

# Research Results

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## How Much Academic Instruction Occurs Outside Research Universities in BC?

*Academic Instruction in Colleges, University Colleges<sup>1</sup>, and Institutes, from 2005/06 to 2007/08*

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### Introduction

Academic courses cultivate general intellectual abilities, as well as cultural and scientific competencies, that prepare students for a wide range of endeavours. They stand in contrast to courses that are primarily vocational or applied in nature, although they sometimes provide a foundation for the study of applied topics. Their role as the core of advanced education stretches back to the ancient Greeks and is reflected in contemporary notions of liberal learning. (See sidebar.)

When British Columbia began establishing community colleges in the mid 1960s, the explicit decision to provide extensive university transfer opportunities for college students had the added benefit of making a wide array of academic courses available to students who were not university-bound. Some of these students had been in applied programs in which just one or two of their courses – perhaps in English, Psychology, Biology or Mathematics– were academic in nature. Others enrolled in programs in which a sizable number of the courses were academic.

Colleges, university colleges, and institutes have designed programs over the years that, as appropriate, draw upon academic courses as one of the means

#### WHY DO ACADEMIC COURSES MATTER?

- Building blocks of baccalaureate degrees and the pathway to advanced levels of study
- One way of providing “Essential Skills”
- Foster a civil, democratic society with a high quality of life for all

#### ESSENTIAL SKILLS

The importance and pervasiveness of academic abilities throughout the labour force is reflected in Human Resources and Skills Development Canada’s commentary about what it calls Essential Skills:

“Essential Skills are the skills needed for work, learning and life. They provide the foundation for learning all other skills and enable people to evolve with their jobs and adapt to workplace change.

“Through extensive research, the Government of Canada and other national and international agencies have identified and validated nine Essential Skills. These skills are used in nearly every occupation and throughout daily life in different ways and at different levels of complexity:

- Reading text
- Document use
- Numeracy
- Writing
- Oral communication
- Working with others
- Continuous learning
- Thinking skills
- Computer use

of ensuring their graduates are well rounded, flexible, and adaptable in the knowledge economy. Institutions have also made academic courses available to students who simply want to study academic subjects at the first or second year level, perhaps to confirm where their interests lie or to leave open the possibility of continuing towards a bachelor's degree at some point in the future.

BC's public post-secondary institutions have viewed their academic offerings as a means of fostering an equitable, advanced and democratic society. Their values with respect to academic study are expressed in the goals for study leading to a two-year Associate Degree. (See p. 5.)

Much of our previous knowledge about British Columbia's academic offerings outside research universities has been in the context of only university transfer students, that is those students who enter university with transfer as the basis of admission. This newsletter seeks to describe more completely academic post-secondary education in the BC public post-secondary education system by addressing two questions:

1. **What proportion of all instruction in colleges, university colleges, and institutes is academic in nature?**
2. **In what programs is academic instruction concentrated?**

The answers are approximate and preliminary, but they nevertheless advance our understanding of the BC post-secondary system.

## Previous Research

Recent Student Transitions Project (STP) research<sup>2</sup> published by BCCAT on the mobility of transfer students found that in Fall 2007, about 61,000 of the students enrolled in BC's colleges, university colleges, and institutes had taken at least one academic course at some point during their BC post-secondary career. Of these, 24,000 were deemed to be "eligible" transfer students as they had completed 24 or more academic credits

with sufficiently high grades that they would likely be admissible to a research university if they chose to apply there as a transfer student. The number who did actually transfer the following year was about 2,700, with more students likely to transfer in subsequent years. (A further 1,900 transferred in 2008 from prior terms or with less than 24 credits.)

Some of the 24,000 eligible transfer students either dropped out or stopped out of the post-secondary system the following year, but they were a minority. The largest group simply stayed at their original institution and continued their studies at that institution, the majority of them enrolled in two-year diploma or associate degree programs, but some also in baccalaureate degree programs. (See Table 1.)

Table 1

2008 Activities of Fall 2007 Eligible Transfer Students	
Stayed at original institution	51%
Stopped out or dropped out	20%
Graduated	12%
Moved to a research university	13%
Switched to some other institution	4%
TOTAL	100%

The mobility of transfer student research has shown that transfer to a research university is not the primary outcome of all the academic instruction provided by colleges, university colleges, and institutes. This comes as no surprise to educators in these institutions, but information about the majority of students who take academic courses without transferring has been sparse.

As might be expected, data about the field of studies of the 24,000 eligible transfer students shows that the largest group had enrolled in Arts and Sciences programs, followed by Business as a distant second. (See Table 2.)

**Table 2**

Field of Study of Fall 2007 Eligible Transfer Students	
Arts and Sciences	48%
Business and Management	26%
Legal and Social	7%
Nursing	4%
Fine Arts	4%
Engineering and Electronics	1%
All Others	10%
<b>TOTAL</b>	<b>100%</b>

The new research reported here looks not just at the eligible transfer students but takes into account the enrolment patterns of all 61,000 students with at least one academic course as well as the 80,000 students with no academic courses. It differs from previous BCCAT research in that it focuses not on the students themselves but on the total amount of academic instruction all students received as estimated using course registrations.

## Methodology

The two methodological challenges in this study were to obtain a working definition of “academic” and to measure the amount of such instruction. The solutions chosen are reasonably strong but, as described in the Data Caveats sidebar, only approximate.

The core of academic study is easier to define than are its boundaries, making “academic” a challenging concept to operationalize for measurement purposes. British Columbia’s extensive and mature system of course articulation to research universities means that a convenient operational definition of academic courses could be used in this study that simply is not available in many other jurisdictions. Academic courses were defined to be the 9,700 courses in the BC Transfer Guide that are equivalent to courses offered at BC’s research universities or at Thompson Rivers University.

While this approach understates academic instruction in that it excludes some academic courses with equivalencies at private or out-of-province institutions, as well as perhaps some academic instruction with block transfer

rather than course-to-course equivalencies, it is nevertheless reasonably complete and a very practical approach for the purposes of this study, a first look at the topic. In statistical terms, the BC Transfer Guide serves as a robust sample to estimate the full population of academic courses.

The enrolment measure selected was course registration, facilitating a convenient match with courses in the BC Transfer Guide. A student who enrolled in five courses, three of which appear in the BC Transfer Guide, would generate three academic course registrations. Unlike headcount or full-time equivalent (FTE) enrolment measures, course registrations can explicitly accommodate students who take a mix of academic and non-academic courses. A small drawback of this approach is that a minority of courses have non-standard credit values: i.e., no adjustment is made for courses that are larger or smaller than the norm, and therefore the answer to the first research question about the proportion of academic instruction cannot be precise.<sup>3</sup>

### DATA CAVEATS

- *Some academic instruction does not appear in the BC Transfer Guide. Such instruction might be evaluated for transfer credit at research universities on a case-by-case basis. Furthermore, the BC Transfer Guide is updated continually as curriculum evolves at sending and receiving institutions.*
- *Most courses are assessed at 3 credits, but some are valued at 1.5 credits, 5 credits, or other amounts of credit. No adjustment has been made here for courses of different credit value.*
- *Institutions’ categorizations of their courses into standard taxonomies of programs and disciplines still have inconsistencies. This study used the more robust coding of programs according to the Classification of Instructional Programs (CIP), rather than the methodologically more defensible coding of courses to disciplines.*
- *Efforts were made to exclude registrations in non-credit Continuing Education courses, but it is an imperfect science given the lack of a consistent definition of Continuing Education and varying coding practices at institutions.*
- *The rapid expansion of baccalaureate programs throughout the college and institute sector means that historical data likely understates the amount of academic instruction at present. Combining three academic years of data smoothed annual variation and data anomalies.*

## Data Source

All of BC's public colleges, university colleges, and institutes submit a copious set of data, including registrations by course and student, to the Central Data Warehouse (CDW), a database held and managed in cooperation with the submitting institutions by the BC Ministry of Advanced Education and Labour Market Development. (Private institutions do not submit to this data set and were therefore excluded from the study.) Ministry staff<sup>4</sup> in the Information and Data Management Branch extracted pertinent data from the CDW for three academic years, 2005/06 to 2007/08, and matched them with courses listed in the BC Transfer Guide. Summaries of these data were made available to BCCAT for analysis.

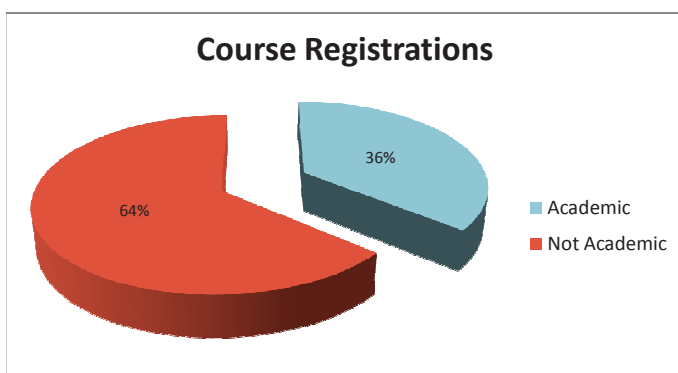
Practices regarding continuing education and contract training courses vary across institutions. Efforts were made, with considerable success, to exclude these types of courses from the study. In a few instances, what appears to be an equivalent course is offered at one institution as a credit offering and at another as continuing education.

## Findings

### Question 1: What proportion of instruction is academic in nature?

About one third of all instruction in BC's colleges, university colleges, and institutes is provided in academic courses, i.e., in courses that appear in the BC Transfer Guide. (See Figure 1.) This significant academic component of colleges and institutes is not unique in North America but

Figure 1



it stands in marked contrast to the vocational/technical orientation of colleges in most Canadian jurisdictions.

### Question 2: In what programs is academic instruction concentrated?

Academic instruction is concentrated in the Arts and Sciences, which account for half of all academic instruction. Business accounts for another quarter of academic instruction. (See Table 3.)

Table 3

Distribution of Academic Course Registrations	
Program Cluster	Share of Academic Course Registrations
Arts and Sciences	51%
Business	23%
Social and other services	9%
Fine Arts*	4%
Health*	3%
Technology	3%
Developmental	1%
Trades and related	1%
Unknown	5%
Total	100%

\* Probably understated. See commentary below.

## Academic Intensity of Program Clusters

### Arts and Sciences

Arts and Sciences programs are the largest of the nine program clusters, accounting for 22% of all academic and non-academic course registrations in colleges, university colleges, and institutes. Eighty five percent of these Arts and Sciences course registrations are academic, by far the most academically oriented of the program clusters. The combination of the largest program cluster with the highest proportion of academic courses results in half of all academic course registrations occurring in the Arts and Sciences. (See Figure 2.)

The Arts and Sciences are the core disciplines around which community colleges originally designed university transfer programs. Some Arts and Sciences courses are preparatory or bridging in nature, preparing students for subsequent university transfer courses. A few have

## GOALS OF BC'S ASSOCIATE DEGREES IN ARTS AND SCIENCE

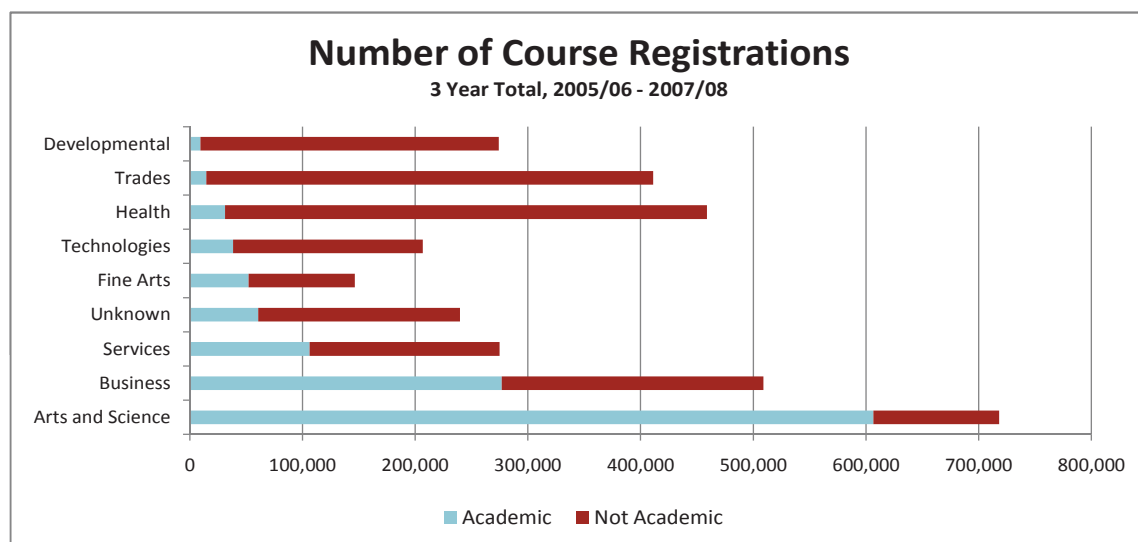
Students will be exposed to a program of study that seeks to develop:

- An interest in and curiosity about the world around them
- An understanding of the global context in which they live and work
- An appreciation of intellectual thought and human creativity
- An openness to a variety of viewpoints
- A capacity for and interest in self directed life-long learning
- Acceptance of the social responsibilities that come with the benefits of advanced learning

degrees in such fields as Nursing, Business, and Engineering (and occasionally in diploma programs such as Dental Hygiene) sometimes first enrol in the Arts and Sciences to complete prerequisite courses in, for example, Biology and English. They may also complete some electives to lighten their course load once they have entered their specialized program.

The above enrolment patterns cause the amount of academic instruction to be understated in the specialized program. Furthermore, the linkages between the Arts and Sciences and the specialized programs are not evident in the data reported here. In reading the following commentary about professional and applied fields of study, bear in mind that the locus of academic instruction is more complex and integrated than this study suggests.

Figure 2



## Business

Business is the next largest program cluster, comprising 15% of all academic and non-academic course registrations. It is the second most academically intense cluster, with 54% of its course registrations occurring in academic courses.

This combination results in almost one quarter of academic course registrations being in Business.

Business programs provide an interesting mix of academic and non-academic courses. Some programs are quite predictable: office administration, for example, is solidly workplace oriented, with little or no academic content. Other programs are designed to lead to a bachelor's degree and are predictably academic in nature. More complex are the programs that are a blend of academic and non-academic courses, sometimes sharing academic courses with university transfer Business programs as a matter of convenience, or that

attributes that are academic but are not formally articulated with any research university courses; they do not appear in the BC Transfer Guide and are overlooked in this study. Some programs permit students to take non-academic courses, even though those courses may not count towards a credential or transfer. Thus this study's methodology has resulted in 85% of Arts and Sciences courses appearing as academic, even though a case might be made that all Arts and Sciences courses are, by definition, academic.

The Arts and Sciences support other instructional areas not only by providing "service" courses but also through pre-specialization courses. Students pursuing

are designed to allow some students to make an early exit into the labour market rather than complete a longer academic program.

The academic orientation of Business programs is probably more variable than any of the other program clusters, and even similarly named programs may vary in academic intensity across institutions.

### Other Program Clusters

The remaining fields of study combined account for 26% of all academic course registrations. (See Figure 3.) This number is understated, however, in that a lower percentage of academic courses in some fields are

articulated in the BC Transfer Guide than in Arts, Sciences, and Business. Laddered programs in Health, for example, may allow students to transfer at the second or third year level but may not have their first year courses articulated to courses at other institutions.

### Fine Arts

Fine Arts, along with Health and Technology, illustrate how the methodology used in this study underestimates the amount of academic instruction. The impact of this data limitation in the Fine Arts on the overall findings is small, however, in that Fine Arts is the smallest of the nine program clusters.

While such courses as those in the graphic arts may not be academic, some other Fine Arts courses that are arguably academic have not been identified as such in this study. The Emily Carr Institute of Art + Design, for example, is not a sending institution in the transfer system.

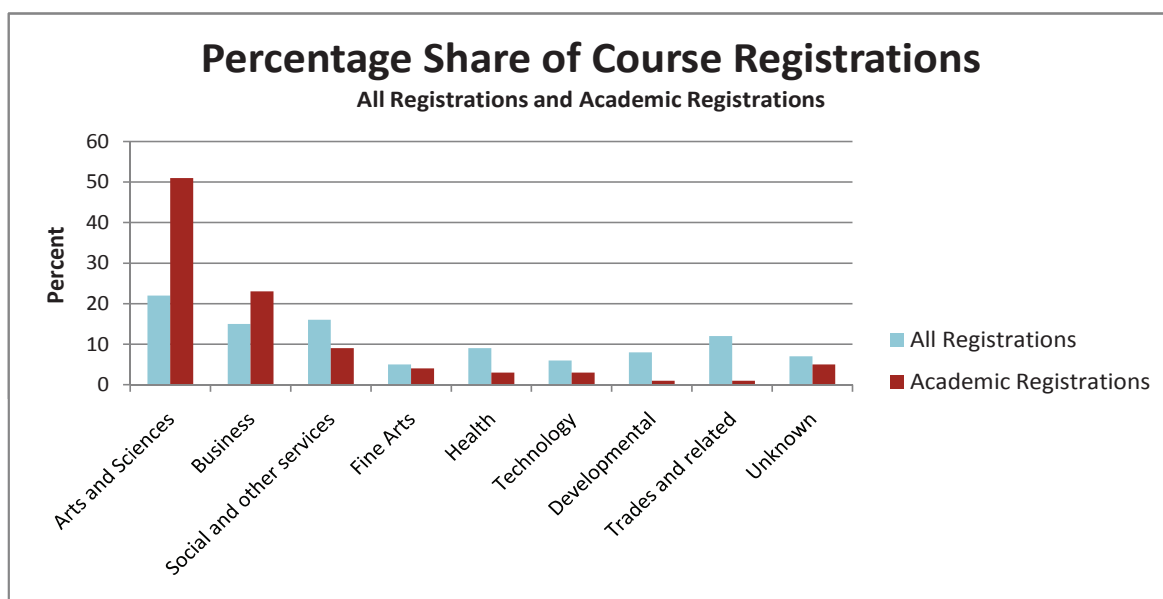
None of its visual arts courses therefore appeared as academic in the data set, yet it is a degree granting institution that has become a special purpose university which receives transfer students.

The 35% of Fine Arts course registrations that appear as academic represents the minimum proportion of Fine Arts instruction that is academic in nature.

### Health

Health is perhaps the program cluster where the largest number of academic course registrations have been missed, making it appear that only 11% of Health course registrations are academic. Caution is needed

**Figure 3**



when viewing this ratio; again, as with Fine Arts, the estimate is a minimum.

Substantial numbers of students in allied health programs such as Resident Care Attendant, Dental Assisting, Licensed Practical Nursing and health technologies do indeed enrol in non-academic courses. University equivalency in baccalaureate Nursing programs in colleges, university colleges, and institutes may not, however, be fully recognized in this study. A further methodological complication is the mixed use across programs and institutions of courses of high and low

credit value to deliver health curricula, potentially making course registrations a crude measure of the amount of instruction delivered in both academic and non-academic courses.

### *Social and Other Services*

A diverse set of programs – ranging from communication, educational assistants and library technology through social, recreation, tourism and hospitality programs – is categorized under the Social and Other Services label. They account for 16% of all course registrations but because of their applied emphasis, only 9% of academic course registrations.

### *Technology*

The relatively small size of technology programs – just 6% of all course registrations in BC’s colleges, university colleges, and institutes – belie the importance of technologists in the economy. This program cluster includes computing and engineering-related programs.

Historically, technology programs have been seen as more applied than academic, focussing on particular topics rather than situating them in broader societal and intellectual contexts. This study identified only one in five technology course registrations as academic.

### *Trades*

This program category includes not only apprenticeable trades, but a wide range of programs in agriculture and natural resources, construction, precision production, mechanics and transportation.

Instruction in the trades includes significant attention to “essential skills” (see p. 1) but may not focus on all the aspects of “liberal learning” (see p. 8). Trades students thus take very few courses that are clearly academic, despite learning many problem solving and other skills associated with academic studies.

### *Developmental Education*

Developmental courses are offered at the secondary or fundamental level. It is because of their level that they do not appear in the BC Transfer Guide and are not seen as academic offerings. Their subject matter, however, is drawn from the Arts and Sciences, typically mathematics and English (and solely from English in the case of English as a Second Language programs).

Unlike Adult Basic Education (ABE) offered by school districts, which tends to attract students seeking only to complete a high school credential, Developmental Education in the post-secondary system tends to be subject-specific remediation for students who already have a secondary education, serving students who want to continue their studies in particular fields in the post-secondary system<sup>5</sup>. While only a tiny portion of Developmental course registrations met the definition of academic courses used in this study, a case could perhaps be made that a much larger portion of the 90,000 registrations in Developmental courses each year are actually academic despite the level at which they are offered.

### *Unknown*

A variety of course coding issues in the Central Data Warehouse meant that the data extraction process for this study drew upon the more robust coding of programs with similar curriculum, but sometimes different names, to a common taxonomy. Some institutions, however, permit students to take courses without declaring a program. The result of this and other complications was that it was not clear how best to categorize about 7% of the course registrations without manual intervention in the CDW data extraction process. They therefore remained as “unknown” in terms of program cluster, but it was possible to automate the checking of whether the courses appeared in the BC Transfer Guide. One quarter of these course registrations turned out to be in transferable, and hence academic, courses.

## Conclusion

Conservatively estimated, about one third of course registrations in BC's colleges, university colleges, and institutes are in academic courses. Half of this academic instruction occurs in the Arts and Sciences, and one quarter in Business. Of the Arts and Sciences registrations, some portion results from students intending eventually to complete a credential in Health, Engineering, Social Services or other areas.

Rather than a pattern of distinct and separate "university transfer/academic" and "career/applied" streams in BC institutions that started, or remain, as colleges and institutes, today's reality is a continuum of academic courses across the curriculum. Some programs consist entirely of academic courses, some have no academic courses, and many consist of a mixture of academic and non-academic courses.

Whether this approximate one third ratio is appropriate for today's economic and social context, or even measured accurately, is of course open for discussion. The purpose of this newsletter has simply been to help make the discussion an informed one by applying a methodology for quantifying academic instruction at post-secondary institutions other than research universities.

### STATEMENT ON LIBERAL LEARNING

*Excerpts from the American Association of Colleges and Universities*

*"The ability to think, to learn, and to express oneself both rigorously and creatively, the capacity to understand ideas and issues in context, the commitment to live in society, and the yearning for truth are fundamental features of our humanity. In centering education upon these qualities, liberal learning is society's best investment in our shared future."*

*"Liberal learning is not confined to particular fields of study. What matters in liberal education is substantial content, rigorous methodology and an active engagement with the societal, ethical and practical implications of our learning. The spirit and value of liberal learning are equally relevant to all forms of higher education and to all students."*

<sup>1</sup> University colleges became special purpose universities in 2008. This newsletter uses the nomenclature that was in effect when the data were collected.

<sup>2</sup> Mobility of BC Transfer Students, May 2009, [bccat.ca/pubs/rr\\_mobility09.pdf](http://bccat.ca/pubs/rr_mobility09.pdf).

<sup>3</sup> Weighting course registrations according to credit value would be methodologically desirable, but not all non-academic courses have credits associated with them. Thus the denominator in the ratio of academic to all instruction could not be calculated. Workarounds to this problem are possible, but they would require more effort than they merit at this point.

<sup>4</sup> Particular thanks to Hugh Judd and Sandy McNeill for their constructive and responsive assistance, as well as to Patricia Beatty-Guenter who facilitated the process.

<sup>5</sup> Mobility of Adult Basic Education Students in BC: The 2004-05 Cohort, December 2008, [bccat.ca/pubs/ABEstudentmobility2004-05.pdf](http://bccat.ca/pubs/ABEstudentmobility2004-05.pdf).