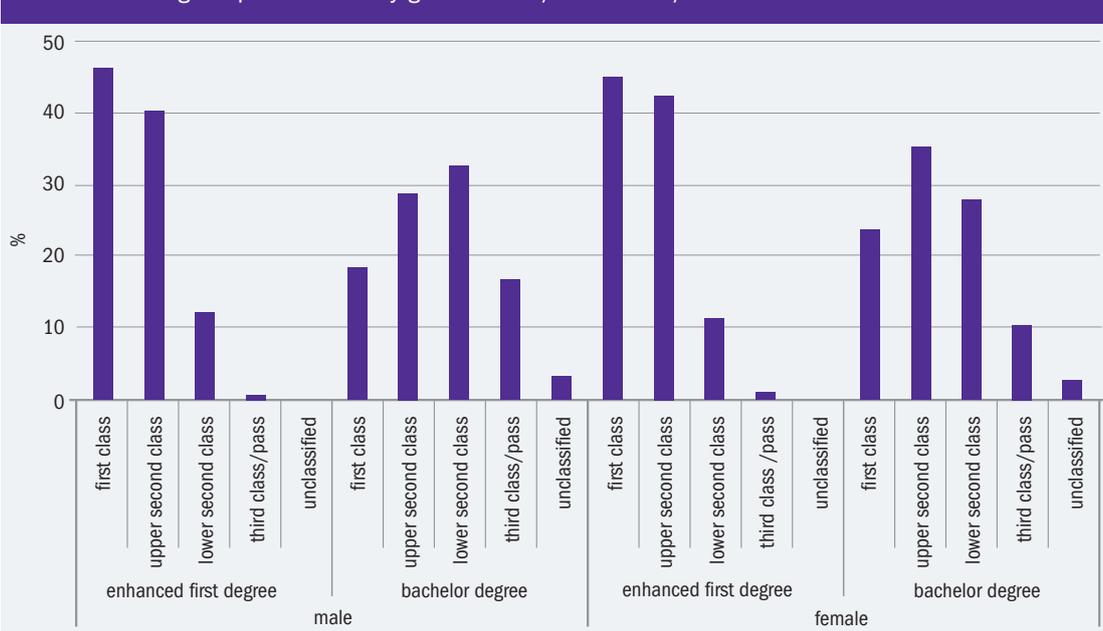
Gender	Qualification	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
Male	Enhanced first degree	975	70	625	775	680	120	9115
		45.3%	43.8%	16.0%	43.8%	14.8%	1.2%	5.5%
	Bachelor degree	1175	90	3270	995	3905	9645	157,570
		54.7%	56.3%	84.0%	56.2%	85.2%	98.8%	94.5%
Female	Enhanced first degree	225	25	205	565	90	145	4420
		38.8%	37.0%	7.3%	38.3%	13.3%	1.4%	2.0%
	Bachelor degree	355	45	2635	910	590	9855	214,255
		61.2%	63.0%	92.7%	61.7%	86.7%	98.6%	98.0%
Male and female	Enhanced first degree	1200	95	830	1340	770	265	13,535
		43.9%	41.6%	12.3%	41.3%	14.6%	1.3%	3.5%
	Bachelor degree	1530	135	5905	1905	4495	19,495	371,825
		56.1%	58.4%	87.7%	58.7%	85.4%	98.7%	96.5%
Total		2730	235	6735	3245	5265	19,760	385,360

Source: HESA student data (counts of students are rounded to the nearest five).

Source: HESA student data.

* These data do not include astronomy.

Figure 3: Degree classification of students completing courses in physics* with enhanced first-degree and bachelor-degree qualifications by gender 2004/05 to 2009/10 combined



graduating with enhanced first-degree and bachelor-degree qualifications in selected subjects in 2009/10. The proportion of those who graduate with enhanced first-degree qualifications varies from subject to subject. In all subjects, except biological sciences, a higher proportion of men than women graduated with enhanced first-degree qualifications.

The degree classes of students completing first-

degree courses in selected subjects in 2009/10 are shown in table 25. The proportions of students who get different degree classes varies from subject to subject but in all cases higher proportions of men and women graduating with enhanced first-degree qualifications gain first-class and upper-second-class degrees than those graduating with bachelor-degree qualifications.

Considering the proportions of those who gain first-

3: Graduates from first-degree programmes in UK HEIs

Table 25: Degree classification of full-time and part-time students completing courses in selected subjects with enhanced first-degree and bachelor-degree qualifications by gender 2009/10

Gender	Qualification	Degree class	Distribution of students by subject						
			Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
Male	Enhanced first degree	First class	485	25	340	300	265	40	3095
			49.5%	38.6%	54.6%	39.1%	39.3%	33.6%	34.2%
		Upper second class	395	30	210	355	280	65	4005
			40.7%	45.7%	34.0%	45.8%	41.2%	53.3%	44.2%
		Lower second class	90	10	65	105	95	15	1145
			9.4%	15.7%	10.1%	13.6%	13.7%	12.3%	12.6%
	Third class/pass	5	0	5	10	5	0	180	
		0.3%	0.0%	1.1%	1.6%	0.9%	0.8%	2.0%	
	Unclassified	0	0	0	0	35	0	630	
		0.0%	0.0%	0.2%	0.0%	5.0%	0.0%	7.0%	
	Bachelor degree	First class	210	25	820	110	685	945	19,570
			17.9%	28.9%	25.2%	11.3%	17.6%	9.8%	12.4%
		Upper second class	350	25	1120	245	1205	3720	66,425
			29.6%	26.7%	34.3%	24.5%	30.8%	38.6%	42.2%
Lower second class		400	25	850	360	1205	3570	47,515	
		34.1%	27.8%	25.9%	36.1%	30.8%	37.0%	30.2%	
Third class/pass	185	15	390	200	575	1055	13,865		
	15.6%	15.6%	12.0%	20.1%	14.7%	11.0%	8.8%		
Unclassified	35	0	85	80	235	355	10,195		
	2.9%	1.1%	2.6%	8.1%	6.0%	3.7%	6.5%		
Female	Enhanced first degree	First class	120	15	120	225	40	50	1275
			54.0%	63.0%	57.5%	39.4%	41.8%	33.6%	29.2%
		Upper second class	85	10	75	255	35	75	2010
			38.8%	33.3%	36.7%	45.4%	40.7%	53.8%	46.1%
		Lower second class	15	0	10	80	15	20	570
			7.1%	3.7%	5.3%	14.1%	16.5%	12.6%	13.1%
	Third class/pass	0	0	0	5	0	0	130	
		0.0%	0.0%	0.5%	1.1%	0.0%	0.0%	3.0%	
	Unclassified	0	0	0	0	0	0	375	
		0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	8.6%	
	Bachelor degree	First class	85	10	695	150	145	1460	27,150
			23.7%	21.7%	26.4%	16.2%	24.2%	14.8%	12.7%
		Upper second class	130	15	965	305	230	4610	103,045
			37.0%	37.0%	36.7%	33.3%	38.5%	46.8%	48.1%
Lower second class		100	10	685	280	160	2880	58,270	
		28.5%	26.1%	26.0%	30.9%	27.2%	29.2%	27.2%	
Third class/pass	30	5	235	110	45	585	12,285		
	8.2%	15.2%	9.0%	12.3%	7.6%	5.9%	5.7%		
Unclassified	10	0	50	65	15	320	13,500		
	2.5%	0.0%	1.9%	7.2%	2.5%	3.3%	6.3%		

Source: HESA student data (counts of students are rounded to the nearest five).

3: Graduates from first-degree programmes in UK HEIs

Table 26: Degree classification of UK-domiciled full-time and part-time students completing courses in physics* and in all subjects with enhanced first-degree and bachelor-degree qualifications by ethnicity 2004/05 to 2009/10 combined

Gender	Qualification	Degree class	Physics			All subjects		
			White	BME	Overall	White	BME	Overall
Male	Enhanced first degree	First class	47.0%	37.8%	46.2%	37.9%	21.4%	35.1%
		Upper second class	40.1%	46.7%	40.6%	43.5%	46.0%	43.9%
		Lower second class	12.2%	14.6%	12.4%	10.2%	22.9%	12.3%
		Third class/pass	0.7%	0.8%	0.7%	1.4%	2.5%	1.6%
		Unclassified	0.0%	0.0%	0.0%	6.9%	7.3%	7.0%
	Bachelor degree	First class	18.1%	17.5%	18.0%	12.5%	7.1%	11.5%
		Upper second class	30.1%	26.1%	29.6%	44.8%	33.7%	42.9%
		Lower second class	33.2%	36.2%	33.5%	29.2%	38.5%	30.8%
		Third class/pass	16.3%	18.8%	16.5%	6.6%	13.2%	7.7%
		Unclassified	2.4%	1.3%	2.3%	7.0%	7.5%	7.1%
Female	Enhanced first degree	First class	45.2%	41.7%	44.9%	36.2%	16.9%	31.1%
		Upper second class	43.3%	43.7%	43.3%	45.9%	48.1%	46.5%
		Lower second class	10.7%	13.6%	11.0%	9.3%	25.2%	13.5%
		Third class/pass	0.8%	1.0%	0.8%	1.7%	2.2%	1.8%
		Unclassified	0.0%	0.0%	0.0%	6.8%	7.6%	7.0%
	Bachelor degree	First class	23.6%	20.0%	23.2%	12.3%	6.2%	11.3%
		Upper second class	36.9%	31.5%	36.3%	50.7%	39.5%	48.9%
		Lower second class	28.5%	28.5%	28.5%	25.5%	38.2%	27.5%
		Third class/pass	9.1%	17.5%	10.1%	4.0%	9.7%	4.9%
		Unclassified	1.9%	2.5%	1.9%	7.5%	6.5%	7.3%

* These data do not include astronomy.

Source: HESA student data.

Table 27: Degree classification of UK-domiciled full-time and part-time students completing courses in physics* with enhanced first-degree qualifications by category of parental occupation 2005/06 to 2009/10 combined

Category of parental occupation of students	Degree class				
	First-class honours	Upper-second-class honours	Lower- second-class honours	Third-class honours/pass	Unclassified
Higher managerial and professional occupations	47.6%	40.5%	11.5%	0.5%	0.0%
Lower managerial and professional occupations	45.8%	41.2%	12.4%	0.6%	0.0%
Intermediate occupations	45.8%	41.7%	11.1%	1.2%	0.2%
Small employers and own account workers	48.0%	41.4%	10.6%	0.0%	0.0%
Lower supervisory and technical occupations	50.3%	38.7%	10.6%	0.5%	0.0%
Semi-routine occupations	44.5%	41.0%	14.2%	0.3%	0.0%
Routine occupations	48.7%	38.1%	13.3%	0.0%	0.0%
Unknown/unclassified	42.3%	44.4%	12.6%	0.8%	0.0%
Overall	46.1%	41.3%	12.0%	0.6%	0.0%

* These data do not include astronomy.

Source: HESA student data.

3: Graduates from first-degree programmes in UK HEIs

class enhanced first degrees, noticeably higher proportions of male students in physics and mathematics gain first-class degrees than those in astronomy, chemistry, electronic & electrical engineering, and biological sciences. There are large differences in the proportions of men and women gaining first-class enhanced first degrees in astronomy, 39% and 63%, respectively. Although there is variation in the proportion of first-class and upper-second-class degrees awarded, there is relatively little variation in the total proportion of first-class and upper-second-class degrees.

Similar patterns are seen in the degree classes

awarded to students completing bachelor degrees. Higher proportions of first-class degrees are awarded in physics, astronomy and mathematics degrees than in chemistry, electronic & electrical engineering, and biological sciences. Those entering physics, astronomy and mathematics degree courses on average have higher grade entrance qualifications than those entering degree courses in chemistry, electronic & electrical engineering, and biological sciences.² A higher proportion of women than men gain first-class degrees.

Table 26 presents data on the classes of degrees that physics students, and students from all subjects,

² Accepted Applicants to Degree Courses in UK Higher Education Institutions, Institute of Physics, 2012.

Table 28: Degree classification of UK-domiciled full-time and part-time students completing courses in physics* with bachelor-degree qualifications by category of parental occupation 2005/06 to 2009/10 combined

Category of parental occupation of students	Degree class				
	First-class honours	Upper-second-class honours	Lower-second-class honours	Third-class honours/pass	Unclassified
Higher managerial and professional occupations	21.3%	31.4%	33.3%	12.9%	1.2%
Lower managerial and professional occupations	18.8%	32.7%	32.9%	14.1%	1.5%
Intermediate occupations	17.2%	30.8%	33.4%	16.0%	2.7%
Small employers and own account workers	21.7%	26.4%	33.8%	14.3%	3.8%
Lower supervisory and technical occupations	14.9%	31.0%	31.4%	19.2%	3.5%
Semi-routine occupations	17.1%	26.5%	36.9%	16.9%	2.7%
Routine occupations	17.9%	29.7%	29.7%	16.9%	5.6%
Unknown/unclassified	18.3%	29.6%	31.5%	17.4%	3.2%
Overall	19.0%	30.7%	33.0%	15.1%	2.3%

* These data do not include astronomy.

Source: HESA student data.

Table 29: Masters students completing courses in physics* by domicile and gender 2004/05 to 2009/10

Domicile	Gender	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
UK	Male	160	155	165	185	170	240
		66.1%	67.1%	69.3%	71.8%	68.7%	75.5%
	Female	80	75	75	75	80	80
		33.9%	32.9%	30.7%	28.2%	31.3%	24.5%
EU (ex-UK)	Male	40	35	35	50	35	65
		74.5%	63.2%	77.3%	81.7%	62.5%	78.3%
	Female	15	20	10	10	20	20
		25.5%	36.8%	22.7%	18.3%	37.5%	21.7%
Overseas	Male	60	60	65	85	95	95
		65.6%	69.0%	72.5%	69.6%	76.9%	76.2%
	Female	30	25	25	40	30	30
		34.4%	31.0%	27.5%	30.4%	23.1%	23.8%
Total		385	370	375	445	425	530

* These data do not include astronomy. Source: HESA student data. Counts of students are rounded to the nearest five and thus the total for each column may differ from that arrived at by summing the individual values in each row.

3: Graduates from first-degree programmes in UK HEIs

graduating from first-degree courses are awarded broken down by ethnicity. The data show that higher proportions of white males and females graduating with enhanced first-degree and bachelor-degree qualifications in physics, and across all subjects, are awarded first-class degrees than the respective groups of BME students.

The numbers of physics students in specific ethnic groups are too small for a more detailed examination of the degree class awarded.

Data on the degree classes awarded to physics students by categories of parental occupation are presented in tables 27 and 28. There is variation in the patterns of degree classes awarded by category of parental occupation but there are no clear trends in terms of socio-economic status.

3.2: Graduates from masters programmes

The number of students graduating with masters degrees in physics by domicile is shown in table 29. Masters-level degrees do not include enhanced first degrees.

The number of UK-domiciled graduates from masters courses in physics rose steadily between 2004/05 and 2009/10. The number of male graduates increased by 50% while the number of female graduates remained the same. The proportion of UK-domiciled graduates who are female in 2009/10 was 25%, compared to 33% in 2004/05. Even though the proportion of graduates who are female has fallen, females are over-represented relative to the proportion of first-degrees graduates who are female.

Table 30 presents data on the split between graduates from research and taught masters degrees. The proportion of taught masters graduates who are female

* These data do not include astronomy. Source: HESA student data. Counts of students are rounded to the nearest five and thus the total for each column may differ from that arrived at by summing the individual values in each row.

Table 30: UK-domiciled masters students completing courses in physics* by gender 2004/05 to 2009/10

Course undertaken	Gender	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Masters: research	Male	30	20	25	30	25	10
		62.7%	66.7%	81.3%	70.0%	75.0%	70.6%
	Female	20	10	5	10	10	5
		37.3%	33.3%	18.8%	30.0%	25.0%	29.4%
Masters: taught	Male	125	135	140	160	145	230
		67.0%	67.2%	67.5%	72.1%	67.7%	75.8%
	Female	60	65	65	60	70	75
		33.0%	32.8%	32.5%	27.9%	32.3%	24.2%
Total		240	230	240	260	250	320

* These data do not include astronomy. Source: HESA student data. Counts of students are rounded to the nearest five and thus the same value may correspond to different proportions of the total.

Table 31: UK-domiciled masters students completing courses in physics* by ethnicity 2004/05 to 2009/10 combined

Ethnicity	Number of masters students	Proportion of masters students of known ethnicity
White	1120	85.2%
Asian or Asian British – Bangladeshi	5	0.5%
Asian or Asian British – Indian	40	3.2%
Asian or Asian British – Pakistani	20	1.4%
Other Asian background	20	1.6%
Black or black British – African	15	1.3%
Black or black British – Caribbean	5	0.2%
Other black background	5	0.5%
Chinese	30	2.2%
Other and mixed ethnic background	50	3.8%
Unknown	220	

3: Graduates from first-degree programmes in UK HEIs

Table 32: Masters students completing courses in selected subjects by domicile and gender 2009/10

Domicile	Gender	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
UK	Male	240	10	285	150	525	1010	42,710
	Female	80	5	110	110	55	1150	56,910
EU (ex-UK)	Male	65	5	100	15	285	135	8430
	Female	20	0	45	25	50	185	9385
Overseas	Male	95	5	240	190	2410	705	42,110
	Female	30	5	170	110	450	695	33,635
Proportion of non-UK-domiciled graduates		33.9%	32.1%	40.6%	38.7%	72.7%	26.4%	31.0%
Total		530	30	950	600	3775	3875	193,185

Source: HESA student data. Counts of students are rounded to the nearest five and thus the same value may correspond to different proportions of the total.

Table 33: Doctoral students completing courses in physics* by domicile and gender 2004/05 to 2009/10

Domicile	Gender	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
UK	Male	305	370	365	325	330	375
	Female	80	85	100	85	100	90
EU (ex-UK)	Male	65	60	70	60	80	75
	Female	25	20	25	30	35	35
Overseas	Male	75	75	85	70	90	95
	Female	20	30	25	30	45	40
Total		575	640	670	605	675	710

* These data do not include astronomy.

Source: HESA student data. Counts of students are rounded to the nearest five and thus the total for each column may differ from that arrived at by summing the individual values in each row.

Table 34: UK-domiciled doctoral students completing courses in physics* by ethnicity 2004/05 to 2009/10 combined

Ethnicity	Number of doctoral students	Proportion of doctoral students of known ethnicity
White	1900	92.6%
Asian or Asian British – Bangladeshi	0	0.1%
Asian or Asian British – Indian	40	1.9%
Asian or Asian British – Pakistani	10	0.4%
Other Asian background	20	1.0%
Black or black British – African	5	0.1%
Black or black British – Caribbean	0	0.1%
Other black background	0	0.1%
Chinese	20	1.1%
Other and mixed ethnic background	55	2.6%
Unknown	560	

* These data do not include astronomy.

3: Graduates from first-degree programmes in UK HEIs

Table 35: Doctoral students completing courses in selected subjects by domicile and gender 2009/10

Domicile	Gender	Physics	Astronomy	Mathematics	Chemistry	Electronic & electrical engineering	Biological sciences	All subjects
UK	Male	375	45	195	400	215	500	5580
	Female	90	15	40	220	25	595	5270
EU (ex-UK)	Male	75	10	45	105	75	105	1430
	Female	35	0	20	95	5	115	1165
Overseas	Male	95	15	85	145	335	200	3640
	Female	40	5	40	95	70	185	2300
Proportion of non-UK-domiciled graduates		34.2%	34.4%	45.0%	41.4%	66.8%	35.6%	44.0%
Total		710	90	430	1055	725	1700	19,385

Source: HESA student data. Counts of students are rounded to the nearest five and thus the total for each column may differ from that arrived at by summing the individual values in each row.

fell from 33% in 2004/05 to 24% in 2009/10.

The ethnicity of UK-domiciled graduates from masters courses in physics between 2004/05 and 2009/10 is shown in table 31. 85% of UK-domiciled masters graduates in physics are white.

Table 32 presents data on the number of masters graduates in 2009/10 in selected subjects by domicile and gender. The total number of graduates varies significantly. Of note is the number of masters graduates in electronic & electrical engineering, in particular, when compared to the number of first-degree graduates, 5265 in 2009/10. It is also interesting to note the variation in the proportion of non-UK-domiciled graduates that ranges from 34% for physics to 69% for electronic & electrical engineering.

3.3: Graduates from doctoral programmes

Table 33 presents data on the number of doctoral graduates in physics between 2004/05 and 2009/10.

The number of UK-domiciled doctoral graduates rose between 2004/05 and 2009/10 from 385 to 465, and the overall proportion of doctoral graduates who are female remained steady: the proportion was 22% in 2004/09 and 23% in 2009/10. The proportion of non-UK-domiciled doctoral graduates who are female is higher than that for UK-domiciled graduates: 31% compared to 19%, respectively, in 2009/10.

Table 34 presents data on the ethnicity of UK-domiciled doctoral graduates between 2004/05 and 2009/10: 93% of the graduates are white.

Table 35 presents data on the number of doctoral graduates in 2009/10 in selected subjects by domicile and gender. The total number of doctoral graduates varies significantly from subject to subject. Physics and astronomy have the lowest proportions of non-UK-domiciled doctoral graduates, both 34%, and electronic & electrical engineering has the highest, 67%.

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Statistical Report

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March 2012

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