



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

Trends in fields of study of bachelors degree graduates in New Zealand

This report forms part of a series called Learners in tertiary education. Other topics covered by the series are access, pathways, support, participation, retention and qualification completions.

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Trends in fields of study of bachelors degree graduates in New Zealand

Summary	1
1 Introduction	3
2 Bachelors degree graduates	6
2.1 Bachelors graduates in 2006	6
2.2 Which fields where?	7
2.3 Domestic and international	10
2.4 Changes in the last five years	12
2.5 Men and women	21
2.6 Ethnic differences	23
3 Data and methods	26
Appendix A New Zealand Standard Classification of Education (NZSCED)	32

FIGURES

1	Bachelors degree graduates in 2006 by broad field of specialisation	6
2	Percentage of bachelors degree graduates in 2006 by broad field of specialisation and type of provider	8
3	Percentage of bachelors degree graduates in 2006 by broad field of specialisation and whether domestic or international	10
4	Domestic bachelors degree graduates in society and culture: 2002 to 2006	15
5	Domestic bachelors degree graduates in studies in human society: 2002 to 2006	15
6	Domestic bachelors degree graduates in health: 2002 to 2006	16
7	Domestic bachelors degree graduates in management and commerce: 2002 to 2006	17
8	Domestic bachelors degree graduates in information technology: 2002 to 2006	17
9	Domestic bachelors degree graduates in natural and physical sciences: 2002 to 2006	18
10	Domestic bachelors degree graduates in engineering and related technologies: 2002 to 2006	18
11	Domestic bachelors degree graduates in education: 2002 to 2006	19
12	Domestic bachelors degree graduates in creative arts: 2002 to 2006	19
13	Domestic bachelors degree graduates in architecture and building: 2002 to 2006	20
14	Domestic bachelors degree graduates in agriculture, environmental and related studies: 2002 to 2006	20
15	Percentage of domestic bachelors degree graduates in 2006 by broad field of specialisation and gender	21
16	Percentage of domestic bachelors graduates who were female in 2002 and 2006, by narrow field of specialisation	23
17	Percentage of domestic bachelors degree graduates in 2006 by broad field of specialisation and ethnic group	23
18	How different are the fields of specialisation of domestic bachelors degree graduates between ethnic groups?	25

TABLES

1	The 10 most common narrow fields of specialisation for bachelors degree graduates in 2006	7
2	Bachelors degree graduates and qualifications by type of provider in 2006	7
3	The 10 most common narrow fields of specialisation for ITP bachelors degree graduates in 2006	9
4	The 10 most common narrow fields of specialisation for domestic and international bachelors degree graduates in 2006	11
5	The most and least common narrow fields of specialisation for international bachelors degree graduates in 2006	12
6	The 10 most common narrow fields of specialisation for domestic bachelors degree graduates: 2002 to 2006	13
7	The fastest growing narrow fields of specialisation for domestic bachelors degree graduates	13
8	The fastest declining narrow fields of specialisation for domestic bachelors degree graduates	14
9	The 10 most common narrow fields of specialisation for domestic bachelors degree graduates in 2006 by gender	21
10	The 10 most and least common narrow fields of specialisation for domestic female bachelors degree graduates in 2006	22
11	The 10 most common narrow fields of specialisation for Māori, Pasifika, European and Asian domestic bachelors degree graduates in 2006	24

SUMMARY

KEY POINTS

Teacher education, business and management, studies in human society, sales and marketing, law and nursing were the most common fields of specialisation for domestic bachelors graduates in 2006.

The fastest growing areas were biological sciences (up 310 graduates, or 36 percent since 2002), law (up 300, or 28 percent), communication and media studies (up 230, or 54 percent), and social work and counselling (up 210, or 92 percent).

The fastest declining areas were information technology (down 660 graduates, or 40 percent from 2002), teacher education (down 380, or 15 percent) and education studies (360, or 28 percent), and accountancy (down 230, or 20 percent).

International students were more likely to study management and commerce or information technology. International graduates outnumbered domestic in the fields of economics, and banking and finance.

A key focus of the New Zealand tertiary education system over the last decade has been on developing a stronger relationship between the supply of skills and knowledge from the education sector and the demand for these skills from the labour market. Improving the knowledge base on what fields tertiary students are graduating in is a key element of this goal, and a primary objective of this report.

This report looks at trends in the fields of study of bachelors degree graduates in New Zealand. It uses newly developed, more detailed, and more reliable information on field of study than has previously been available. Accompanying this report is a set of new statistical tables, which replace and extend existing field of study data on the Ministry of Education's Education Counts website. For graduates' field of specialisation, the new method currently only permits analysis for the years 2002 to 2006. Data for later years will be added as it becomes available. Therefore the trends presented in this report may not reflect environmental changes in the last two years, such as effects from the implementation of recent tertiary sector reforms, or any effects from the current economic recession.

Nearly 26,000 people gained a bachelors degree in 2006. Teacher education, business and management, and studies in human society have remained the three most common fields of specialisation for domestic bachelors graduates for the last five years. Sales and marketing, law, and nursing were the next three most common specialisations.

One in five graduates was an international student. International students were more likely to study management and commerce or information technology. In fact, international graduates outnumbered domestic in the fields of economics, and banking and finance.

The largest numerical increases over the last five years have been in biological sciences (up by 310 graduates, or 36 percent), law (up 300, or 28 percent), communication and media studies (up 230, or 54 percent), and social work and counselling (up 210, or 92 percent). Other smaller but rapidly growing fields were public health (up 120 or 230 percent), and justice and law enforcement (up 110 or 150 percent). Strong growth also in biotechnology and pharmacology has seen the 'other sciences' group increase by 160 graduates or 56 percent since 2002.

The biggest decreases have been in information technology (down over 660, or 40 percent), teacher education (down 380, or 15 percent) education studies (down 360, or 28 percent), and accountancy (down 230, or 20 percent). In contrast to the decline in information technology, there has been a 25 percent increase in graduates in graphic and design studies, much of which has been due to growth in computer-based multimedia and design courses. Despite the decline in education graduates, teacher education still remains the most common field of specialisation, while information technology fields have now dropped out of the top ten.

Students gained bachelors degrees at over 40 tertiary education providers, including 14 private training establishments. However, 83 percent of graduates were from the eight universities. While institutes of technology and polytechnics (ITPs) produced 15 percent of all graduates, their share was higher in the broad fields of health, creative arts, information technology, and architecture and building. Three-quarters of nursing graduates were from ITPs. Nearly half of graduates in social work and counselling were from ITPs, while around 40 percent of graduates in graphic arts and design, and visual arts and crafts were from ITPs. Just over 700 students (or two percent) gained a bachelors degree from a wānanga or private training establishment.

The number of domestic graduates increased in total by four percent between 2002 and 2006. However, growth in the sciences was higher than this (up 200, or 16 percent), mainly due to growth in the biological sciences. Engineering was stable between 2002 and 2005, but increased by 19 percent in 2006, with growth spread over a number of engineering disciplines.

Graduate numbers in the humanities have remained stable since 2003 at around 1,500 a year. In health, the number of nursing graduates, representing 40 percent of health graduates, fell by 13 percent in 2006. Medical studies graduate numbers have remained relatively constant at between 420 and 450 a year, while dental studies (specifically the allied dental professions) and pharmacy have grown steadily (up 60 percent) since 2002.

Graduate numbers in teacher education declined by 380, or 28 percent, since 2002. Much of the decline was between 2002 and 2003, there was a drop again in 2005 and a slight pick up between 2005 and 2006 graduates. Data for 2007 and 2008 graduates is not yet available to confirm current trends. Over the period of analysis, two of the then four colleges of education merged with their local university, while the remaining two followed in 2007.

The number of graduates in management and commerce fields has increased nine percent since 2002, despite a 20 percent decline in accountancy. Creative arts graduate numbers have been increasing rapidly, and they now number more than those in the sciences. This is largely due to growth in journalism and media studies (up 230, or 54 percent), and graphic and design studies in particular computer-based design fields, which have increased by 150 graduates or 25 percent since 2002.

Teacher education, nursing and studies in human society (the humanities) were the most common specialisations for women bachelors graduates, while business and management, sales and marketing and law were the fields most commonly studied by men.

Women increased their share of graduates in dental studies, agriculture, and justice and law enforcement, while their share of graduates decreased in most engineering disciplines, information technology, tourism, and the performing arts.

At the broad field of study level, domestic Asian graduates were more likely to be found in the sciences, information technology, engineering, and management and commerce. Māori and Pasifika graduates were more likely than European or Asian graduates to be found in education, or society and culture. There were significantly fewer Asian graduates in education, or society and culture.

1 INTRODUCTION

This report looks at recent trends in the fields of the specialisation of bachelors degree graduates in New Zealand.

Knowing what skills and knowledge graduates bring to the labour market is important. It can help improve alignment between the supply of skills and knowledge from the education sector and the demand for these skills from the labour market.

This has been a key focus area of the tertiary education system over the last decade. The current Tertiary Education Strategy,¹ states:

“The tertiary education sector in New Zealand delivers a great deal of education and training relevant to the needs of the economy. Quality tertiary education across a range of disciplines develops the broad competencies that New Zealanders need to meet today’s needs and adapt to the future. Tertiary education also has a role in meeting the specific skill needs of particular industry groups. Trades, technical and professional qualifications equip New Zealanders with the specific skills and knowledge needed to enter an occupation.”

The New Zealand Skills Strategy 2008,² also addresses this link between supply and demand of skills. For example, it states:

“In order to support an enhanced relationship between the supply and demand for skills, we need improved labour market and skill information that forms an integrated knowledge base. We need to collaborate better for improved labour market information to inform our decision-making, eg information relating to demographic projections, occupational and sectoral trends, and regional data. Creating a greater understanding of how well we are doing in regards to skills, is a key component to pushing the debate beyond just skills development to greater use of skills.”

While there is increased public interest in influencing skills supply, private motivations also affect a student’s choice of what to study. To a greater or lesser extent, students have to make a choice that balances tuition costs, the burden of future loan repayments and reduced income during study against their interests and aptitudes and chances of getting a good job with a good income in the future. Sometimes the choice of what to study is influenced by knowing that there is a current demand for certain skills and therefore increased prospects for employment in that area. Other times, choice is influenced by knowing the income premiums that certain professions have. However, in many cases, students may choose a field with little regard to the labour market, having a pre-disposed preference or ability for that subject area, or through peer or parental influences.

The tertiary education system is not just a supplier of skills for the domestic labour market. New Zealand has one of the highest rates of participation by international students in the OECD.³ Nearly one in five bachelors graduates in 2006 was an international student. The choice of what to study for international students can be influenced by a different set of factors from those influencing domestic students. Many (but not all) international students will leave New Zealand

¹ Ministry of Education (2006), *Tertiary Education Strategy 2007–12 incorporating Statement of Tertiary Education Priorities 2008–10*.

² Business New Zealand, Council of Trade Unions, Industry Training Federation (2008). *New Zealand Skills Strategy 2008 Discussion Paper*.

³ OECD (2008) *Education at a Glance 2008 OECD Indicators*, Table C3.1, page 366.

after study, so may be seeking fields where the skills and credentials they've gained can be readily transferred and recognised outside New Zealand. Because of the usually significant extra tuition costs faced by most international students, the choice of what to study for some is likely to be influenced more by future economic returns, ie which degrees will earn most. English language content is also likely to be a factor for some non-native English language speakers. Consequently, there are marked differences in which fields domestic and international students study. These differences are discussed further in this report. However, because much of the current interest is in domestic labour market supply, most of this report focuses on domestic students only.

Nearly 26,000 people gained a bachelors degree in New Zealand in 2006. The Bachelor of Arts, Bachelor of Science, and Bachelor of Commerce degrees remain the three most common qualifications. Over one in three graduates gained one of these degrees. The Bachelor of Business Studies, and the Bachelor of Commerce and Administration were the next most common degrees, and, when considered together with the Bachelor of Commerce, had more graduates than either of the Bachelor of Arts or the Bachelor of Science degrees. The Bachelor of Education, Bachelor of Nursing, and the Bachelor of Laws rounded out the most common groups of bachelors degree qualifications in 2006.

However, inferring popularity from qualification titles alone is not so useful, as different providers often name related degrees differently. For example, Bachelor of Education and Bachelor of Teaching, or Bachelor of Nursing and Bachelor of Health Science (Nursing). Along with the structure and nomenclature of conjoint degrees, this makes grouping and analysis of degrees by title problematic.

Qualification names are also often not a good indicator of the skills and knowledge gained in particular fields, especially for more general degrees such as Bachelor of Science or Bachelor of Arts. Over a third of the fields studied by Bachelor of Science graduates are not in the natural and physical sciences, while over one in ten Bachelor of Arts and Bachelor of Commerce graduates specialised in fields outside of society and culture, and management and commerce respectively. In other cases, such as teaching, and some of the health professions, the qualification name much more closely reflects the student's fields of specialisation.

While field of study is not a direct measure of skills, it is – along with qualification – the best, and perhaps one of the only measures currently available to measure the skills and knowledge that a graduate brings to the labour market. Each qualification, and each course within a qualification, is assigned a field of study using the New Zealand Standard Classification of Education (NZSCED). Course-level field of study data has been collected since 2001, when the New Zealand Standard Classification of Education (NZSCED) was first introduced.⁴

This report is based on a project which involved the development of new, more detailed, more reliable data on what fields people study than has been available up to now. Existing national information on tertiary education participation and achievement by field of study has been very limited. Earlier Ministry of Education statistics, for example, were based on a field of study coding assigned at the qualification level and so in many cases – especially in multi-year qualifications and at higher levels – failed to accurately capture the main subjects studied in the courses taken as part of that qualification. For instance, all Bachelor of Science graduates were shown as graduates in natural and physical sciences because science degrees are assigned to that broad NZSCED field. This meant that we weren't able to separate out, among the Bachelor of Science graduates, those in computer science from those in mathematics, or those in biological

⁴ www.educationcounts.govt.nz/technical_info/code_sets/new_zealand_standard_classification_of_education_nzsced has the full NZSCED classification and definitions. Appendix A in this report has the full list of NZSCED codes.

science from those in physical science. As a result, these statistics on field of study tended to be reported at the broad level only (12 categories) and had significant shortcomings.

A better picture can be seen by looking at the fields of study for the various courses⁵ a graduate was enrolled in as part of their qualification and assessing which field or fields represent the greatest 'weight' in the individual graduate's array of choices. The new approach assigns to each graduate a combination of fields that reflects in a more precise way the fields taken, irrespective of the name of the qualification. In broad terms, this new approach defines a field of specialisation as one involving the equivalent of at least two full-time courses (roughly one-third of a full-time, full-year programme) at a level equivalent to the final-year level of the qualification.⁶

This new approach means we can get a good idea of what each individual graduate brings to the labour market. Field of specialisation can be categorised at either the broad, or the narrow, or the detailed levels of the NZSCED classification. There are 12 categories at the broad level, 71 at the narrow level and 376 at the detailed level.⁷ Most of this report describes trends at either the broad or the narrow level, although the new underlying data will be able to support analysis at the detailed level. It will also enable accurate reporting where there are multiple specialisations. For example, for 2006 bachelors graduates, 60 percent had one specialisation at the detailed NZSCED level, 33 percent had two, 6 percent had three, and less than one percent had more than three.

For graduates' field of specialisation, the new method currently only permits analysis for the years 2002 to 2006. Data for later years will be added as it becomes available. Therefore the trends presented in this report will not reflect any environmental changes in the last two years, such as any effects from the implementation of recent tertiary sector reforms, or any effects from the current economic recession. Care may therefore be needed when applying these past trends to the present or possible future environments. For participation (ie enrolments and equivalent full-time students) however, data on field of study using this new approach is available for the period 2001 to 2008.

This report provides a descriptive overview of just one part of the tertiary education sector, namely students graduating with a bachelors degree. Its purpose is not to examine in depth the influences behind the trends, or their interaction with providers, or the labour market. The new data will support opportunities for more such research to occur. One such report already underway using this new data will focus on advanced trade, technical and professional qualifications.⁸

Accompanying the release of this report, statistical tables using this new data replace and extend earlier field of study data on the Ministry of Education's Education Counts website. These contain tables on participation (enrolments and equivalent full-time students), in addition to those on qualification achievement and also cover other levels of study, in addition to bachelors.

⁵ In the terminology used in this report, courses are the components of a qualification.

⁶ Section 3 has a fuller discussion of the data and methods used in this project.

⁷ See Section 3 and Appendix A for more details on NZSCED. There are two broad fields which had no bachelors degree graduates. These are 'food hospitality and personal services' and 'mixed field programmes'.

⁸ Earle (2009 forthcoming) *Advanced trade, technical and professional qualifications, trends in supply*. Ministry of Education.

2 BACHELORS DEGREE GRADUATES

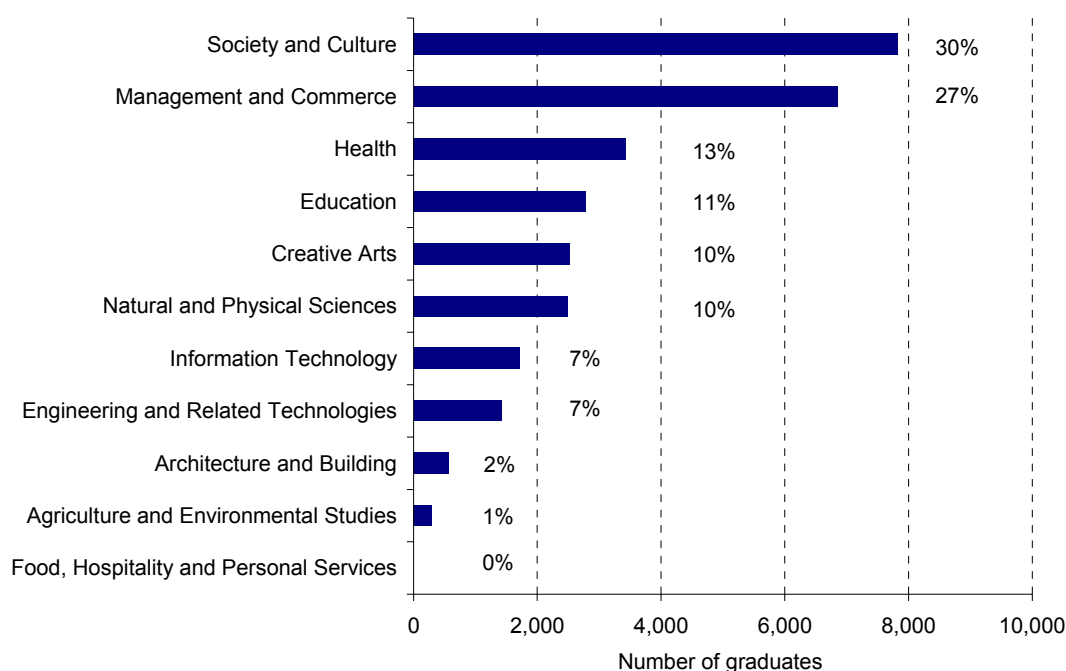
2.1 Bachelors graduates in 2006

Nearly 26,000 people gained a bachelors degree in New Zealand in 2006. Eighty-three percent of these students gained their degree at one of the country's eight universities, while the remaining 17 percent gained their degree from one of 35 non-university providers. Almost one in five (or 19 percent) was an international student.

Field of specialisation can be categorised at either the broad, or the narrow, or the detailed levels of the NZSCED classification. There are 12 categories at the broad level, 71 at the narrow level and 376 at the detailed level.⁹ Most of this report describes trends at either the broad or the narrow level.

A graduate can have more than one specialisation, and throughout this report they have been counted in each field they specialised in. For example, 83 percent of bachelors graduates in 2006 had one specialisation at the broad level of NZSCED, while almost all of the remainder had two. At the narrow level of NZSCED, 69 percent had one specialisation, 29 percent had two, and two percent had more than two. At the detailed level of NZSCED, 60 percent had one specialisation, 33 percent had two, and seven percent had more than two.

Figure 1:
Bachelors degree graduates in 2006 by broad field of specialisation



Notes: The figure next to each bar is the percentage of all graduates studying in that field. Students with specialisations covering more than one broad field have been counted in each broad field they specialised in.

Figure 1 shows the distribution of 2006 bachelors degree graduates across the 12 broad fields of education. Students graduating in the broad fields of society and culture, and management and commerce made up 57 percent of all graduates (both domestic and international).

⁹ See Section 3 and Appendix A for more details on NZSCED. There are two broad fields which had no bachelors degree graduates. These are 'food hospitality and personal services' and 'mixed field programmes'.

These broad fields, however, often include a diverse range of specialties. Table 1 shows the most common fields of specialisation in 2006 across the 71 narrow fields of education. With international graduates included, business and management was the most common field of study. For domestic students, teacher education was the most common field of study. Trends for domestic students only are discussed further in section 2.4.

Table 1:

The 10 most common narrow fields of specialisation for bachelors degree graduates in 2006

Narrow field	Number of graduates	Percent of total graduates
Business and Management	2,790	10.8%
Teacher Education	2,130	8.2%
Sales and Marketing	2,000	7.7%
Studies in Human Society	1,650	6.4%
Accountancy	1,560	6.0%
Banking, Finance and Related Fields	1,430	5.5%
Nursing	1,430	5.5%
Law	1,410	5.5%
Language and Literature	1,280	5.0%
Biological Sciences	1,270	4.9%
All fields	25,820	100%

Notes: Includes both domestic and international students. Students can be counted in more than one field.

2.2 Which fields where?

Students gained bachelors degrees at 43 tertiary education providers in 2006. This included the eight universities and the then two remaining colleges of education, 16 of the 20 institutes of technology polytechnics (ITPs), all three wānanga, and 14 private training establishments (PTEs).

Of the nearly 26,000 domestic students gaining a degree in 2006, 83 percent graduated from universities (including the colleges of education), 15 percent from ITPs, one percent from wānanga, and one percent from PTEs. Table 2 shows the distribution across provider types.

Table 2:

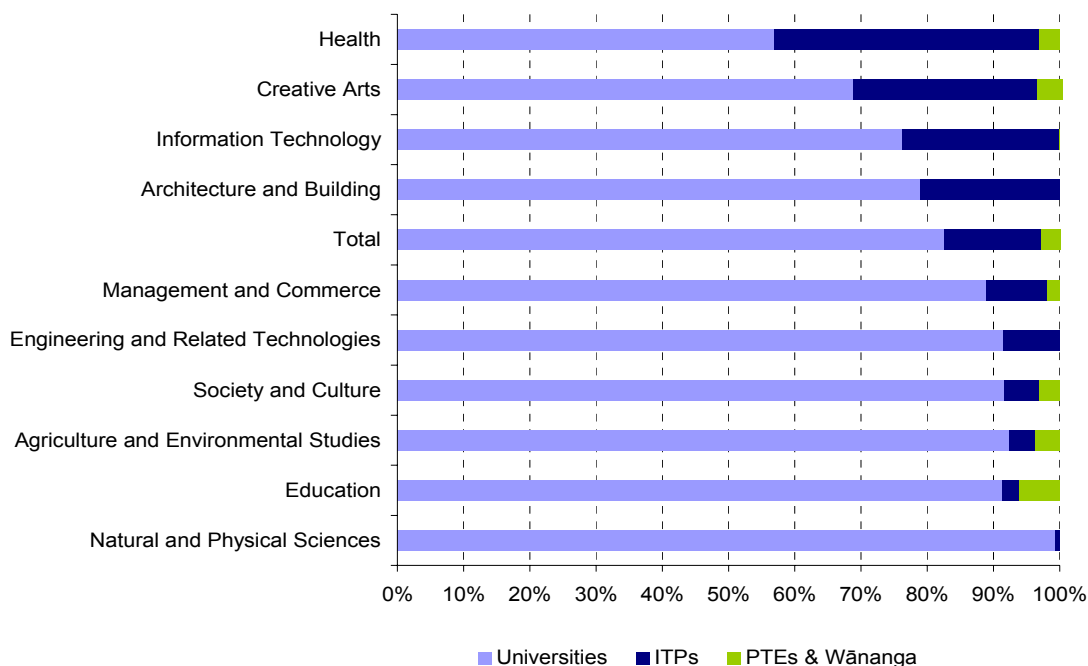
Bachelors degree graduates and qualifications by type of provider in 2006

Type of provider	Number of providers with students gaining bachelors	Number of graduates	Number of bachelors qualifications	Number of narrow fields gained in (maximum is 71)
Universities	8	21,300	223	61
Institutes of technology & polytechnics	16	3,800	120	44
Wānanga	3	380	21	16
Private training establishments	14	360	18	13
All provider types	43	25,800	384	61

Notes: All bachelors qualifications, including those that share the same title, are treated as separate local qualifications, and therefore are counted separately for each provider that offers them. Colleges of Education have been included with universities.

Figure 2 below shows the distribution of broad fields for 2006 bachelors graduates by type of provider. While ITP graduates made up 15 percent of bachelors graduates across all fields, their share was higher in the broad fields of health, creative arts, information technology, and architecture and building and lower in all other broad fields, in particular in the natural and physical sciences, and education.

Figure 2:
Percentage of bachelors degree graduates in 2006 by broad field of specialisation and type of provider



These broad fields, however, often comprise a diverse range of disciplines, and a mix of differing academic and vocational foci. Table 3 looks at the narrow level, showing the 10 most common fields for domestic ITP graduates in 2006.

In the broad field of health, ITPs dominated the supply of bachelors graduates in nursing and radiography. Over three-quarters of all nursing graduates were from ITPs, and nursing graduates made up a third of all ITP bachelors graduates. ITPs also produced 22 percent of graduates in rehabilitation therapies (specifically occupational therapy, chiropractic and osteopathy). However, in the fields of medicine, dental studies, pharmacy and optical science, universities continued to be the only, or just about the only, supplier of bachelors-level graduates.

ITPs were an active supplier of graduates in human welfare studies and services, in particular in social work and counselling, where about half of all graduates in these fields came from ITPs. ITPs had a strong focus in the creative arts fields, in particular, in graphic arts and design studies, and fine arts. In total, 29 percent of all creative arts graduates were from ITPs. ITPs also dominated the supply of bachelors graduates in dance and photography. ITPs also had a strong focus on information technology degrees. Over 20 percent of all bachelors degrees in information technology were from ITPs, and information technology graduates made up 12 percent of all ITP degree graduates.

Table 3:

The 10 most common narrow fields of specialisation for ITP bachelors degree graduates in 2006

Narrow field	Number of graduates	Percent of total sector graduates	Narrow field	Number of graduates	Percent of total sector graduates
By highest number of graduates			By highest percentage of total sector graduates		
Nursing	1,080	76%	Radiography	90	78%
Information Systems	360	31%	Nursing	1,080	76%
Graphic and Design Studies	320	37%	Human Welfare Studies and Services	210	49%
Business and Management	280	10%	Building	50	46%
Human Welfare Studies and Services	210	49%	Visual Arts and Crafts	210	44%
Visual Arts and Crafts	210	44%	Graphic and Design Studies	320	37%
Computer Science	190	24%	Information Systems	360	31%
Accountancy	190	12%	Computer Science	190	24%
Communication and Media Studies	170	20%	Rehabilitation Therapies	100	22%
Sales and Marketing	170	9%	Veterinary Studies	30	20%
All fields	3,800	15%	All fields	3,800	15%

Notes: Includes both domestic and international students. Excludes fields with less than 10 graduates. Also excludes 'not elsewhere classified', 'mixed', and 'not further defined' categories. Students can be counted in more than one field. See Section 3 for more details.

There are around 1,500 students enrolled each year in bachelors degrees at the country's three wānanga. Wānanga offer around 25 to 30 bachelors degree qualifications. These have a focus on teacher education, health, Māori studies, business administration, and creative arts. Wānanga degrees have a strong Te Reo (Māori language) and tikanga (Māori culture and customs) component.

There were 360 bachelors graduates from wānanga in 2006. Of these, 28 percent were in teacher education, mainly primary education, Māori education, bi-lingual teacher education. Nearly a quarter of graduates specialised in community health, and hauora (Māori health). A further 17 percent of graduates studied business and management, while 15 percent specialised in studies in human society (including history, and tikanga, or Māori customs. Māori performing arts, and visual arts and crafts made up a further 13 percent. Together, these nine fields were studied by 96 percent of wānanga graduates.

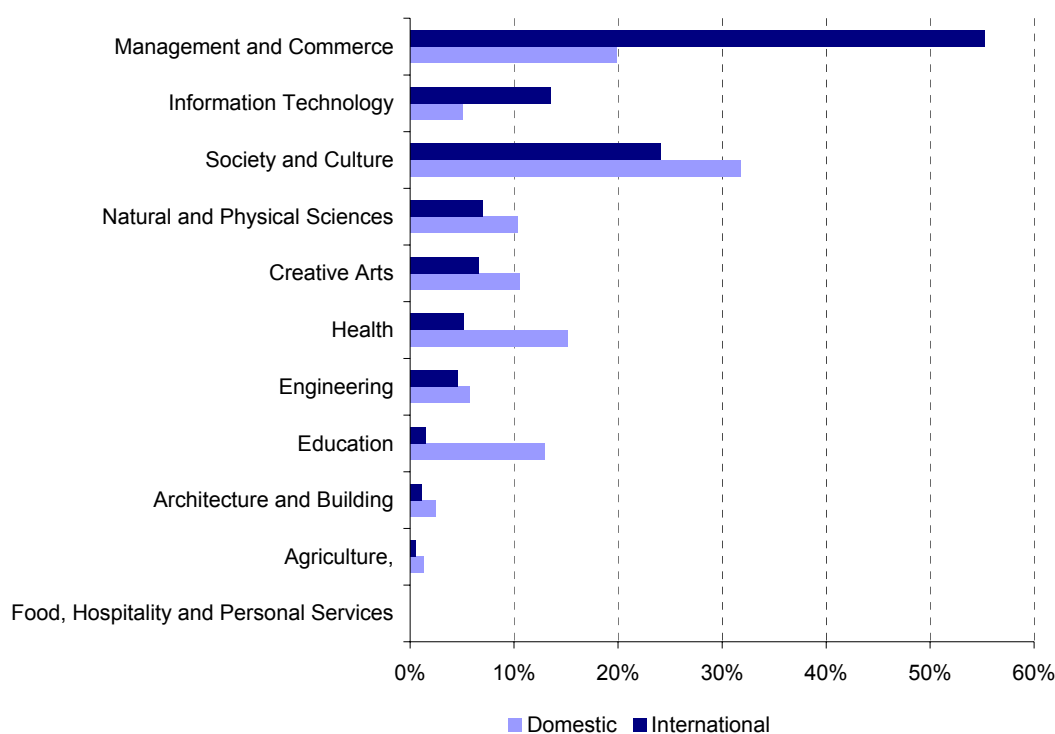
Similarly, there were around 1,800 students enrolled in around 20 different bachelors degrees at 15 private training establishments (PTEs) in 2006. 360 students gained a bachelors degree from a PTE in 2006. PTEs often provide education in particular niche or specialty areas. For example, 22 percent of PTE bachelors graduates gained a degree in religious studies (such as the Bachelor of Ministries, and the Bachelor of Theology). Teacher education and business and management made up another 17 and 14 percent respectively of 2006 graduates. Also popular were degrees in music, drama and theatre studies, and fine arts, such as the Bachelor of Music (Contemporary Christian Music) from ATC New Zealand, and the Bachelor of Fine Arts from Whitecliffe College of Arts and Design. Specific bachelors degrees were also provided in chiropractics, massage, acupuncture, as well as counselling, hospitality and tourism management. One of the degrees with the highest enrolments and number of graduates was in the Bachelor of International Studies provided by the International Pacific College.

2.3 Domestic and international

New Zealand has one of the highest rates of participation by international students in the OECD.¹⁰ Nearly one in five (or 4,870 out of 25,820) bachelors graduates in 2006 was an international student). The choice of what to study for international students can be driven by a different set of factors from those influencing domestic students. Many (but not all) international students are likely to leave New Zealand after study, so may be seeking fields where the skills and credentials gained can be readily transferred and recognised outside New Zealand. Because of the significant extra tuition costs faced by most international students, the choice of study for some is also more likely to be influenced by future economic returns, ie which degree will earn most. Other factors such as English language content are discussed further below.

As a result, there are marked differences in what fields domestic and international students study. Figure 3 compares the specialisations of domestic and international bachelors degree graduates across 11 broad fields of study.

Figure 3:
Percentage of bachelors degree graduates in 2006 by broad field of specialisation and whether domestic or international



A higher proportion of international graduates specialised in management and commerce or information technology. In fact, more than half of all international bachelors graduates were in management and commerce, compared with 20 percent for domestic graduates. There were nearly two international graduates for every three domestic graduates in management and commerce or information technology. Skills and credentials in information technology and management are likely to be more easily transferable to a student's home country. Information technology may also appeal to some non-native English language speakers, because its courses will rely less on English and more on internationally-compatible or recognised computing skills.

¹⁰ OECD (2008) *Education at a Glance 2008 OECD Indicators*, Table C3.1, page 366.

Table 4:

The 10 most common narrow fields of specialisation for domestic and international bachelors degree graduates in 2006

Narrow field	Number of graduates	Percentage of domestic graduates	Narrow field	Number of graduates	Percentage of international graduates
Domestic students			International students		
Teacher Education	2,100	10.0%	Business and Management	980	20.1%
Business and Management	1,810	8.6%	Banking and Finance	880	18.1%
Studies in Human Society	1,550	7.4%	Sales and Marketing	670	13.8%
Sales and Marketing	1,330	6.3%	Accountancy	610	12.5%
Law	1,300	6.2%	Economics and Econometrics	510	10.5%
Nursing	1,290	6.2%	Information Systems	510	10.5%
Biological Sciences	1,150	5.5%	Computer Science	250	5.1%
Language and Literature	1,100	5.3%	Other Society and Culture (N.E.C., mixed or N.F.D.)	220	4.5%
Behavioural Science	1,000	4.8%	Communication and Media Studies	190	3.9%
Accountancy	940	4.5%	Language and Literature	170	3.5%
All fields	20,950	100%	All fields	4,870	100%

Note: N.E.C. is 'not elsewhere classified'. N.F.D is 'Not further defined'. Students can be counted in more than one field. See Section 3 for more details.

Table 4 shows differences between domestic and international students at the narrow level. The top five fields for international students were within the broad field of management and commerce, while the next two were in information technology. Relatively few international bachelors graduates can be found in education. Just one percent of international graduates were in teacher education. International graduates were also under-represented in health. Seven percent of health graduates were international students, compared with 19 percent over all fields. Of those who do graduate in health, more are likely to do so in nursing, rather than in fields such as in medicine, dentistry, veterinary, and pharmacy, which, in general, have limits on the numbers of new entrants each year, including those from overseas.

Table 5 below shows the 10 fields of specialisation with the highest proportion of international graduates, and the 10 fields with the lowest proportion of international graduates. Banking and finance, and economics were the two most highly represented specialisations for international graduates. In fact, graduates from overseas outnumbered domestic graduates in these two fields. One in 10 international students graduated with economics as their specialty. The field of economics is classified under the broad field of society and culture, rather than management and commerce. International graduates in society and culture are therefore dominated by its economics graduates more so than other fields such as the humanities or law. In fact, with economics removed just 14 percent of international bachelors graduates were in society and culture compared with 29 percent for domestic graduates. Courses with higher English language content such as English literature, history or law may act to discourage some non-native English language speakers from pursuing these fields.

Table 5:

The most and least common narrow fields of specialisation for international bachelors degree graduates in 2006

Field of study (narrow level)	Domestic and international graduates	Percent of all graduates that are international
Banking, Finance and Related Fields	1,430	62%
Economics and Econometrics	1,010	51%
Tourism	270	50%
Aerospace Engineering and Technology	80	49%
Information Systems	1,180	43%
Accountancy	1,560	39%
Business and Management	2,790	35%
Sales and Marketing	2,000	33%
Computer Science	790	32%
Mathematical Sciences	420	31%
All fields	25,820	19%
Agriculture	130	4%
Visual Arts and Crafts	490	4%
Optical Science	20	4%
Public Health	190	4%
Rehabilitation Therapies	460	3%
Earth Sciences	320	3%
Teacher Education	2,130	2%
Sport and Recreation	430	2%
Human Welfare Studies and Services	440	1%
Radiography	110	1%

Notes: Excludes fields with less than 10 graduates. Also excludes 'not elsewhere classified', 'mixed', and 'not further defined' categories. Students can be counted in more than one field. See Section 3 for more details.

2.4 Changes in the last five years

The numbers of bachelors graduates grew by 22 percent between 2002 and 2006, increasing by 4,700 to reach 25,820 in 2006. However, this figure masks two markedly different underlying trends. The number of domestic bachelors graduates grew by just 4 percent over this period, with most of this growth between 2005 and 2006. By contrast, the number of international bachelors graduates more than quadrupled, rising from just over 1,000 in 2002 to nearly 4,900 in 2006. In contrast to domestic numbers, most of this growth occurred between 2002 and 2005, reflecting the increases in participation that began around 2000.

To better understand trends in the supply of skills for the New Zealand labour market, this section focuses on domestic graduates only. While the overall growth in the number of domestic bachelors graduates has been modest in recent years, growth in some fields has been significant, while in other fields, the number of graduates has declined. Table 5 below shows how the 10 most common specialisations for domestic bachelors graduates have changed between 2002 and 2006.

Table 6:

The 10 most common narrow fields of specialisation for domestic bachelors degree graduates: 2002 to 2006

Field of study (narrow level)	Number of graduates	As a percentage of all graduates	Ranking				
			2002	2003	2004	2005	2006
Teacher Education	2,100	10.0%	1	1	1	1	1
Business and Management	1,810	8.6%	3	2	2	2	2
Studies in Human Society	1,550	7.4%	2	3	4	3	3
Sales and Marketing	1,330	6.3%	9	8	7	7	4
Law	1,300	6.2%	10	7	5	5	5
Nursing	1,290	6.2%	4	4	3	4	6
Biological Sciences	1,150	5.5%	13	13	12	9	7
Language and Literature	1,100	5.3%	6	9	6	6	8
Behavioural Science	1,000	4.8%	11	10	11	10	9
Accountancy	940	4.5%	8	11	10	12	10
All fields	20,950	100%					

Note: Students can be counted in more than one field.

The three most common fields have remained unchanged over the last five years – teacher education, business and management, and studies in human society. Biological sciences, law, and sales and marketing have become more common, while curriculum and education studies and information systems have dropped out of the top ten.

Table 7:

The fastest growing narrow fields of specialisation for domestic bachelors degree graduates

Field of study (narrow level)	Increase in graduates between 2002 and 2006				
	By number		Field of study (narrow level)	By percentage increase	
	Number	Percentage increase		Number	Percentage increase
Biological Sciences	310	36%	Public Health	120	230%
Law	290	28%	Justice and Law Enforcement	110	151%
Communication and Media Studies	230	54%	Other Management and Commerce	90	106%
Human Welfare Studies and Services	210	92%	Human Welfare Studies and Services	210	92%
Business and Management	200	12%	Dental Studies	40	68%
Sales and Marketing	190	17%	Pharmacy	70	58%
Other Natural and Physical Sciences (N.E.C., mixed or N.F.D.)	160	56%	Other Natural and Physical Sciences (N.E.C., mixed or N.F.D.)	160	56%
Graphic and Design Studies	150	25%	Building	30	56%
Other Health (N.E.C., mixed or N.F.D.)	140	46%	Veterinary Studies	40	55%
Public Health	120	230%	Communication and Media Studies	230	54%
All fields	840	4%	All fields	840	4%

Note: N.E.C. means not elsewhere classified. N.F.D. means not further defined. Students can be counted in more than one field. See Section 3 for more details.

Table 7 shows the 10 fastest growing fields of specialisation for domestic bachelors graduates since 2002. In numerical terms, the greatest increases were seen in biological sciences, where there are now 300 (or 36 percent) more graduates a year than in 2002. Law, and communications and media studies (including journalism) have also seen large increases of more than 200 graduates. The fields with the largest percentage gains were public health, and justice and law enforcement where the number of graduates in 2006 was more than double their 2002 level. Trends for other fields, including dental studies, pharmacy and veterinary studies are discussed later in this section.

Table 8 below shows the 10 fastest declining main fields of specialisation for domestic bachelors graduates since 2002. Information technology (comprising the narrow fields of computer science and information systems) has experienced the greatest decline over the last five years. There were 660 fewer graduates in 2006 than in 2002, a 40 percent decline across both narrow fields. By contrast, the number of international graduates in information technology quadrupled between 2002 and 2005, but declined in 2006. While growth in international student numbers has slowed noticeably, information technology was the only broad field to show a decline in international graduates in 2006. In contrast to the decline in information technology, there has been a 25 percent increase in graduates in graphic and design studies, much of which has been due to growth in computer-based multimedia and design courses.

Table 8:

The fastest declining narrow fields of specialisation for domestic bachelors degree graduates

Field of study (narrow level)	Decrease in graduates between 2002 and 2006				
	By number		Field of study (narrow level)	By percentage decrease	
	Number	Percentage decrease		Number	Percentage decrease
Information Systems	-490	-42%	Information Systems	-490	-42%
Teacher Education	-380	-15%	Manufacturing, Engineering and Technology	-20	-41%
Curriculum and Education Studies	-360	-28%	Computer Science	-360	-40%
Computer Science	-360	-40%	Forestry Studies	-10	-30%
Accountancy	-230	-20%	Curriculum and Education Studies	-360	-28%
Studies in Human Society ¹	-200	-12%	Tourism	-40	-23%
Nursing ²	-190	-13%	Mathematical Sciences	-80	-22%
Language and Literature	-110	-9%	Optical Science	-10	-21%
Mathematical Sciences	-80	-22%	Accountancy	-230	-20%
Medical Studies	-70	-16%	Environmental Studies	-20	-18%
All fields	840	4%	All fields	840	4%

Notes: Students can be counted in more than one field.

1: All of the decrease in Studies in Human Society was between 2002 and 2003. Numbers have been steady since 2003.

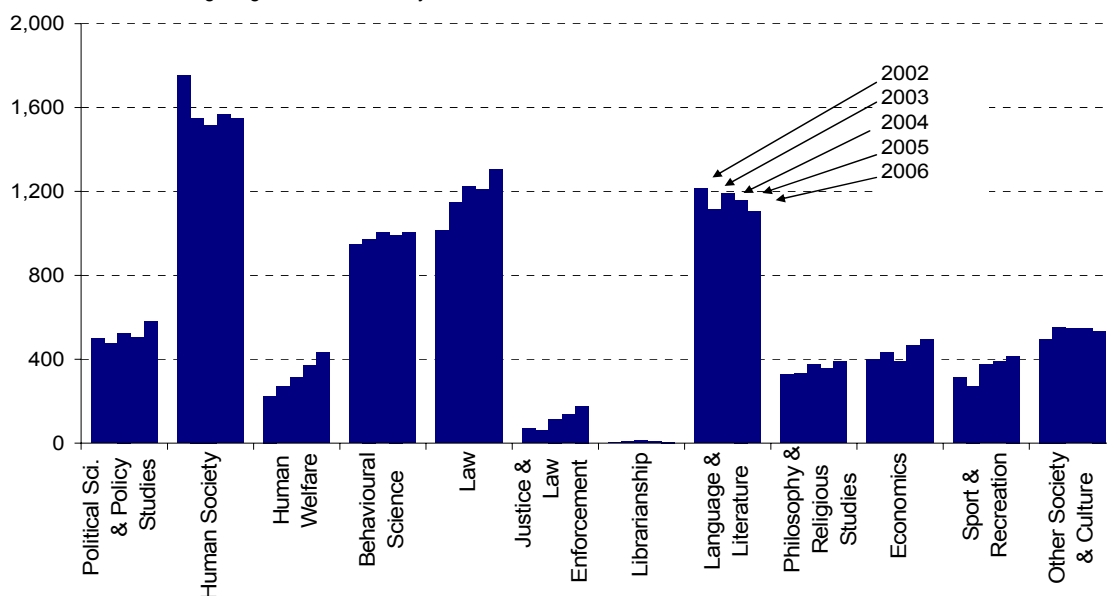
2: Almost all of the decrease in Nursing was between 2005 and 2006.

These trends are now discussed in more detail.

Society and Culture

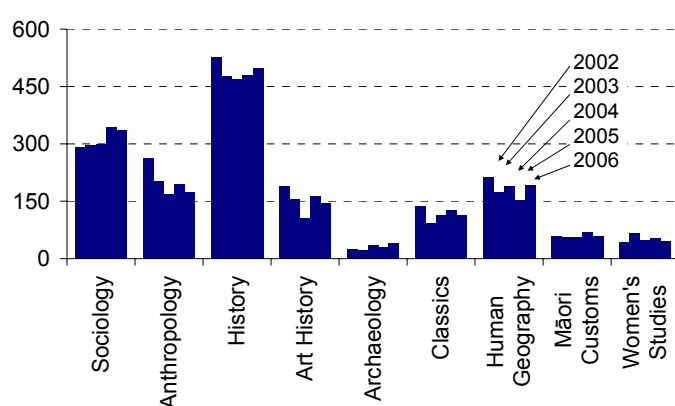
Society and culture covers the most diverse range of subjects of all the broad NZSCED fields – with 12 narrow fields, and 58 distinct detailed fields. With 6,700 (or one in every three) domestic graduates in 2006, more New Zealanders graduate with a bachelors degree in society and culture than any other broad field of study.

Figure 4:
Domestic bachelors degree graduates in society and culture: 2002 to 2006



- **Law** had 1,300 graduates in 2006, nearly 300 more than in 2002, the second largest increase after biological sciences. Justice and law enforcement also increased significantly, up by 100 graduates, or 150 percent.
- There were 1,100 graduates in **language and literature** in 2006, slightly down from 2002. Degrees in **literature** make up half of this group, while **foreign languages** make up a third.

Figure 5:
Domestic bachelors degree graduates in studies in human society: 2002 to 2006

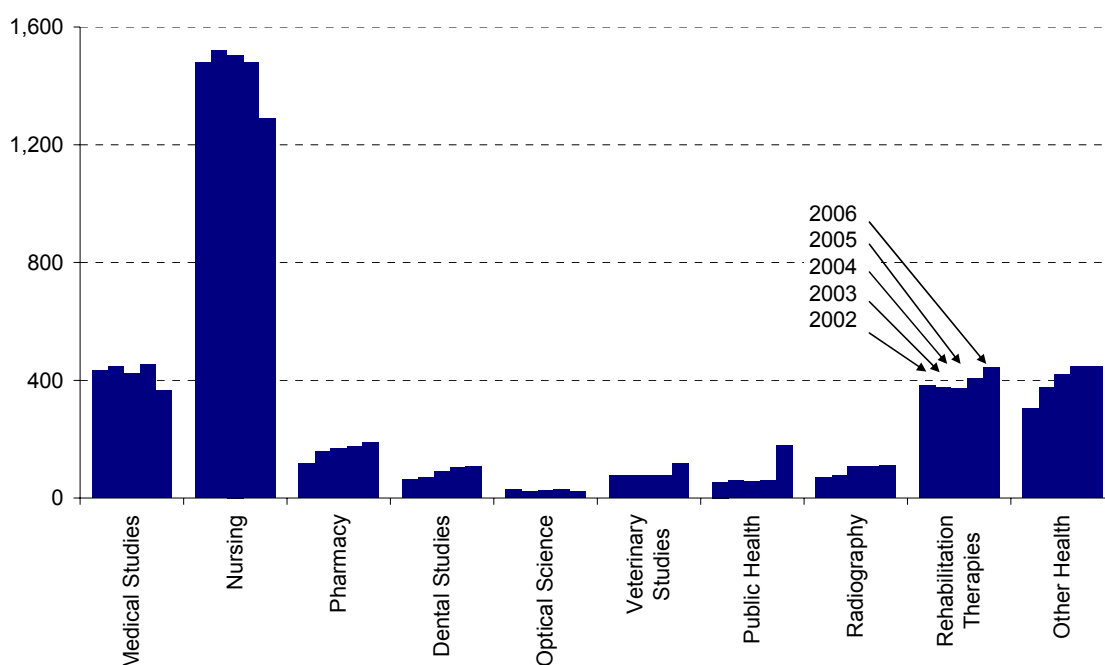


- The humanities and social sciences subjects ('**studies in human society**') remain the largest narrow field within the broad field of society and culture. Numbers in this field have been stable since 2003, with around 1,500 graduates a year.
- Within this narrow field, **history** remains the largest detailed field with 470 to 500 graduates a year. **Sociology** has increased in 2005 and 2006, while **anthropology** has been declining.
- Degrees in **human welfare studies and services** have also increased noticeably, up by over 200 or 92 percent since 2002. Three-quarters of these are in **social work**, while 30 percent are in **counselling**.
- **Economics** graduate numbers rose by 20 percent since 2002. **Behavioural science** (or psychology) has been steady around 1,000 graduates a year. The 'Other' group contains the common field of **cultural studies**, steady at around 230 graduates a year.

Health

- Health graduate numbers have been relatively constant since 2003. At around 3,200 a year they made up around 15 percent of all domestic students gaining bachelors degrees.
- **Nursing** degrees dominated this group. Over 40 percent of all health degrees were in nursing. The number of nursing graduates decreased by nearly 200, or 13 percent, in 2006. While this decline occurred over several providers, other providers saw increases in their nursing graduates. Within nursing graduates, there are just over a 100 graduates a year in **midwifery**. This number remained relatively constant between 2002 and 2006.
- The number of domestic graduates with bachelors degrees in **medical studies** remained relatively constant at between 420 and 450 each year. A temporary fall in 2006 of around 100 (or 20 percent) was due to a change in the way Auckland University structured its medical degrees. Previously prospective doctors had to complete a three-year Bachelor of Human Biology first, followed by a three-year Bachelor of Medicine, Bachelor of Surgery. Since 2005, students enrol in one six-year Bachelor of Medicine, Bachelor of Surgery. Medical studies can also be undertaken at Otago University. Annual enrolment intakes to both these degrees are capped.

Figure 6:
Domestic bachelors degree graduates in health: 2002 to 2006



- **Pharmacy** numbers have grown from around 120 graduates in 2002 to around 190 in 2006 (up 60 percent). Otago University and University of Auckland's Bachelor of Pharmacy qualification accounted for all of the graduates in pharmacy, with most of the increase in graduate numbers occurring at the University in Auckland.
- **Dental Studies** numbers have increased from 60 in 2002 to around 100 in 2006 (up 68 percent). This increase was driven entirely by the allied dental professions (dental therapy, dental hygiene, etc), and at least in part by a change that has seen full degree programmes rather than diploma programmes become the main means of training for these people. Graduate numbers in dentistry (which has capped intakes) have remained relatively constant at around 60 a year.
- **Veterinary** numbers rose by 34 percent in 2006, to number 120, after being constant between 70 and 80 a year between 2002 and 2005. This comprised around 90 graduates in **veterinary science** and around 30 graduates in **veterinary assisting**. The country's only degree in veterinary science from Massey University has a capped intake. 2005 saw the country's first bachelors graduates in **veterinary assisting** (from Unitec's Bachelor of Applied Animal Technology).

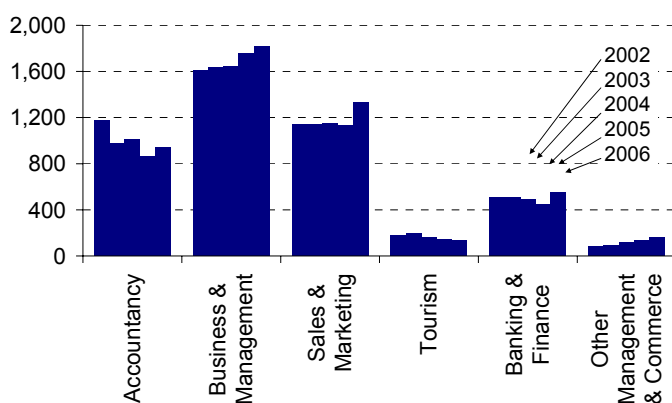
- The majority of the growth in **public health** in 2006, was specifically due to courses that have been coded to **community health** within Te Wānanga o Aotearoa's Bachelor of Social Work (Biculturalism in Practice). Within the public health field, there has also been growth in **health education, promotion** and **counselling**, largely due to more graduates in the Bachelor of Applied Social Science at Waikato Institute of Technology.
- **Rehabilitation therapies** numbers have grown by 60 or 16 percent. Within this group, **physiotherapy** and **occupational therapy** numbers have remained flat (190 and 110 a year respectively), but **speech pathology, chiropractic and osteopathy** are up. Between 10 and 20 students a year gain degrees in **massage therapy**, specifically Southland's Institute of Technology's Bachelor of Therapeutic and Sports Massage.

Management and Commerce

In terms of graduate numbers this is the second largest broad field after society and culture. One in five (4,200) domestic graduates were in this group in 2006, up 9 percent since 2002.

Figure 7

Domestic bachelors degree graduates in management and commerce: 2002 to 2006

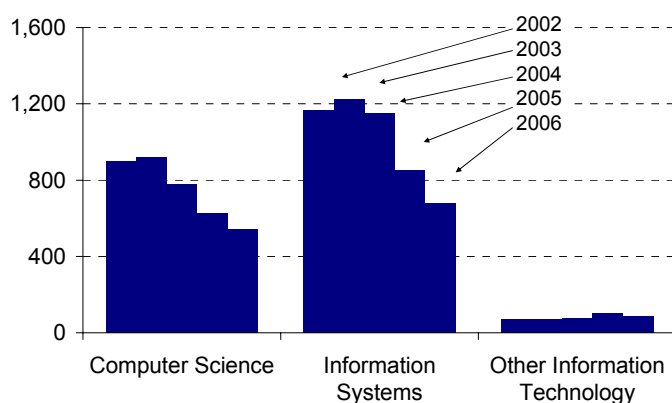


- **Business management** graduate numbers rose steadily – up 12 percent to 1,800 in 2006, with main gains in **hospitality, farm, and organisation** management, and **international business**.
- **Accountancy** is declining, down 240 or 20 percent since 2002.
- **Marketing** rose noticeably in 2006, up 120 or 13 percent to number more than 1,000 for the first time.

Information Technology

Figure 8

Domestic bachelors degree graduates in information technology: 2002 to 2006



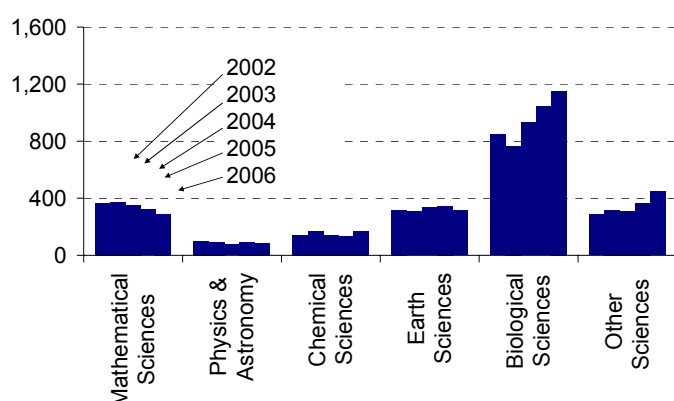
reduced, information technology-related courses in other fields have grown. For example, computer-based multimedia and design courses.

- **Information technology** domestic graduate numbers have declined rapidly since 2002: 660 fewer (40 percent) domestic graduates compared with 2002. They now make up 5.0 percent of domestic graduates, down from 9.6 percent five years earlier.
- This was the only field where international graduate numbers declined in 2006, after massive growth to 2005.
- Whilst graduate numbers in information technology have

Natural and Physical Sciences

Figure 9

Domestic bachelors degree graduates in natural and physical sciences: 2002 to 2006



- Science graduate numbers have shown moderate to high growth, up by 300 graduates or 16 percent in last 5 years. This broad field now makes up 10 percent of bachelors graduates (up from 9 percent).

- The biggest gains have been in biological sciences (up 300 or 36 percent). Specifically, these gains were in human biology (up 100 or 76 percent), ecology and evolution (up 70 or 37 percent) and neuroscience (up

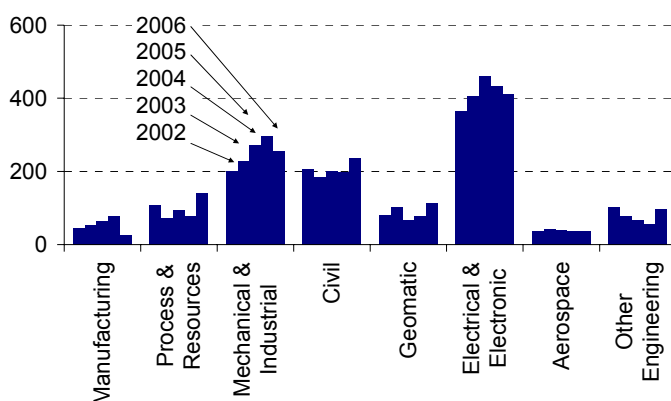
60 or 130 percent). Biochemistry and botany numbers have remained relatively constant, while zoology numbers have fallen since 2002. In most cases, graduates in biological sciences were not associated with other specialisations in other broad fields, such as health.

- There were also big gains in the 'other' sciences group (up 160 or 56 percent). The main contributors were pharmacology (up 70 or 94 percent) and biotechnology (up 40 or 75 percent).
- Mathematical sciences graduate numbers have decreased since 2002 (down 80 or 22 percent).

Engineering and Related Technologies

Figure 10

Domestic bachelors degree graduates in engineering and related technologies: 2002 to 2006



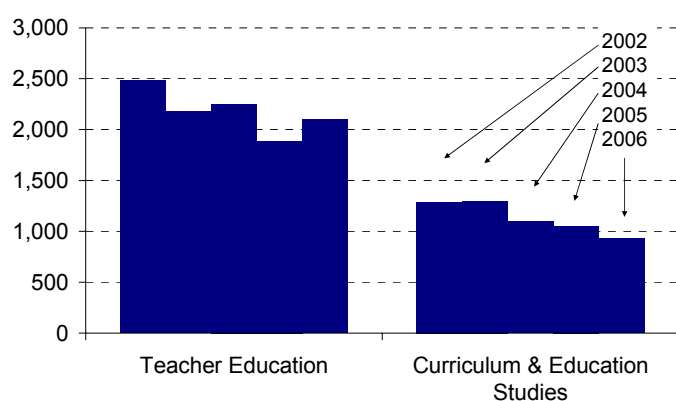
- The number of engineering graduates was relatively stable between 2002 and 2005, with around 1,000 domestic graduates a year. There was a marked increase in 2006 of 19 percent or 200 graduates, spread across several specialties.

- The largest group – **electrical and electronic** rose in numbers up to 2005, before falling in 2006. These falls were in most disciplines, with the biggest falls in **computer engineering**.

- **Mechanical and industrial** graduate numbers also increased up to 2005 before falling in 2006, specifically in **industrial engineering**. **Mechanical engineering** numbers have risen each year, and are up 60 or 46 percent on 2002 levels.
- After steady gains since 2002, the number of **manufacturing engineering** graduates fell sharply in 2006 – by 70 percent back to its 2002 levels.
- **Process and resources** (which includes **chemical**), **civil**, **geomatic** (which includes **surveying**), and **aerospace engineering** have largely gone up and down around their 2002 levels.
- The first 30 students in **mining engineering** graduated in 2006.

Education

Figure 11
Domestic bachelors degree graduates in education: 2002 to 2006



- This is the most vocationally focused group. Nearly 80 percent or 2,100 of the 2,700 graduates were in **teacher education**.

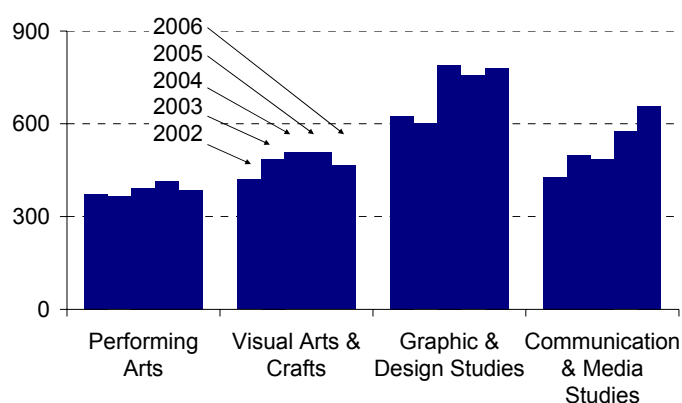
- Graduate numbers in both teacher education and curriculum and education studies have declined since 2002. Teacher education is down 380, or 28 percent, with only information technology numbers down more. Much of the decline was between 2002

and 2003, there was a drop again in 2005 and a slight pick up between 2005 and 2006 graduates. Data for 2007 and 2008 graduates is not yet available to confirm current trends. Over the period of analysis, two of the then four colleges of education merged with their local university, while the remaining two followed in 2007. Reported enrolments and graduations showed small to moderate declines around the time of the mergers.

- At other (non-bachelors) levels, graduate numbers have all either stayed the same or increased. In particular, diplomas in teacher education increased steadily between 2002 and 2006.
- Despite this, teacher education remains the most common specialisation for domestic graduates.

Creative Arts

Figure 12
Domestic bachelors degree graduates in creative arts: 2002 to 2006



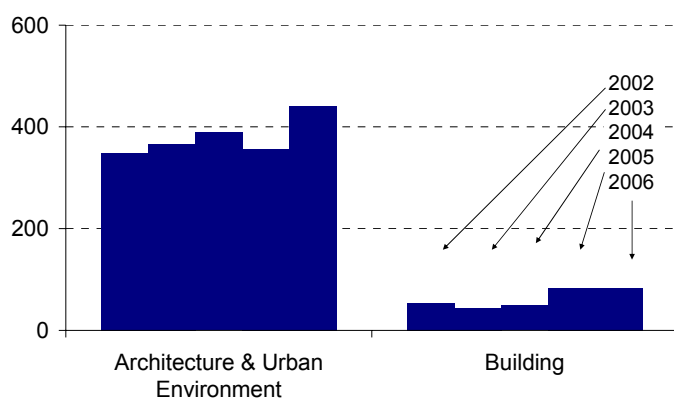
- Numbering 2,200 a year, there are now more graduates in creative arts than in the sciences.

- One of the fastest growing areas has been **communication and media studies**, up by 230, or 54 percent, since 2002. Specifically, this includes growth in **journalism and media studies**, as well as computer-based media studies, such as website or multi-media design.

- **Graphic and design studies** remain the largest narrow group, with 780 domestic graduates a year. Within this group, degrees in **fashion design** have nearly tripled, up from 40 in 2002 to 110 in 2006. In part, this was due to AUT's Bachelor of Design with its first students completing in 2004.

Architecture and Building

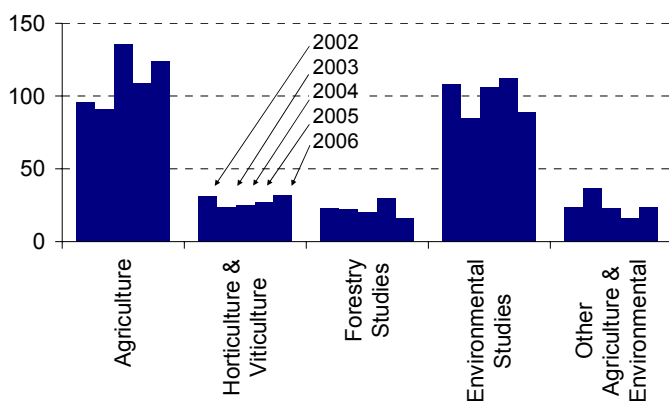
Figure 13
Domestic bachelors degree graduates in architecture and building: 2002 to 2006



- **Architecture and building** graduates made up less than 3 percent of all domestic bachelor graduates in 2006. Numbers were steady up to 2005, but up significantly in 2006 (by 100, or 32 percent).
- This growth was mainly in **architecture**. Graduates in **building** are small in number – just 80 in 2006 or 16 percent of all graduates in this broad field.

Agriculture, Environmental and Related Studies

Figure 14
Domestic bachelors degree graduates in agriculture, environmental and related studies: 2002 to 2006



- Graduates in **agriculture and environmental studies** are a small group, just 1 percent of all domestic bachelors graduates.
- Main growth has been in **agriculture**, up by 30, or 28 percent since 2002. Specifically, in **agricultural science and animal husbandry**.
- **Horticulture, viticulture, and forestry**, numbers have remained flat, or up and down around their 2002 levels.
- Graduate numbers in **environmental studies**, maybe surprisingly, have not increased, despite being an area which has gained more public interest in recent years.

2.5 Men and women

Historically, there have been differences between what men and women study. More men than women graduate in engineering and information technology, while more women graduate in health and education. Figure 15 shows these differences at broad NZSCED level, while Table 9 shows these at the narrow NZSCED level.

Figure 15
Percentage of domestic bachelors degree graduates in 2006 by broad field of specialisation and gender

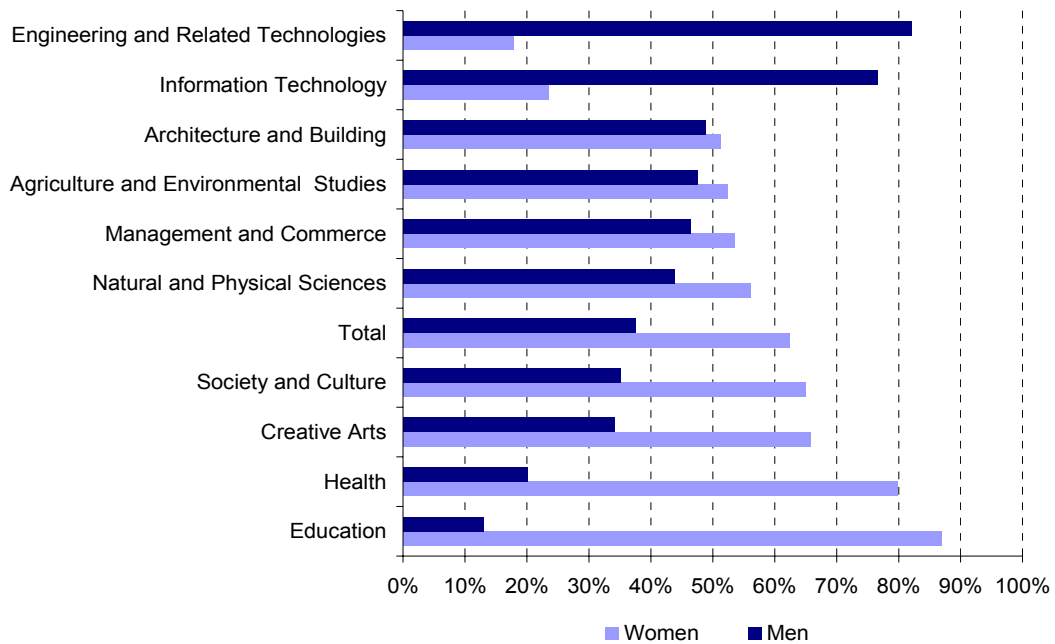


Table 9
The 10 most common narrow fields of specialisation for domestic bachelors degree graduates in 2006 by gender

Women			Men		
Field of study (narrow level)	Number of graduates	Percentage of all females	Field of study (narrow level)	Number of graduates	Percentage of all males
Teacher Education	1,820	13.9%	Business and Management	830	10.5%
Nursing	1,220	9.3%	Sales and Marketing	560	7.1%
Studies in Human Society	1,060	8.1%	Law	500	6.3%
Business and Management	980	7.5%	Studies in Human Society	490	6.2%
Law	810	6.2%	Information Systems	490	6.2%
Language and Literature	810	6.2%	Computer Science	450	5.7%
Behavioural Science	800	6.1%	Accountancy	430	5.5%
Curriculum and Education Studies	800	6.1%	Biological Sciences	430	5.5%
Sales and Marketing	770	5.9%	Electrical and Electronic Engineering	370	4.7%
Biological Sciences	730	5.6%	Banking and Finance	330	4.2%
All fields	13,060	100%	All fields	7,890	100%

Note: Students can be counted in more than one field.

The two traditionally female-dominated professions of teacher education and nursing remain the most common fields for women. One in five female bachelors graduates was in nursing or teacher education. By contrast, the two most common fields for male graduates were business and management, and sales and marketing. Nearly one in five male bachelors graduates was in one of these two fields. The information technology fields, while the fifth choice for men, rank 38th for women. Despite the differences in preference, each of the top four fields for men had more women graduates.

Table 10 below shows the top and bottom 10 narrow fields in terms of the proportion of graduates who were women. Again we see health and education preferences amongst females against the engineering and information technology preferences amongst males.

Table 10

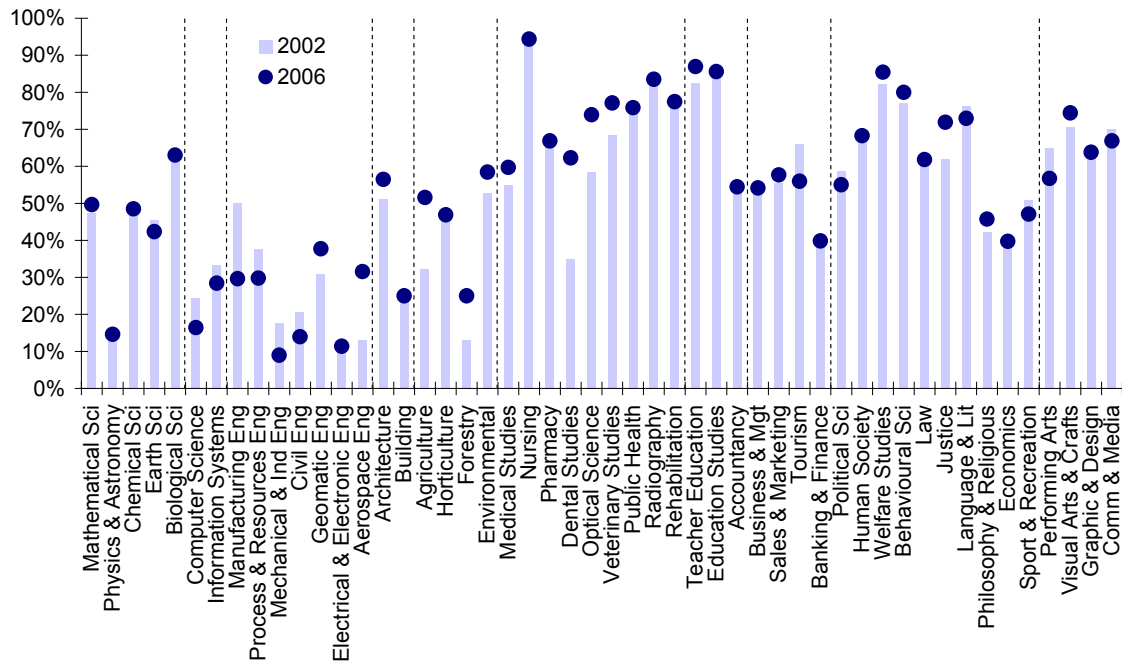
The 10 most and least common narrow fields of specialisation for domestic female bachelors degree graduates in 2006

Most common			Least common		
Field of study (narrow level)	Number of female graduates	Percentage of graduates in this field who were female	Field of study (narrow level)	Number of female graduates	Percentage of graduates in this field who were female
Nursing	1,290	94%	Mechanical and Industrial Engineering and Technology	260	9%
Teacher Education	2,100	87%	Electrical and Electronic Engineering and Technology	410	11%
Curriculum and Education Studies	930	86%	Civil Engineering	240	14%
Human Welfare Studies and Services	430	85%	Physics and Astronomy	90	15%
Radiography	110	83%	Computer Science	540	16%
Behavioural Science	1,000	80%	Building	80	25%
Rehabilitation Therapies	440	77%	Forestry Studies	20	25%
Veterinary Studies	120	77%	Information Systems	680	28%
Public Health	180	76%	Process and Resources Engineering	140	30%
Visual Arts and Crafts	470	74%	Aerospace Engineering and Technology	40	32%
All fields	13,060	62%	All fields	13,060	62%

Notes: Excludes fields with less than 10 graduates. Also excludes 'not elsewhere classified', 'mixed', and 'not further defined' categories. Students can be counted in more than one field. See Section 3 for more details.

The proportion of domestic bachelors graduates who were female remained about the same between 2002 and 2006 at about 62 percent. However, within certain specialisations there have been changes. Figure 16 shows changes in the gender distribution of graduates between 2002 and 2006. Women increased their share of graduates in dental studies, agriculture, and justice and law enforcement, while their share of graduates decreased in most engineering disciplines, information technology, tourism, and the performing arts. There were two fields where females increased their share of graduates from under 50 percent to over 50 percent between 2002 and 2006. In agriculture, women are now 51 percent of graduates compared with 32 percent in 2002, while women now make up 62 percent of graduates in dental studies (includes both dentistry and allied dental professions) compared with 35 percent in 2002.

Figure 16
Percentage of domestic bachelors graduates who were female in 2002 and 2006, by narrow field of specialisation

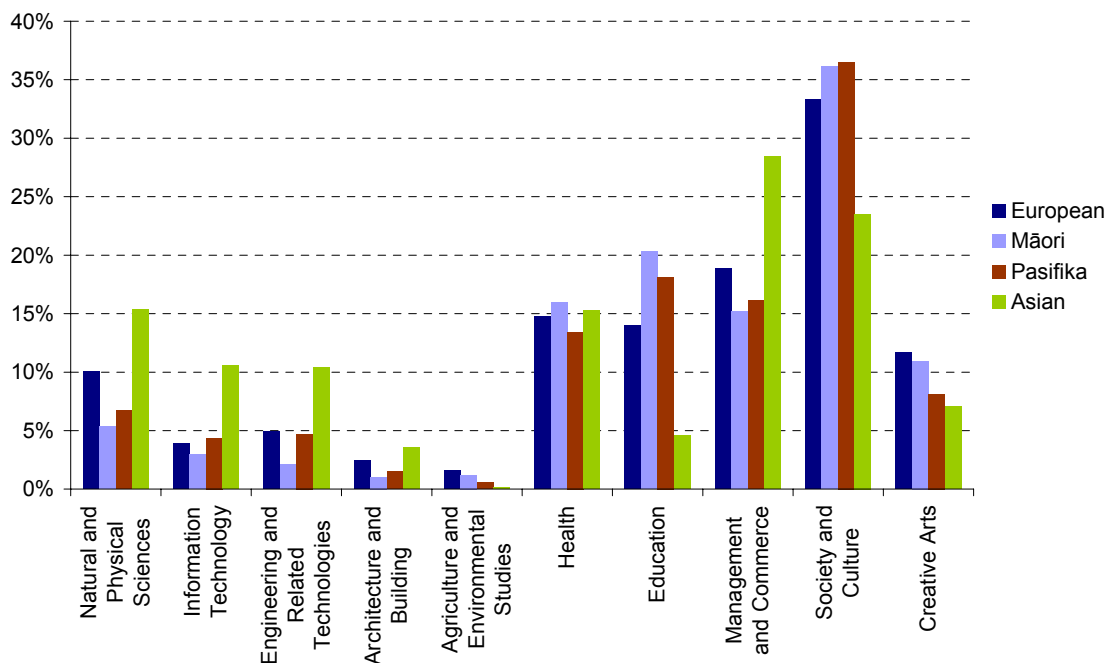


Notes: Some labels have been shortened for display purposes. Excludes fields with less than 10 graduates. Also excludes 'not elsewhere classified', 'mixed', and 'not further defined' categories. Students can be counted in more than one field. See Section 3 for more details.

2.6 Ethnic differences

As with gender, there are different patterns of field of study amongst different ethnic groups. This is shown in Figure 17 below.

Figure 17
Percentage of domestic bachelors degree graduates in 2006 by broad field of specialisation and ethnic group



At broad level, domestic Asian graduates are more likely to be found in the sciences, information technology, engineering, and management and commerce. Māori and Pasifika graduates are more likely than European or Asian graduates to be found in education, or society and culture. There are significantly fewer Asian graduates in education, or society and culture.

Table 11 shows these differences at the narrow level. While teacher education is the most common field for Māori, Pasifika and European graduates, it does not even make the top 10 fields for domestic Asian graduates. On the other hand, banking and finance, economics, computer science, information systems, and electrical engineering are in the top 10 list for Asian graduates only.

Table 11

The 10 most common narrow fields of specialisation for Māori, Pasifika, European and Asian domestic bachelors degree graduates in 2006

Māori	% of all Māori graduates	Pasifika	% of all Pasifika graduates
Teacher Education	16.4%	Teacher Education	13.5%
Studies in Human Society	10.8%	Studies in Human Society	10.2%
Business and Management	8.9%	Business and Management	8.1%
Nursing	6.4%	Law	6.9%
Language and Literature	6.0%	Language and Literature	6.2%
Law	5.6%	Nursing	5.4%
Curriculum and Education Studies	5.6%	Curriculum and Education Studies	5.2%
Human Welfare Studies and Services	5.5%	Human Welfare Studies and Services	4.9%
Sales and Marketing	4.2%	Sales and Marketing	4.9%
Behavioural Science	4.0%	Behavioural Science	3.5%
Public Health	3.6%	Biological Sciences	3.3%
Biological Sciences	3.2%	Accountancy	3.3%

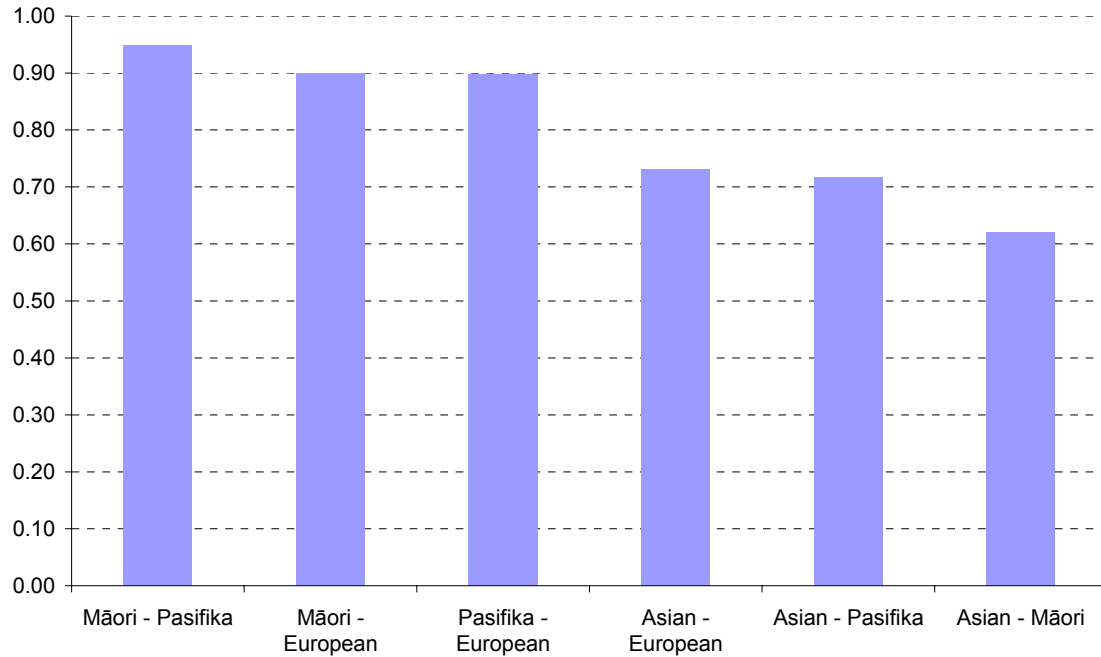
European	% of all European graduates	Asian	% of all Asian graduates
Teacher Education	10.8%	Accountancy	10.5%
Business and Management	8.3%	Business and Management	9.9%
Studies in Human Society	8.1%	Sales and Marketing	7.0%
Sales and Marketing	6.7%	Biological Sciences	6.9%
Law	6.5%	Banking, Finance and Related Fields	6.7%
Nursing	6.4%	Electrical and Electronic Engineering	6.2%
Biological Sciences	5.6%	Information Systems	6.0%
Behavioural Science	5.3%	Law	5.9%
Language and Literature	5.1%	Computer Science	5.8%
Curriculum and Education Studies	5.1%	Language and Literature	5.8%
Graphic and Design Studies	4.2%	Economics and Econometrics	5.0%
Biological Sciences	3.7%	Nursing	4.0%

Notes: Excludes 'not elsewhere classified', 'mixed', and 'not further defined' categories. Students can be counted in more than one field. See Section 3 for more details.

One way to measure how different or similar ethnic group preferences are is to correlate these rankings. A correlation value of 1 indicates that the rankings being compared are the same, while 0 indicates no relation. Figure 18 shows the correlation for each of the ethnic groups compared with the others. Māori and Pasifika show the most similarity, while Asian and Māori show the least.

Figure 18

How different are the fields of specialisation of domestic bachelors degree graduates between ethnic groups?



Note: The vertical axis figures represent the Spearman rank-order correlation coefficient between the rankings of each pair.

3 DATA AND METHODS

KEY POINTS

Previous data on field of specialisation has been limited, and in many cases was not able to accurately represent a graduate's field(s) of specialisation, in particular, for more general qualifications such as arts, science and commerce degrees.

New field of specialisation data has been developed based on a student's course enrolments rather than on their qualification.

A field of specialisation has been defined as any field successfully studied for the equivalent study load of two or more full-time courses at the final-year level or higher of a qualification.

For graduates' field of specialisation, the new method currently permits analysis for the years 2002 to 2006 only. Any environmental changes in the last two years, such as any effects from the implementation of recent tertiary sector reforms or any effects from the current economic recession, therefore, will not be reflected.

For participation (ie enrolments and equivalent full-time students), data on field of study using this new approach is available for the period 2001 to 2008.

A range of statistical tables on participation and achievement in tertiary education using this new and more detailed field of study data are available on the Ministry of Education's Education Counts website, www.educationcounts.govt.nz.

Rounding

Because of issues with data quality described below, and because of the nature of the derivation methods used, all field of specialisation counts for students completing qualifications have been rounded to the nearest 10.

Counting multiple fields of study

The methods used allow for more than one specialisation or main field of study. For example, 83 percent of bachelors graduates in 2006 had one specialisation at the broad level of NZSCED, while almost all of the remainder had two. At the narrow level of NZSCED, 69 percent had one specialisation, 29 percent had two, and two percent had more than two. At the detailed level of NZSCED, 60 percent had one specialisation, 33 percent had two, and seven percent had more than two.

All statistics produced in this report count each graduate once for each specialisation they had. Therefore, the sum of rows or columns usually add to more than the stated total.

Definitions

Field of Study

Each qualification and each course are assigned fields of study using the New Zealand Standard Classification of Education (NZSCED). NZSCED has three levels. There are 12 broad fields, 71 narrow fields and 376 detailed fields. Course-level field of study data has been collected since 2001, when the New Zealand Standard Classification of Education (NZSCED) was first introduced. The classification list is included in Appendix A, while the full classification,

including definitions and examples can be found on the Ministry of Education's Education Counts website under the technical information section.¹¹

Graduate

This report relates to anyone who gained a bachelors degree between 2002 and 2006. Gaining a degree means completing the academic requirements for that degree. It does not necessarily require that the student has 'graduated' or that the actual degree has been conferred or awarded. In this true sense then, students in this report may not all be 'graduates'. However, for convenience, the term 'graduate' is used in this report.

Bachelors degree

This report relates to bachelors degrees only, regardless of the length of the degree. They include conjoint and double degrees, but exclude Honours degrees, with the exception of the two degrees; the Bachelor of Engineering (Honours) from the University of Auckland, and the Bachelor of Engineering with Honours from the University of Canterbury, which are included in this report. This report also excludes other bachelors-level qualifications, such as graduate certificates and diplomas, or certificates of proficiency. Statistical tables covering all levels of study can be found on the Ministry's Education Counts website (www.educationcounts.govt.nz).

Domestic

Most of the analysis in this report relates to domestic students. These are New Zealand citizens, New Zealand permanent residents, and any students who were Australian citizens.

Current field of study data availability

As discussed in the introduction, national information on tertiary education participation and achievement by field of study has been very limited. Earlier Ministry of Education statistics, for example, were based on a field of study coding assigned at the qualification level and so in many cases – especially in multi-year qualifications and at higher levels – failed to accurately capture the main subjects studied in the courses taken as part of that qualification. For instance, all Bachelor of Science graduates were shown as graduates in natural and physical sciences because science degrees are assigned to that broad NZSCED field. This meant that we weren't able to separate out, those in computer science from those in mathematics or those in biological science from those in physical science.

In addition to NZSCED, a separate 'main subject' classification and collection has existed since the early 1990's. This data allows for up to three subject majors to be recorded for every student completing a qualification. Unfortunately this data is not considered suitable for analytical purposes. It is required to be reported only for generic degrees (such as Bachelors of Science, or Bachelors of Arts). As a result, the data is subject to very low response rates (60 percent for degrees, and less than 20 percent for certificates and diplomas). It was felt that for more vocationally-specific qualifications, ie those which don't require a major to be reported, the qualification-based NZSCED would be sufficient. However, subsequent analysis has shown this not to be true. Further, this 'main subject' collection uses a classification that is different from the current New Zealand standard (NZSCED). While 'main subject' data was not considered for use directly in this project, it was used in the development of new data, as an independent means to assess the quality of the new derived field.

¹¹ www.educationcounts.govt.nz/technical_info/code_sets/new_zealand_standard_classification_of_education_nzsced

As a result, previous statistics on field of study tended to be reported at the broad level only (12 categories), and had significant shortcomings. Over a third of the fields studied by Bachelor of Science graduates are not in the natural and physical sciences, while over one in ten Bachelor of Arts and Bachelor of Commerce graduates specialised in fields outside of society and culture, and management and commerce respectively. In essence then, existing data collections do not *directly* provide a robust measure of graduates' field of study. This project investigated whether, indirectly, they could.

Method

A better picture can be seen by looking at the fields of study for the various courses a graduate was enrolled in as part of their qualification, independent of the field or name assigned to the qualification. This approach attempts to assign to each graduate a combination of fields that reflects in a more precise way the depth and breadth of study undertaken.

The method links completed qualification records to individual course enrolments over the duration of a graduate's study towards that qualification. It uses the level of study, field of study, year of study, and study load of each course to determine what best constitutes their main field(s) of study – or specialisation(s). In this way, it is similar in concept to a major. However, the term 'major' often has a precise meaning and definition depending on which institution the student is completing at, and these may differ across institutions. While this project does not set out to fairly represent these differences, it does attempt to develop a single basis upon which students' specialisations could be identified and compared nationally.

The approach assigns as a main field or specialisation any field involving successful study of at least two equivalent full-time courses at a level equivalent to the final-year level or higher of the qualification. The 'or higher' condition was included to recognise a significant minority of students who study in a higher-level qualification, but who exit with a lower-level qualification. For example, Masters students who exit with a second Bachelors degree. The final-year level papers do not need to have all been done in the student's last year. Courses are measured in terms of equivalent full-time study load, or EFTS. One EFTS equates to a full-time study load over a full academic year. On average, two full-time courses equate to 0.3 EFTS, or roughly one-third of a full-time full-year's study. Because of the differences in setting full-time course loads across institutions, a threshold of 0.25 EFTS was set beyond which, a field of study was considered as a main field.

In practice, it is not always easy to link the qualification a student completes to all his or her course enrolments back across time. Sometimes the student will take out a different qualification from the one they have enrolled in, through course changes, cross-credits and exemptions, etc. When a student has enrolled in multiple qualifications, it is sometimes difficult to discern which path of learning has led to which qualification. Around 6 percent of students complete more than one qualification at the same provider during a year.

A hierarchy of logic is applied in order to track qualifications back to individual course enrolments. First, the method seeks to find all course enrolments for the last three years in the same qualification as the one completed. Around 75 percent of resulting specialisations can get set in this way. If this fails to produce sufficient EFTS at the required final-year level then the method attempts to supplement the final-year EFTS with all course enrolments at the same level as the qualification completed. The method progressively relaxes which course enrolments it associates with the qualification until a main field can be set. A further 5 percent are set in this way. In a small number of cases, less than 1 percent, no matching enrolments of any kind can be found for a qualification. In these cases, the method resorts to the field of study assigned to the qualification.

After this linking, there are around 20 percent of records which, even though they can be linked back to all course enrolments, have no single field with 0.25 EFTS or more. This situation arises, for example, for certificates of less than 0.25 EFTS in duration. This can also occur when there is no single dominant subject – ie, six courses of 0.16 EFTS each, or for those qualifications for which there are less than 0.25 EFTS of matching course enrolments.

The method can also initially fail to find a specialisation as a result of missing NZSCED values in the course enrolment data. However, non-response levels are very low, just 1 percent in 2001, reducing to less than 0.2 percent in 2006. NZSCED was first introduced in 2001, so is largely missing for 2000. This will affect results slightly for 2002 graduates, as only two years of historical course-based NZSCED data is available to find appropriate final-year level enrolments for this group.

Of the 20 percent with no single field with 0.25 EFTS or more, 90 percent are certificate-level qualifications. A further 5 percent relate to diplomas. For these cases, the qualification-based NZSCED assigned to the certificate or diploma is taken as the student's main field. The remaining 5 percent of cases relate to degree-level qualifications or higher. For these records, the linked course-based NZSCED with the highest study load (EFTS) is taken.

The method has procedures to recognise and cater for all the main fields for those graduating with conjoint degrees, double majors or where there is otherwise more than one equivalent full-time year of study at the final-year level.

For graduates' field of specialisation, the new method currently permits analysis for the years 2002 to 2006 only. Data for later years will be added as it becomes available. Therefore the trends presented in this report will not reflect any environmental changes in the last two years, such as any effects from the implementation of recent tertiary sector reforms or any effects from the current economic recession. Therefore, care may be needed when applying these past trends to the present or possible future environments. For participation (ie enrolments and equivalent full-time students), however, data on field of study using this new approach is available for the period 2001 to 2008.

Data and method quality

The quality of the resulting fields of specialisation produced by this method, as well as the quality of the coding of fields of study in the source data was assessed extensively during the project using a range of methods. These assessments were also used to refine and improve the quality of the derivation methods.

One of the data quality issues involved the coding of course level. The method relies on correctly identifying courses equivalent to the final-year level or higher of a qualification. For example, for most bachelors degrees, it requires third-year courses (ie, level = 7)¹² to be identified from first-year (level = 5), or second-year (level = 6) courses.

For some institutions, courses were coded entirely to the level of the degree (eg a level of 7), so it was not directly possible to distinguish first-year courses from final-year courses. A significant evaluation was undertaken of all degree-level course coding and an exercise was undertaken to reassign incorrect course levels to their likely correct levels. This largely used course codes, which in many cases indicate the level of study. For example, 'STAT101' is likely to represent a stage one course, or course level of 5. Of those institutions where course level codes were an issue, only one provider did not use a system which included reference to

¹² This refers to levels used to classify qualifications on the New Zealand Register of Quality Assured Qualifications. They are known as Register levels, or sometimes referred to as NQF levels.

the level or typical year of study. These were sent to the institution and they provided correct levels. Around half a dozen distinct naming structures were able to be discerned for the remaining providers, from which correct course levels were able to be reasonably estimated.

Much of the focus on course level for this project has been on bachelors degrees, and it is felt that the resulting quality at this level is sufficiently robust for aggregate-level statistics to be produced. For postgraduate and non-degree qualifications, some course level errors may still remain. However, it is generally more likely that such qualifications have a narrower range of fields studied over a narrower range of levels than is the case for bachelors degrees.

Results were checked using a number of assessments. The first assessment involved a comparison of results with the existing 'main subjects' collected on qualification completion data, where available. 'Main subject' data is available for about 65 percent of degree level and above qualifications, but only for 10 to 20 percent of certificates and diplomas. Because 'main subject' uses a different classification to NZSCED, a mapping between the two codes was developed to facilitate this comparison.

For those records where 'main subject' was available, this comparison showed only around 70 percent consistency, although at doctorate level it was over 90 percent. While specific patterns of inconsistency enabled improvements to the methods, the matching in fact revealed a range of issues with the existing 'main subject' data. For example, in the area of teacher education (the most common field of study at bachelors level) providers have been requested to report the 'main subject' as specialist teaching subjects, such as English, maths, geography, etc, instead of the field of teacher education (for teacher supply modelling purposes). Other common sources of inconsistency in 'main subject' occurred through confusion with similar-looking codes. For example, between mechanical engineering ('ENGM') and mineral/mining engineering ('ENME'), or between Finance ('FINA') and Fine Arts ('ARTS'). Main subject fields in the areas of accountancy, economics, business studies, and business administration were often used interchangeably. The results of this comparison check found that in over 98 percent of cases, where 'main subject' was available, the new method provided a better, or the same result as the 'main subject'.

The second assessment compared the results of the new method with the NZSCED assigned to the qualification. The main reason for developing the new method was to move away from the shortcomings associated with using qualification-based NZSCED. However, for shorter qualifications, such as one year certificates, or for those with a more specialised or vocational focus, one might expect a higher level of correspondence.

This comparison showed the following level of correspondence across levels: 85 percent for certificates, 75 percent for diplomas, 55 percent for postgraduate certificates and diplomas, 40 percent to 50 percent for bachelors and masters degrees, and just 2 percent for doctorates.

As multi-year qualifications were expected to have low correspondence, this check was really directed at single-year, or vocationally specific qualifications. These comparisons highlighted a large range of coding issues, affecting both the quality of coding of NZSCED course enrolments as well as the quality of the NZSCED codes assigned to qualifications. While these did not usually necessitate a change to the methodology, they did require manual correction to the data in order for the method to produce correct results.

Often commonly occurring inconsistencies highlighted issues with the NZSCED classification itself. This included gaps in the classification or areas of the classification where it was ambiguous as to which code to allocate. An example of this is low-level office computing packages, such as the introduction to word processing or spread-sheeting packages, which belong in the broad field of management and commerce, but were often assigned information

technology codes. Another area is computer-based arts and design fields, such as multi-media design, web-site design, computer animation, media digitisation, and computer-based design in general. These are relatively recent and growing areas of study. They are not well addressed in NZSCED, resulting in inconsistency in coding of these fields between information technology and creative arts.

In most cases, where the comparisons were inconsistent, the correct coding was readily discernable, as either the course-based NZSCED, or the qualification-based NZSCED code. However, in a few areas, especially where the NZSCED classification is ambiguous, it was less clear which, if any, is the better code.

A third check involved an analysis of outliers. Specifically, this involved checking graduate numbers in fields of specialisation otherwise not expected. For example, bachelors degree graduates in social skills development or office skills. Occurrences of suspected outliers were investigated to assess whether they were real or due to NZSCED miscoding.

A similar check was carried out on trends. Large changes to graduate numbers in certain fields between one year and the next year, may be real, but may also indicate an issue with coding.

The final check involved the use of 'not elsewhere classified' or 'N.E.C.' codes. Most of the narrow fields in NZSCED have a code for fields of study that are genuinely not elsewhere classified. However, in a number of cases, enrolments can get incorrectly assigned here. This can occur by error or with courses that span two or more detailed fields (ie, involve 'mixed' fields). It can also occur where there is otherwise not enough information to assign a more detailed code. For example, some courses are structured as 'research topic' or 'dissertation', where the field of study may vary for different students over several fields of study. Large numbers of graduates in an N.E.C. code may indicate that this code has been used inappropriately, or as a 'dumping' code.

N.E.C. codes are present in 10 of the 12 broad fields. Each of these was checked to estimate which graduates could have been reassigned to more specific fields, and which were genuine cases. The broad fields most affected were health, engineering and information technology. It was often, but not always, possible to reassign miscoded courses back to a more specific detailed field. Some residual effects remain in engineering and health. The major area where there remains an issue is information technology where, the other N.E.C. narrow field 0299 (other information technology) is less likely to represent genuine N.E.C. cases, but rather cases which should have been allocated to 0201 (computer science) or 0203 (information systems).

This issue of miscoding is important when inferring the significance of the size and trends in these 'other' codes. In particular when N.E.C. codes at the narrow level also contain genuine cases of emerging fields of study at the detailed level (such as biotechnology).

A single general catch-all code exists in NZSCED for 'mixed field programmes', code '129999'. At the qualification level this code is heavily used, especially for doctorates, and bachelors degrees. At the course level, it is less relevant. One of the benefits of developing course-based fields of study has been the removal of this catch-all code, with graduates now able to be reallocated across more specific and relevant NZSCED fields.

Because of the coding issues described above, these N.E.C. codes have been altered to reflect actual practice. The labels and meanings for all residual N.E.C. codes (ie all codes ending in 99 or 9999) are now labelled to reflect the fact that graduates in these fields include all three cases of response – ie N.E.C, mixed, and not further defined (or N.F.D.). This applies not just to the analysis in this report, but to all tables and statistics produced from the project.

APPENDIX A NEW ZEALAND STANDARD CLASSIFICATION OF EDUCATION (NZSCED)

For more information on the classification, see

http://www.educationcounts.govt.nz/technical_info/code_sets/new_zealand_standard_classification_of_education_nzsced

Note: n.e.c. stands for not elsewhere classified. The meaning of these codes has been altered for the purposes of this report to also include mixed fields and fields that are not further defined. See Section 3 for more details.

NATURAL AND PHYSICAL SCIENCES

Mathematical Sciences

010101	Mathematics
010103	Statistics
010199	Mathematical Sciences n.e.c

Physics and Astronomy

010301	Physics
010303	Astronomy

Chemical Sciences

010501	Organic Chemistry
010503	Inorganic Chemistry
010599	Chemical Sciences n.e.c

Earth Sciences

010701	Atmospheric Sciences
010703	Geology
010705	Geophysics
010707	Geochemistry
010709	Soil Science
010711	Hydrology
010713	Oceanography
010799	Earth Sciences n.e.c

Biological Sciences

010901	Biochemistry and Cell Biology
010903	Botany
010905	Ecology and Evolution
010907	Marine Science
010909	Genetics
010911	Microbiology
010913	Human Biology
010915	Zoology
010916	Neuroscience
010999	Biological Sciences n.e.c

Other Natural and Physical Sciences

019901	Medical Science
019903	Forensic Science
019905	Food Science and Biotechnology
019907	Pharmacology
019909	Laboratory Technology
019999	Natural and Physical Sciences n.e.c

INFORMATION TECHNOLOGY

Computer Science

020101	Formal Language Theory
020103	Programming
020105	Computational Theory
020107	Compiler Construction
020109	Algorithms
020111	Data Structures
020115	Computer Graphics
020117	Operating Systems

020119	Artificial Intelligence
020199	Computer Science n.e.c

Information System

020301	Conceptual Modelling
020303	Database Management
020305	Systems Analysis and Design
020307	Decision Support Systems
020399	Information Systems n.e.c

Other Information Technology

029901	Security Science
029999	Information Technology n.e.c

ENGINEERING AND RELATED TECHNOLOGIES

Manufacturing Engineering and Technology

030101	Manufacturing Engineering
030103	Printing
030105	Textile Making
030107	Garment Making
030108	Plastics Processing Technology
030109	Footwear Making
030111	Wood Machining and Turning
030113	Cabinet Making
030115	Furniture Upholstery & Renovation
030117	Furniture Polishing
030199	Manufacturing Engineering & Technology n.e.c

Process and Resources Engineering

030301	Chemical Engineering
030303	Mining and Resources Engineering
030304	Wood Based Manufacturing
030305	Materials Engineering
030306	Ceramics, Industrial Glass & Rubber Manufacturing
030307	Food (excluding Seafood) Processing Technology
030308	Seafood Processing
030399	Process & Resources Engineering n.e.c

Automotive Engineering and Technology

030501	Automotive Engineering
030503	Vehicle Mechanics
030505	Automotive Electrics and Electronics
030507	Automotive Vehicle Refinishing
030509	Automotive Body Construction
030511	Panel Beating
030513	Upholstery and Vehicle Trimming
030515	Automotive Vehicle Operations
030599	Automotive Engineering & Technology n.e.c

Maritime Engineering and Technology

031701	Maritime Engineering
031703	Marine Construction
031705	Marine Craft Operation
031799	Maritime Engineering & Technology n.e.c

Mechanical and Industrial Engineering and Technology

030701	Mechanical Engineering
030703	Industrial Engineering
030705	Toolmaking
030707	Metal Fitting, Turning and Machining
030709	Sheetmetal Working
030711	Boilermaking and Welding
030713	Metal Casting and Patternmaking
030715	Precision Metalworking
030717	Plant and Machine Operations
030799	Mechanical and Industrial Eng. and Technology n.e.c

Civil Engineering

030901	Construction Engineering
030903	Structural Engineering
030905	Building Services Engineering
030907	Water and Sanitary Engineering
030909	Transport Engineering
030910	Road Construction
030911	Geotechnical Engineering
030913	Ocean Engineering
030999	Civil Engineering n.e.c

Geomatic Engineering

031101	Surveying
031103	Mapping Science
031199	Geomatic Engineering n.e.c

Electrical and Electronic Engineering and Technology

031301	Electrical Engineering
031303	Electronic Engineering
031305	Computer Engineering
031307	Communications Technologies
031309	Communications Equipment Installation and
031311	Power Line Installation and Maintenance
031313	Electrical Fitting, Electrical Mechanics
031315	Refrigeration, Heating and Air Conditioning
031317	Electronic Equipment Servicing
031399	Electrical and Electronic Engineering and Technology n.e.c

Aerospace Engineering and Technology

031501	Aerospace Engineering
031503	Aircraft Maintenance Engineering
031505	Aircraft Operation
031507	Air Traffic Control
031599	Aerospace Engineering & Technology n.e.c

Other Engineering and Related Technologies

039901	Environmental Engineering
039902	Orthotics and Prosthetics
039903	Biomedical Engineering
039905	Fire Technology and Rescue Services
039907	Rail Operations
039909	Cleaning
039999	Engineering & Related Technologies n.e.c

ARCHITECTURE AND BUILDING**Architecture and Urban Environment**

040101	Architecture
040103	Urban Design and Regional Planning
040105	Landscape Architecture
040107	Interior and Environmental Design
040199	Architecture & Urban Environment n.e.c

Building

040301	Building Science and Technology
040303	Building Construction Management
040305	Building Surveying (Inspection)
040307	Building Construction Economics (including Quantity Surveying)
040309	Bricklaying and Stonemasonry
040311	Carpentry and Joinery
040313	Ceiling, Wall and Floor Fixing
040315	Roof Fixing
040317	Plastering
040319	Furnishing Installation
040321	Floor Coverings
040323	Glazing
040325	Painting, Decorating, Sign Writing and Other Finishes
040327	Plumbing, Gasfitting and Drainlaying
040329	Scaffolding and Rigging
040399	Building n.e.c

AGRICULTURE, ENVIRONMENTAL AND RELATED**Agriculture**

050101	Agricultural Science
050103	Wool and Fibre Science
050104	Beekeeping
050105	Animal Husbandry
050106	Crop Production
050108	Equine Trades
050110	Wool and Fibre Harvesting
050112	General Land Skills
050199	Agriculture n.e.c

Horticulture and Viticulture

050301	Horticulture
050303	Viticulture

Forestry Studies

050501 Forestry Studies
050502 Solid Wood Processing

Fisheries Studies

050701 Aquaculture
050702 Seafood Harvesting (Fishing)
050799 Fisheries Studies n.e.c

Environmental Studies

050901 Land, Parks and Wildlife Management
050999 Environmental Studies n.e.c

Other Agriculture, Environmental and Related Studies

059901 Pest and Weed Control
059999 Agriculture, Environmental and Related Studies n.e.c

HEALTH**Medical Studies**

060101 General Medicine
060103 Surgery
060105 Psychiatry
060107 Obstetrics and Gynaecology
060109 Paediatrics
060111 Anaesthesiology
060113 Pathology
060115 Radiology
060117 Internal Medicine
060119 General Practice Medicine
060199 Medical Studies n.e.c

Nursing

060301 General Nursing
060303 Midwifery
060308 Health Care Assistant
060399 Nursing n.e.c

Pharmacy

060501 Pharmacy

Dental Studies

060701 Dentistry
060704 Dental Hygiene and Therapy
060705 Dental Technology
060799 Dental Studies n.e.c

Optical Science

060901 Optometry
060903 Optical Technology
060999 Optical Science n.e.c

Veterinary Studies

061101 Veterinary Science
061103 Veterinary Assisting
061199 Veterinary Science n.e.c

Public Health

061301 Occupational Health and Safety
061303 Environmental Health
061304 Hauora (Māori Health)
061307 Health Education, Promotion, Counselling
061309 Community Health
061311 Epidemiology
061399 Public Health n.e.c

Radiography

061501 Medical Imaging Technology (Radiography) and Radiation Therapy

Rehabilitation Therapies

061701 Physiotherapy
061703 Occupational Therapy
061705 Chiropractic and Osteopathy
061707 Speech Pathology
061709 Audiology
061711 Massage Therapy
061713 Podiatry
061799 Rehabilitation Therapies n.e.c

Complimentary Therapies

061901 Naturopathy and Homeopathy
061903 Acupuncture
061905 Traditional Chinese Medicine
061999 Complementary Therapies n.e.c

Other Health

069901 Nutrition and Dietetics
069903 Human Movement and Sports Science
069905 Paramedical Studies
069907 First Aid
069999 Health n.e.c

EDUCATION**Teacher Education**

070101 Teacher Education: Early Childhood (pre-service)
070103 Teacher Education: Primary (pre-service)
070105 Teacher Education: Secondary (pre-service)
070106 Teacher Education: Tertiary
070108 Teacher Education: General (pre-service)
070113 Teacher Education: Special Education
070115 English Language Teaching (ESOL/EFL)
070116 Te Matauranga Māori me te Whakangungu (Māori Education)
070118 Bilingual Early Childhood Teacher Training (pre-service)
070120 Immersion Early Childhood Teacher Training (pre-service)
070122 Bilingual Primary Teacher Training (pre-service)
070124 Immersion Primary Teacher Training (pre-service)
070126 Bilingual Secondary Teacher Training (pre-service)
070128 Immersion Secondary Teacher Training (pre-service)
070130 Teacher Professional Development (AST)
070199 Teacher Education n.e.c

SOCIETY AND CULTURE

Curriculum and Education Studies

070301 Curriculum Studies
070303 Education Studies

Other Education

079999 Education n.e.c

Management and Commerce

Accountancy

080101 Accounting
080199 Accountancy n.e.c

Business and Management

080301 Business Management
080303 Human Resource Management
080305 Personal Management training
080307 Organisation Management
080309 Industrial Relations
080311 International Business
080312 Education Administration
080313 Public and Health Care Administration
080315 Project Management
080317 Quality Management
080319 Hospitality Management
080320 Racing and Gaming Management
080321 Farm Management and Agribusiness
080323 Tourism Management
080399 Business and Management n.e.c

Sales and Marketing

080501 Sales
080503 Real Estate
080505 Marketing
080507 Advertising
080509 Public Relations
080599 Sales and Marketing n.e.c

Tourism

080701 Tourism Studies

Office Studies

080901 Secretarial and Office Studies
080904 Text Processing and Office Tools
080999 Office Studies n.e.c

Banking, Finance and Related Fields

081101 Banking and Finance
081103 Insurance and Actuarial Studies
081105 Investment and Securities
081199 Banking, Finance and Related Fields n.e.c

Other Management and Commerce

089901 Purchasing, Warehousing and Distribution
089903 Valuation
089999 Management and Commerce n.e.c

Political Science and Policy Studies

090101 Political Science
090103 Policy Studies

Studies in Human Society

090301 Sociology
090303 Anthropology
090305 History
090306 Art History
090307 Archaeology
090308 Classics
090309 Human Geography
090314 Tikanga - Māori Customs
090316 Women's Studies
090399 Studies in Human Society n.e.c

Human Welfare Studies and Services

090501 Social Work
090502 Children's Services
090503 Nannying and Early Childhood Care
090505 Youth Work
090507 Support for the Older Person
090509 Care for People with Disabilities
090511 Community Client care
090513 Counselling
090515 Welfare Studies
090599 Human Welfare Studies and Services n.e.c

Behavioural Science

090701 Psychology
090799 Behavioural Science n.e.c

Law

090901 Business and Commercial Law
090903 Constitutional Law
090905 Criminal Law
090907 Family Law
090909 International Law
090911 Taxation Law
090913 Legal Practice
090999 Law n.e.c

Justice and Law Enforcement

091101 Justice Administration
091103 Legal Studies
091105 Police Studies
091199 Justice and Law Enforcement n.e.c

Librarianship, Information Management and Curatorial Studies

091301 Librarianship and Information Management
091303 Curatorial Studies

Language and Literature

091501 English Language
091502 Te Reo Māori
091504 Foreign Languages
091506 English for Speakers of Other Languages
091519 Translating and Interpreting

091521 Linguistics
 091523 Literature
 091599 Language and Literature n.e.c

Philosophy and Religious Studies

091701 Philosophy
 091703 Religious Studies

Economics and Econometrics

091901 Economics
 091903 Econometrics

Sport and Recreation

092101 Sport and Recreation Activities
 092103 Sports Coaching, Playing, Officiating and Instructing
 092199 Sport and Recreation n.e.c

Other Society and Culture

099901 Community, Whanau, Family and Consumer Studies
 099902 Cultural Studies
 099903 Criminology
 099905 Security Services
 099999 Society and Culture n.e.c

CREATIVE ARTS

Performing Arts

100101 Music
 100103 Drama and Theatre Studies
 100105 Dance
 100106 Nga Mahi a Rehia (Māori Performing Arts)
 100199 Performing Arts n.e.c

Visual Arts and Crafts

100301 Fine Arts
 100303 Photography
 100305 Crafts
 100306 Mana Whakairo (Māori Carving)
 100307 Jewellery Making
 100309 Floristry
 100399 Visual Arts and Crafts n.e.c

Graphic and Design Studies

100501 Graphic Arts and Design Studies
 100503 Textile Design
 100505 Fashion Design
 100506 Nga Mahi a te Whare Pora (Māori Weaving)
 100599 Graphic and Design Studies n.e.c

Communication and Media Studies

100701 Audio Visual Studies
 100703 Journalism, Communication and Media Studies
 100705 Written Communication
 100707 Verbal Communication
 100799 Communication and Media Studies n.e.c

Other Creative Arts

109999 Creative Arts n.e.c

FOOD, HOSPITALITY AND PERSONAL SERVICES

Food and Hospitality

110101 Hospitality
 110103 Food and Beverage Service
 110105 Butchery
 110107 Baking and Pastry-making
 110109 Cookery
 110111 Food Hygiene
 110199 Food and Hospitality n.e.c

Personal Services

110301 Beauty Therapy
 110303 Hairdressing
 110399 Personal Services n.e.c

MIXED FIELD PROGRAMMES

General Education Programmes

120101 General Primary and Secondary Education Programmes
 120103 Literacy and Numeracy Programmes
 120105 Learning Skills Programmes
 120199 General Education Programmes n.e.c

Social Skills Programmes

120301 Social and Interpersonal skills
 120303 Life Skills Programmes
 120304 Family/Whanau Education
 120399 Social Skills Programmes n.e.c

Employment Skills Programmes

120501 Career Development Programmes
 120503 Job Search Skills Programmes
 120505 Work Practices Programmes
 120599 Employment Skills Programmes n.e.c

Other Mixed Field Programmes

129999 Mixed Field Programmes n.e.c

Note: n.e.c = not elsewhere classified



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga