
Credits to Graduation:

A comparison of the number of credits undertaken toward degree completion by students admitted on the basis of BC secondary school and those admitted as BC transfer students to British Columbia's four research universities (SFU, UBC, UNBC and UVic)

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I. Introduction

British Columbia has a diverse public post-secondary education system which includes 11 universities, 11 colleges and 3 institutes. In addition, nine private institutions participate with the public institutions in the BC Transfer System. Students who wish to pursue a baccalaureate degree program have several options available to them. Most students will either enter a degree-granting institution directly from high school or after completing up to two years of equivalent courses at another institution, frequently a college, before transferring to another institution to complete their degree. Others may take a combination of transferable courses at several institutions prior to completing an undergraduate degree.

The BC Council on Admissions and Transfer (BCCAT) works with BC post-secondary institutions to “facilitate admission, articulation and transfer arrangements”. The Council, together with several partners, has undertaken several research studies to assess the effectiveness of the transfer system, evaluate overall student experience and success, assess graduate outcomes and compare levels of student engagement between direct entry and transfer students.

The purpose of this study is to examine the number of credits earned at graduation for two groups: those who graduated with a baccalaureate degree and who were admitted as transfer students and those admitted as secondary school students to one of the four BC research universities [Simon Fraser University (SFU), University of British Columbia, Vancouver (UBC), University of Northern British Columbia (UNBC) and University of Victoria (UVic)]. Prior studies¹ have shown that transfer students are satisfied with their overall experience, perform well academically, and upon graduation are as successful as their direct entry counterparts and earn similar salaries. We also know that transfer students are more likely to be older and tend to take longer to complete their degrees primarily because they are more likely to be attending part-time. However, it is not known if transfer students routinely take more credits than direct entry students in order to fulfill all the requirements of their chosen degree.

One indicator of graduation efficiency is the number of credits that students take in order to qualify for the degree. Ideally, if the degree requires 120 credits, then students should have attained that number or close to it, at the point of graduation. Given that students change their mind about choice of major, that slip-ups occur in ensuring that all degree and program requirements are met, and that required courses are not always available at the time that students want to take them, many students will exceed the minimum. If transfer students have planned their transfer courses well, receive all appropriate credit upon admission to the university, and are able to apply that credit to their chosen program they should be able to graduate with the same number of credits acquired by direct entry students. That is, the transfer route to a degree should be as efficient as the direct entry route. Assessing whether this is the case is an important indicator of the effectiveness of the transfer system.

¹ <http://www.bccat.bc.ca/pubs/univoutcomes.pdf>

While this type of assessment has not previously been undertaken in BC, a recent California report² indicated that “many transfer students graduate from a university with “excess” units.” In addition, some have hypothesized that this is the case also in BC, based on the belief that transfer students cannot get all the courses they need at the sending institution or that they do not get appropriate transfer credit at the receiving institution, and that therefore a transfer route may systemically disadvantage the transfer student.

In order to contribute to the growing literature about the efficiency of the transfer system in British Columbia, this study will examine (a) if transfer students are being awarded sufficient credit for their transfer courses, (b) if they are graduating with the same number of total credits (transferred and earned at the university) as direct entrants and (c) whether or not the transfer route is systemically placing transfer students at a disadvantage.

II. The Study

This report has been commissioned by BCCAT. Each of the four BC research universities was asked to provide a data file of all students who graduated in fall 2007 or spring 2008 (academic year 2007/08) with an arts, science, commerce/business administration or engineering degree. Since BC has a well defined transfer articulation process between institutions, the cohort was further restricted to graduates who were admitted to the university from a BC secondary or post-secondary institution as this would allow for valid comparisons between each of the four universities. Therefore, students admitted from Canadian institutions outside BC, as well as those from international institutions, were excluded from the study. For SFU, the graduates in this study represent 72% of the total graduates in arts, science, commerce/business administration or engineering; for UBC, 79%; for UNBC, 84%; and for UVic 77%.

The original premise of the study was to examine the total number of credits that students take over the course of their post-secondary studies. For transfer students, this would have meant recording all course credits taken at all previous institutions prior to students’ transferring to the university where they completed their degrees in addition to credits completed at the university. Since each university operates with a different student system and data are stored and captured based on each university’s requirements, the total number of credits completed at previous institutions was only available from UBC which represents 36% of the total transfer graduates in the cohort. So while we are able to report on all credits completed for UBC graduates, we are limited to examining only the combination of transfer credits awarded plus credits earned at university for graduates from SFU, UNBC and UVic. In addition, each university was also asked to provide variables such as gender, date of birth, area of study, program start year, start year at university, total credits presented for transfer, total transfer credits awarded by institution, total credits attempted and earned at university, GPA at graduation, GPA in senior level courses, etc. Since SFU was unable to provide data for graduates’ GPA in senior level courses without more additional work, it was agreed that SFU would provide cumulative GPA instead. Despite the small variations in available data, sufficient data were provided in order to undertake the study. A detailed description of the variables requested and provided by each institution can be found in Appendix 5.

² <http://www.collegecampaign.org/assets/docs/2009-IHELP-Transfer-Report-FINAL-08-09.pdf>

III. Cohort characteristics

Distribution by program

There are 7,765 students who originated from a BC secondary or post-secondary institution and graduated with an undergraduate degree in arts, business, engineering or science from one of BC's four research universities in 2007/08. UBC's data included 7 BC students admitted under the Aboriginal category as well as 16 students who were university graduates and had pursued a second degree at UBC and these two groups were removed from the cohort. SFU also removed prior university graduates from their cohort submission. As expected, 50% of graduates completed a degree in arts (humanities or social sciences) followed by science at 27%, business at 14% and engineering at 9%. The distribution of graduates by program is consistent with the size of these programs at the respective universities. UBC, the largest of the four universities, has 47% of the graduates in the cohort file, followed by SFU (25%), UVic (23%) and UNBC (5%).

Table 1: Distribution of graduates by university and program

Degree Program	SFU	UBC	UNBC	UVic	Total	% of Cohort
Arts	1,212	1,550	118	992	3,872	50%
Business	394	486	112	132	1,124	14%
Engineering	70	517	2	108	697	9%
Science	282	1,080	160	550	2,072	27%
Total	1,958	3,633	392	1,782	7,765	100%
% of cohort	25%	47%	5%	23%	100%	

Graduates at SFU are more likely to be in arts (62%) followed by business (20%) and then science and engineering (18%). Similarly, UVic graduates are more likely to be in arts (56%) followed by science and engineering (37%) with business representing only 7%. At UBC, however, graduates are equally distributed between arts (43%) and science and engineering (44%) followed by business (13%). At UNBC, the majority of graduates are in science programs (41%), with similar distributions for arts (30%) and business (29%).

Basis of Admission

Each university has a different system for recording students' basis of admission and various categories have been collapsed into 'transfer' or 'secondary school' as appropriate. Students admitted under the 'secondary school' category include direct entry students who began studying at a university immediately following high school; those who delayed entry between high school and university without completing post-secondary courses in between; and those students who attended a post-secondary institution, completed some courses but not sufficient courses to qualify as 'transfer' and were therefore admitted mostly on the basis of their secondary school courses and grades with some transfer credits awarded for applicable post-secondary courses. This study does not include students admitted under other bases of admission, such as out-of-province, special admissions categories, etc.

UBC admits the majority of its students from secondary schools and since a large proportion of graduates are from UBC, it is not surprising that 59% of all graduates are admitted from a BC secondary school. Unlike UBC and UVic where most students are admitted once during the year (fall), SFU's admissions process has three intake periods (fall, winter and spring) which is favourable for transfer students as it provides students with greater flexibility to complete transfer courses at different rates without affecting students' ability to transfer. Furthermore, admission GPAs for transfer students have also been lower at SFU than at UBC and students with an associate degree³ who apply to SFU are not only provided with block transfer credit but are also admitted at a lower admission average than transfers without associate degrees. All these variables provide ideal conditions for transfer to SFU. Historically, between 2002 and 2005, approximately 89% of all undergraduates registered in the fall semester at SFU were from BC institutions and of these, 47.5% were from BC post-secondary institutions.⁴ In this sample of students who graduated in 2007/08, 53% of SFU graduates were transfer students. Due to their shorter time to completion on average, the data included transfer students admitted as late as 2006 and 2007 and only included BC 12 students admitted in 2005 or prior to 2005. On average, the time for transfer students to complete a degree at a research university is 2.9 years compared to 4.5 years for BC 12 students in the study sample.

At UNBC in 2007-08, approximately 74% of all students registered in undergraduate programs were from BC institutions with about one-half of these from BC post-secondary institutions and the rest from BC secondary schools.⁵ The proportion of transfer graduates (53%) is relative to the intake of transfer students (about 50%).

Table 2: Graduates by basis of admission

Basis of Admission	SFU	UBC	UNBC	UVic	Total	cohort
Secondary School	921	2,496	194	979	4,590	59%
Transfer	1,037	1,137	198	803	3,175	41%
Total	1,958	3,633	392	1,782	7,765	100%
% Transfer	53%	31%	51%	45%	41%	

³ For further information on associate degrees, see <http://www.bctransferguide.ca/associate/requirements.cfm>

⁴ <http://www.sfu.ca/irp/Students/documents/ST28.db.xls>

⁵ http://www.unbc.ca/assets/institutionalresearch/reports/students/profile_student.pdf

Gender

Female students represent 55% of all graduates with slightly more female students in the transfer category (57% compared to 54% for secondary school).

Table 3: Gender distribution

Basis of Admission	Female	Male	Total	% female
Secondary School	2,476	2,114	4,590	54%
Transfer	1,799	1,376	3,175	57%
Total	4,275	3,490	7,765	55%

Graduates by Degree Program, Gender and Age

The majority of transfer graduates in the cohort were admitted to university between 2003 and 2006. During that time, the post-secondary system in BC consisted of 6 universities, 3 university colleges, 12 colleges, 5 institutes as well as a number of private institutions. University colleges and colleges provided courses primarily for university transfer into arts and business programs with some university-specific transfer programs for engineering. Therefore, it is not surprising that 61% of transfer students graduate with a degree in arts compared to secondary school students at 42%. Moreover, it appears that students who wish to pursue degrees in science and engineering fields are more likely to attend university directly from high school.

Table 4: Graduates by basis of admission and program

Basis of Admission	Arts	Business	Engineering	Science	Total
Secondary School	42%	14%	10%	33%	100%
Transfer	61%	15%	7%	17%	100%
Total	50%	14%	9%	27%	100%

Female transfer graduates are over-represented in arts and under-represented in science and engineering programs. Similarly, secondary school female students are under-represented in science and engineering programs, although not to the same extent as transfers.

Table 5: Gender distribution by program

Basis of Admission	Gender	Arts	Business	Engineering	Science	Total
Secondary School	F	50%	14%	3%	33%	100%
	M	34%	14%	18%	34%	100%
Secondary School Total		42%	14%	10%	33%	100%
Transfer	F	71%	13%	2%	14%	100%
	M	47%	18%	14%	21%	100%
Transfer Total		61%	15%	7%	17%	100%
Total		50%	14%	9%	27%	100%

As mentioned previously, prior studies have shown that transfer students tend to be older and the data in this study further reinforce prior findings. Transfer students are on average three years older than secondary school students when they graduate and those in

business and science programs tend to be slightly younger than graduates in arts and engineering.

Table 6: Age at graduation

Basis of Admission	Institution	Arts	Business	Engineering	Science	Total
Secondary School	SFU	24	23	24	24	24
	UBC	23	23	24	23	23
	UNBC	23	23	23	23	23
	UVic	24	23	24	24	24
Secondary School Total		24	23	24	23	23
Transfer	SFU	26	26	26	26	26
	UBC	27	25	26	25	26
	UNBC	28	26		28	27
	UVic	27	25	29	26	27
Transfer Total		26	26	27	26	26
Total		25	24	25	24	25

Note: Insufficient number of graduates at UNBC in engineering so data not provided

IV. Credits

Each of the four universities has a varied range of disciplines and options for students within their respective degree programs. Students can opt for combinations of majors, double majors or honours, major and honours or minor programs with many electing to undertake more than one area of specialization. At UBC, students pursuing a Bachelor of Arts or Bachelor of Science degree can elect to pursue a double major program which combines an arts discipline with a science discipline (e.g. English and Biology). The large range of co-op, study abroad and community service learning options further provide students with enriching educational experiences. This wide range of options makes it difficult to determine exactly how many credits students are required to undertake in order to complete their degree programs. For the purposes of this study, universities provided the number of credits required for degree program completion but it is important to note that in most cases, this appears to be the minimum number of credits required for the degree and not necessarily for the range of options and choices that students selected.

Credits required

The majority of students are registered in programs in arts, business and science which require a minimum of 120-121 credits for degree completion (see Table 7). Of the 151 students who required 132 credits for degree completion, 149 graduated from SFU with an honours program with the remaining two at UNBC also with an honours program. An additional 332 graduates at UBC and UVIC completed honours programs and it is quite likely that students completing honours programs at all four institutions will take more than 120 credits for program completion due to the rigorous choices of pre-requisites required for honours regardless of the number of credits required for these programs.

Table 7: Number of graduates by credits required for arts, business and science programs

Credits required	Arts	Business	Science	Total
120	3,827	599	1,166	5,592
121		488	412	900
122			226	226
123			92	92
124			3	3
125			14	14
126			22	22
127			6	6
128			8	8
129			32	32
130			10	10
132	54	39	58	151
134			14	14
136			16	16
139			1	1
Total	3,881	1,126	2,080	7,087

Note: Credits required for engineering degrees are found in Table 8.

Graduates who complete engineering degrees are required to take a minimum of 136 credits and for some as much as 161 credits (see Table 8). There is considerable variation between programs at UBC, and variation also exists when comparing programs between universities. For example, all engineering programs at UVic require 147 credits for degree completion. These are programs in electrical, mechanical or computer engineering. In comparison, the electrical engineering program at UBC requires 145 credits while the mechanical engineering program requires 149 credits. UBC's graduates represent the following twelve different streams within engineering: chemical, civil, computer engineering, electrical, engineering physics, environmental engineering, geological, integrated engineering, materials, mechanical, and mining. SFU offers seven different streams of engineering with credits requirements that range from 140 to 157, including computer, electronics, systems, biomedical engineering, engineering physics, medical and mechatronics.

Table 8: Credits required for engineering programs

Credits required	SFU	UBC	UNBC	UVic	Total
136		50			50
140	9	4			13
141	18				18
143	26	17			43
144		52			52
145		110			110
147				108	108
148		27			27
149		80			80
150		18			18
152	4				4
153	4	95			99
154	1				1
155	5				5
156		16			16
157	3	52			55
161			2		2
Total	70	521	2	108	701

Credits awarded and earned

Generally, universities require that graduates, in a program which requires 120 credits, complete a minimum of 60 credits or the equivalent of two years of full-time study at the university in order to graduate with a degree at that university. So, in an ideal transfer system, students would complete anywhere from 0 to 60 transfer equivalent credits at another institution prior to transferring to the university where they intend to complete their degree.

However, as shown in Table 9, much variation exists in the data for each of the four universities. At SFU, the average number of credits awarded to transfer students is 52, with the maximum at 66. At UBC, the average number of credits awarded is 48 with the number ranging from 3 to 89. Graduates with ‘secondary school’ as their basis of admission have an average of 15 post-secondary credits awarded at UBC with some of these students having as much as 60 credits. This is most likely due to some secondary school students completing Advanced Placement courses or International Baccalaureate Diplomas where credit is recorded as transfer credit or alternatively, this could represent students who start at UBC upon completion of secondary school and then take a one year leave, complete some transfer work at a college and return to UBC to complete their studies. In the case of UVic and UNBC, there are some outliers in the data file, with some transfer students being awarded 149 and 187 credits respectively.

Table 9: Transfer credits awarded (minimum, average, maximum)

institution	Data	Secondary School	Transfer
SFU	Min Transfer credits awarded	-	21
	Average Transfer credits awarded	4	52
	Max Transfer credits awarded	57	66
UBC	Min Transfer credits awarded	3	3
	Average Transfer credits awarded	15	48
	Max Transfer credits awarded	60	89
UNBC	Min Transfer credits awarded	3	9
	Average Transfer credits awarded	8	54
	Max Transfer credits awarded	71	187
UVic	Min Transfer credits awarded	-	-
	Average Transfer credits awarded	5	51
	Max Transfer credits awarded	126	149

In order to compensate for outliers in the cohort file, 13 graduates who were awarded more than 100 transfer credits have been excluded from the additional analysis below. Once admitted to the university, it appears that transfer students complete on average slightly fewer credits than secondary school students (credits awarded plus earned) thereby dispelling the myth that transfer students graduate with more ‘excess’ credits than those admitted on the basis of secondary school. UNBC is the only institution where it appears that transfer students take slightly more credits than secondary school students but the difference is not statistically significant.

Table 10: Average total credits (transfer credits awarded plus credits earned at university)

	Secondary School	Transfer	Total
SFU	131	128	129
UBC	137	132	136
UNBC	128	130	129
UVic	131	131	131
Total	134	130	133

Note: excludes 13 records where transfer credits awarded > 100 credits per student.

Further examination of the data by degree program and institution reveals some variation in the average number of credits completed. In all four degree programs, transfer graduates at UBC take slightly fewer credits than secondary school students. At SFU, transfers also have on average slightly fewer credits with the exception of Science, where they have slightly more credits upon graduation. At UVic, transfers in science have on average the same number of credits while those in other programs have slightly more and at UNBC, transfer graduates in all three program areas (arts, business and science) complete slightly more credits. See Appendix 1 for a detailed distribution of graduates by university, program, admission basis and range of credits completed.

Table 11: Average total credits (transfer credits awarded plus credits earned), by program

Degree	Institution	required credits	Average number of credits completed		
			Secondary School	Transfer	Total
Arts	SFU	120 to 132	128	128	128
	UBC	120	127	126	127
	UNBC	120 to 132	124	127	126
	UVic	120	125	126	126
Arts Total			127	127	127
Business	SFU	120 to 132	130	127	129
	UBC	121	128	123	127
	UNBC	120	123	126	125
	UVic	120	135	136	136
Business Total			129	127	128
Engineering	SFU	140 to 157	153	150	153
	UBC	136 to 157	170	162	167
	UNBC	161	162		162
	UVic	147	164	167	165
Engineering Total			167	163	166
Science	SFU	120 to 132	132	133	132
	UBC	120 to 134	138	133	137
	UNBC	120 to 139	132	137	134
	UVic	120 to 132	132	132	132
Science Total			136	133	135
Total		120 to 161	134	130	133

Note: excludes 13 records where transfer credits awarded > 100 credits per student.

Furthermore, transfer graduates in almost all honours programs also take on average slightly fewer credits (Table 12).

Table 12: Average total credits (transfer credits awarded plus credits earned) by program type

Program Type	required credits	Average number of credits completed		
		Secondary School	Transfer	Total
Double major	120 to 136	136	136	136
Extended minor	120	122	142	132
General	120	128	130	129
Honours	120 to 134	136	133	135
Major	120 to 161	134	130	132
Combined Major	120 to 126	134	133	133
General/Minor	120	131	132	131
Honours/Minor	120 to 134	143	141	142
Honours/Major	120 to 132	158	150	156
Major/Minor	120 to 157	132	130	131
Combined Honours	120 to 132	151	153	152
Total	120 to 161	134	130	133

Note: excludes 13 records where transfer credits awarded > 100 credits per student.

Closer analysis of the data (Appendix 2a to 2d) reveals that transfer students graduate with honours, double majors/honours or a combination of honours/majors/minors and are

not necessarily choosing only the 'one major' path to graduation. In arts, 67% of transfers select the single major path to graduation compared to 53% for secondary, a difference of 14 percentage points whereas in science the difference is smaller (8 percentage points). Graduates in business and engineering programs do not have the same opportunity to pursue more than one option/major for their degree programs and the very small differences between transfer and secondary students are a result of a handful of students opting for minor programs in addition to the option/major for their degree.

Table 13: Proportion of graduates in only 'one' major/option path to degree completion

Transfer	SFU	UBC	UNBC	UVic	Total
Arts	66%	68%	69%	66%	67%
Business	82%	96%	54%	100%	85%
Engineering	100%	93%	100%	94%	93%
Science	62%	63%	87%	66%	66%
Total	69%	74%	69%	70%	71%
Secondary	SFU	UBC	UNBC	UVic	Total
Arts	54%	54%	47%	49%	53%
Business	71%	94%	21%	100%	83%
Engineering	92%	90%	100%	86%	90%
Science	57%	56%	84%	57%	58%
Total	61%	65%	61%	58%	63%

If we exclude engineering programs, honours and joint major programs and examine just those programs which require 120 or 121 credits for degree completion, we find that except for UNBC and to a lesser extent UVic, transfer students in most 'single' major programs requiring 120 or 121 credits to graduate also complete slightly fewer credits than secondary school students (Table 14). The exception however is science where transfers at three of the four universities tend to complete more credits for their programs. In addition, both transfer and secondary school graduates from business programs at UVic seem to complete an unusually higher number of credits than is required for the program, even in comparison to the other three research universities.

Table 14: Average credits for programs which require 120-121 credits (transfer credits awarded plus credits earned at university); joint majors and honours programs excluded

Degree	Institution	Secondary School	Transfer	Total
Arts	SFU	126	125	125
	UBC	126	125	126
	UNBC	125	127	126
	UVic	124	125	125
Arts Total		126	125	125
Business	SFU	126	125	126
	UBC	128	124	126
	UNBC	123	124	124
	UVic	135	136	136
Business Total		128	126	127
Science	SFU	126	131	128
	UBC	136	131	135
	UNBC	122	131	124
	UVic	129	131	130
Science Total		132	131	132
Total		129	126	128

Note: excludes 13 records where transfer credits awarded > 100 credits per student.

An examination of the data by gender reveals that, on average, male graduates complete more credits than female graduates in both groups but this is primarily in science programs. Conversely, female graduates in both groups tend to complete more credits in engineering programs. However, while there is some difference by gender, it is interesting to note that in all programs except for arts, transfer graduates tend to complete fewer credits than secondary school graduates irrespective of gender. Analysis by age shows no correlation between average credits completed and age for either group.

Table 15: Average credits (awarded and earned) by gender

Basis of Admission	Degree	F	M	Total
Secondary School	Arts	127	127	127
	Business	129	130	129
	Engineering	170	166	167
	Science	135	137	136
Secondary School Total		131	138	134
Transfer	Arts	127	127	127
	Business	127	126	127
	Engineering	167	162	163
	Science	132	134	133
Transfer Total		128	133	130
Total		130	136	133

Since transfer credits awarded to students exclude credits completed which were not awarded transfer credit, we should examine if transfer graduates take on average more or less credits over the course of their post-secondary studies. This would include all transfer credits presented for transfer irrespective of the number of credits awarded to students. UBC is the only institution which appears to capture the total number of credits that transfer students present upon admission. Transfer students from UBC represent just

over 1/3 of all transfers in this study so may reflect the experience of a representative number of transfer students to research universities. As seen in Table 16 below, when we include all credit (awarded, not-awarded and earned), transfer graduates at UBC still complete on average slightly fewer credits over the course of their post-secondary studies with little variation by program.

Table 16: Total credits ever completed (credits earned before transfer plus credits earned at university)

	Degree	Secondary School	Transfer	Total
UBC	Arts	128	129	128
	Business	129	129	129
	Engineering	170	165	169
	Science	139	139	139
UBC Total		138	136	137

In 2005, UBC undertook a study of students registered in Arts and Science to determine engagement of transfer students compared to secondary school students. The study also explored the transfer credit process and found that students who transfer to UBC reported high levels of satisfaction with the transfer credit process. Eighty-three percent of all respondents who started their studies elsewhere reported receiving all or most of the transfer credit that they expected when they transferred to UBC. In August 2009, UBC undertook a survey of new to UBC students called the NUBC Survey. Approximately 62% of transfer students responded to the survey. Transfer students were asked if they received all or most of the credit that they expected upon transfer. Once again, a high proportion, 88%, said they received all or most of the credit that they expected. Of those who did not receive expected credit, the majority (60%) said it was due to their original courses or program of study not being designed for transfer or they completed more credit than was allowed for transfer. An additional 32% said they received unassigned credit when they expected to receive specific course credit although unassigned credit is applied to a student's degree program. UBC's survey results support the findings in this study. UBC's quantitative and qualitative data results prove definitively that the transfer route does not hinder progress towards degree completion at UBC.

Sending Institutions

The majority of transfer graduates at SFU, UBC and UVic originated from Langara College, Kwantlen Polytechnic University, Camosun College, Capilano University and Douglas College. UNBC receives the largest proportion of its transfer students from the College of New Caledonia. As demonstrated in Appendix 3, students who transfer to universities tend to transfer most from post-secondary institutions which are located close to the receiving institution. A detailed analysis of the average number of credits (awarded plus earned) completed at university (Appendix 4) suggests little or no difference in the number of credits. The small variation in average credit between different sending institutions is most likely due to the combination of courses selected by students and corresponding transfer credit awarded by each of the four research universities. Since each university determines its own program requirements, one course awarded credit at one of the universities may not necessarily receive equivalent credit at another university. With the exception of students transferring from UVic, students who

transfer from one research university to another appear to complete slightly more credits than the average. Since research universities do not function as sending institutions and their courses are not articulated for transfer credit to other institutions, typically students who transfer between research universities are not doing so as part of a planned transfer route.

V. Performance in senior courses

Upon first entering university, both secondary school and transfer students will experience a drop in their grade point averages. This is due primarily to having to adjust to the different learning environment between smaller sending institutions and the larger receiving institutions. However, after the initial adjustment period, most student grades tend to increase and by the time they graduate, transfer students perform as well academically as secondary school students. The four universities were asked to provide GPAs for graduates in senior level courses (3rd year and higher) so that we could undertake a valid comparison of performance controlling for the “first year at university” adjustment period. UBC, UNBC and UVic provided graduates’ average GPA for senior level courses (3rd year and higher). In order to compare results for these three institutions, UNBC and UVic GPAs were converted to percentage grades. As demonstrated in Table 17, transfers perform as well as secondary school students with very small variation by program and university. At UBC, with the largest proportion of transfers in Arts, there is no difference in the performance of transfer and secondary school graduates. On average, the difference between transfer and secondary school graduates is only 1%, which further confirms that transfer students perform well academically and, moreover, that sending institutions provide transfer students with the necessary preparation for the more advanced courses at university.

Table 17: Percent grade in senior level courses

Degree	Basis of Admission	UBC	UNBC	UVic	Total
Arts	Secondary School	74	75	75	75
	Transfer	74	76	74	74
Business	Secondary School	78	74	75	77
	Transfer	75	73	73	74
Engineering	Secondary School	76	85	75	76
	Transfer	74	85	77	75
Science	Secondary School	75	76	76	75
	Transfer	73	75	74	73
All Programs	Secondary School	75	76	76	75
	Transfer	74	74	74	74

Further examination of the data by total credits completed (awarded and earned) and grade range reveals that, on average, students with higher grades in senior level courses tend to complete more credits for both secondary school and transfer graduates and this is likely due to the combination of programs and options that these high achieving students select. The exception is UBC where average credits completed for transfer graduates decreases slightly as the grade increases although the results are not statistically significant.

Table 18: Number of graduates and average credits completed (awarded and earned) by percent grade range

		Number of graduates			
Basis of Admission	percent grade range	UBC	UNBC	UVic	Total
Secondary School	less than 55	22			22
	55-67	401	18	106	525
	68-79	1,344	119	615	2,078
	80-100	729	57	257	1,043
Secondary School Total		2,496	194	978	3,668
Transfer	less than 55	6			6
	55-67	207	19	138	364
	68-79	675	140	510	1,325
	80-100	249	35	149	433
Transfer Total		1,137	194	797	2,128
		Average credits completed (awarded and earned)			
Basis of Admission	percent grade range	UBC	UNBC	UVic	Total
Secondary School	less than 55	133			133
	55-67	135	129	127	133
	68-79	136	127	131	134
	80-100	141	130	132	138
Secondary School Total		137	128	131	135
Transfer	less than 55	118			118
	55-67	133	129	127	131
	68-79	132	129	130	131
Transfer	80-100	131	132	134	132
Transfer Total		132	130	131	131

SFU provided a cumulative GPA for its cohort which includes performance in first and second year courses completed at SFU for both secondary school and transfer graduates. However, for transfer graduates, the GPA excludes first and second year courses completed at the sending institution. The SFU GPA therefore is not directly comparable but does provide a good proxy for performance of students at SFU and seems to indicate that secondary school students perform slightly better, but the differences are very small and vary by program. The better performance of secondary school students is not surprising as research from the Student Transitions Project⁶ has consistently shown that high school students with higher GPAs tend to go directly to research universities and those with lower GPAs tend to go to other post-secondary institutions⁷. So while we would expect secondary school students to perform better, it is reassuring to see that sending institutions are able to adequately prepare transfer students to succeed at university.

⁶ http://www.aved.gov.bc.ca/student_transitions/documents/STP-Movement-Among-Report_2008-10-20.pdf

Table 19: SFU: Number of graduates and average credits completed (awarded and earned) by cumulative GPA range

Basis of Admission	Cumulative GPA Range (percent grade range)	# of graduates	Avg. Credits completed (awarded and earned)
Secondary School	2.00 - 2.49 (55-67)	141	130
	2.50 - 3.49 (68-79)	616	130
	3.50 - 4.33 (80-100)	164	136
BC Grade 12 Total		921	131
Transfer	2.00 - 2.49 (55-67)	196	127
	2.50 - 3.49 (68-79)	720	128
	3.50 - 4.33 (80-100)	121	129
Transfer Total		1,037	128

VI. Conclusions

The most significant finding in this study is that the transfer route does not seem to disadvantage transfer students and in fact transfer students are able to graduate with approximately the same number of credits as secondary school students, accounting for both total credits undertaken at sending institutions as well as credits completed at receiving institutions. This is true for research universities as a whole measuring credits awarded plus credits earned as well as for UBC which measures all previous credit (awarded, not awarded, and earned).

Degree requirements are nearly always institution specific, so it would be natural to expect that when students change institutions, even assuming they have chosen all appropriate transferable courses, the sequencing of pre-requisites and requirements would leave some gaps in their progress toward a degree at the receiving institution. This study shows that such gaps are negligible. Evidently the courses offered by sending institutions in the BC system, and the courses selected by students pursuing a degree, provide for a remarkably seamless transfer, and there is virtually no evidence of students having to "catch-up" in some way to the curriculum demands of the receiving institution.

A detailed analysis of the data confirms what transfer students have said in prior UBC surveys. They are given credit for most or all of their transfer courses and in fact take slightly fewer credits during the course of their post-secondary studies compared to secondary school students. Even transfer students who register in honours and combined programs complete their degrees with somewhat fewer credits.

Furthermore, transfer graduates perform as well academically as secondary school graduates with very small variations in GPA by university and program.

This study contributes to the growing literature about the success of the transfer system in British Columbia. While there is some variation by program, sending and receiving institutions, it appears that the transfer system in BC is functioning well. On average, most BC post-secondary institutions sending students to BC research universities can be assured that those students choosing the transfer route seem to be well prepared to meet

the academic challenges facing them at the university and that these students are also able to complete their degrees with similar credit loads as those taking the direct entry route to graduation.

A great deal of the success of the transfer system can be attributed to the fact that courses for transfer have been well articulated between all the different post-secondary institutions in British Columbia which provides students with a seamless process of transfer as well as providing different pathways to degree completion.

VII. Recommendations

1. While it appears that on average transfer students do not appear to be systemically disadvantaged, it would be useful for both receiving and sending institutions to examine data specific to their institutions to ensure that policies and requirements for transfer students continue to provide a seamless and efficient route for transfer.
2. Business programs at UVic require 120 credits for degree completion as do most business programs at the other three research universities. However, both secondary school and transfer graduates at UVic appear to complete significantly more credits than graduates at the other three universities. It's not clear what would account for the high discrepancy between credits required and credits completed. Either degree program requirements for business are not correctly articulated or the combination of pre-requisites required makes it impossible for business graduates to complete their degrees within the prescribed 120 credits required for graduation at UVic. UVic should therefore examine both credits required for business and credits undertaken by graduates to determine if there are indeed obstacles toward an efficient degree completion route for business.
3. All four research universities provided BC Personal Education Numbers (PEN) for each individual record in the study. Further research could be undertaken to link the PEN to the data in the Student Transitions Project Database to compare results for aboriginal and non-aboriginal graduates. Similarly, the PEN could be used to link to the BC Central Data Warehouse (CDW) to determine total credits completed at sending institutions for SFU, UNBC and UVic to determine if data on total credits ever taken confirms the results for UBC graduates in this study.
4. This study contributes to the growing body of evidence of the success of transfer students in comparison to those admitted on the basis of secondary school as well as the efficiency of the transfer system in BC so it is important that research universities continue to take such findings into account as they develop and change their admission policies.

Appendix 1: Distribution of graduates by admission basis, program & credits completed (awarded and earned)

SFU		credits completed	Arts	Business	Engineering	Science	Total
Secondary School	101 to 120		93	22		35	150
	121 to 140		283	177	5	142	607
	141 to 160		43	21	39	31	134
	161 to 180		5	3	12	3	23
	181 to 200			1	3	1	5
	Greater than 200					2	2
Secondary School Total			424	224	59	214	921
Transfer	101 to 120		179	34		6	219
	121 to 140		523	124		46	693
	141 to 160		82	11	11	13	117
	161 to 180		4	1		3	8
Transfer Total			788	170	11	68	1,037
UBC		credits completed	Arts	Business	Engineering	Science	Total
Secondary School	060 to 100		1		1	14	16
	101 to 120		271	22		26	319
	121 to 140		608	260	1	507	1,376
	141 to 160		75	30	118	206	429
	161 to 180		13	4	164	72	253
	181 to 200		8		46	14	68
	Greater than 200		4		25	6	35
Secondary School Total			980	316	355	845	2,496
Transfer	030 to 059		1			1	2
	060 to 100		4	7	17	5	33
	101 to 120		241	11	1	4	257
	121 to 140		274	143	1	172	590
	141 to 160		39	7	35	46	127
	161 to 180		4	1	73	6	84
	181 to 200		5	1	25	1	32
	Greater than 200		2		10		12
Transfer Total			570	170	162	235	1,137
UNBC		credits completed	Arts	Business	Engineering	Science	Total
Secondary School	101 to 120		33	25		3	61
	121 to 140		24	12		79	115
	141 to 160		1			11	12
	161 to 180			1	1	1	3
	181 to 200		1			2	3
Secondary School Total			59	38	1	96	194
Transfer	101 to 120		16	26		1	43
	121 to 140		36	40		39	115
	141 to 160		7	6		17	30
	161 to 180			2		4	6
	181 to 200					2	2
	Greater than 200				1	1	2
Transfer Total			59	74	1	64	198
UVIC		credits completed	Arts	Business	Engineering	Science	Total
Secondary School	060 to 100					2	2
	101 to 120		283			120	403
	121 to 140		155	66		178	399
	141 to 160		31	7	31	55	124
	161 to 180		3		21	9	33
	181 to 200		2		2	5	9
	Greater than 200		2	1	2	4	9
Secondary School Total			476	74	56	373	979
Transfer	101 to 120		254			47	301
	121 to 140		218	47		92	357
	141 to 160		38	10	20	29	97
	161 to 180		3	1	21	5	30
	181 to 200		1		9	1	11
	Greater than 200		2		2	3	7
Transfer Total			516	58	52	177	803

Appendix 2a: SFU number of graduates and average credits completed (transfer credits awarded plus credits earned at university)

SFU		Secondary School		Transfer	
Degree	Program Type	Number of graduates	Average credits	Number of graduates	Average credits
Arts	Double major	8	145	8	143
	Extended minor	3	122	3	142
	Honours	16	138	16	141
	Major	229	126	518	125
	Combined Major	11	130	24	133
	Honours/Minor	8	142	9	142
	Honours/Major	3	159		
	Major/Minor	146	126	210	131
Arts Total		424	128	788	128
Business	Double major	1	148		
	Honours	19	138	7	140
	Major	159	126	140	125
	Combined Major	16	134	13	133
	Honours/Minor	10	143		
	Honours/Major	1	182	1	166
	Major/Minor	18	138	8	128
	Combined Honours			1	158
Business Total		224	130	170	127
Engineering	Major	54	151	11	150
	Major/Minor	5	177		
Engineering Total		59	153	11	150
Science	Double major	2	151		
	Honours	24	140	3	141
	Major	122	126	42	131
	Combined Major	1	125		
	Honours/Minor	11	146	2	142
	Honours/Major	2	186		
	Major/Minor	46	133	21	134
	Combined Honours	6	147		
Science Total		214	132	68	133
Total		921	131	1,037	128

Note: excludes records where transfer credits awarded > 100 credits per student.

Appendix 2b: UBC number of graduates and average credits completed (transfer credits awarded plus credits earned at university)

UBC		Secondary School		Transfer	
Degree	Program Type	Number of graduates	Average credits	Number of graduates	Average credits
Arts	Double major	94	133	34	139
	Honours	35	134	19	133
	Major	533	126	386	125
	Honours/Minor	7	142	3	138
	Honours/Major	6	152		
	Major/Minor	305	126	128	124
Arts Total		980	127	570	126
Business	Major	298	128	163	124
	Combined Major	1	139		
	Major/Minor	17	133	7	121
Business Total		316	128	170	123
Engineering	Major	320	168	150	162
	Major/Minor	35	183	12	169
Engineering Total		355	170	162	162
Science	Double major	14	163	3	164
	General	108	129	35	131
	Honours	63	137	12	126
	Major	471	137	148	131
	Combined Major	26	146	5	136
	General/Minor	26	131	5	132
	Honours/Minor	11	164	2	162
	Honours/Major	1	184		
	Major/Minor	102	144	21	138
	Combined Honours	23	156	4	152
Science Total		845	138	235	133
Total		2,496	137	1,137	132

Note: excludes records where transfer credits awarded > 100 credits per student.

Appendix 2c: UNBC number of graduates and average credits completed (transfer credits awarded plus credits earned at university)

UNBC		Secondary School		Transfer	
Degree	Program type	Number of graduates	Average credits	Number of graduates	Average credits
Arts	Double major	3	132		
	Honours	1	138	2	138
	Major	28	125	41	127
	Combined Major	20	122	4	126
	Honours/Minor	1	135		
	Honours/Major			1	154
	Major/Minor	6	121	11	123
Arts Total		59	124	59	127
Business	Double major	27	123	34	128
	Major	8	123	40	124
	Major/Minor	3	120		
Business Total		38	123	74	126
Engineering	Major	1	162		
Engineering Total		1	162		
Science	Double major	4	169	1	184
	Major	81	130	52	136
	Combined Major	2	146	1	171
	Major/Minor	9	131	7	135
Science Total		96	132	61	137
Total		194	128	194	130

Note: excludes records where transfer credits awarded > 100 credits per student.

Appendix 2d: UVic number of graduates and average credits completed (transfer credits awarded plus credits earned at university)

UVic		Secondary School		Transfer	
Degree	Program Type	Number of graduates	Average credits	Number of graduates	Average credits
Arts	Double major	46	131	20	133
	General	17	124	21	129
	Honours	27	125	18	129
	Major	233	124	340	125
	Combined Major	1	122		
	Honours/Minor	14	129	6	131
	Honours/Major	6	142	3	144
	Major/Minor	130	124	107	127
	Combined Honours	1	156		
Arts Total		475	125	515	126
Business	Major	74	135	58	136
Business Total		74	135	58	136
Engineering	Major	48	162	47	166
	Major/Minor	8	178	3	176
Engineering Total		56	164	50	167
Science	Double major	15	149	5	140
	General	5	121	2	122
	Honours	33	138	15	130
	Major	214	130	114	131
	Combined Major	44	132	14	132
	Honours/Minor	8	135	2	154
	Honours/Major	3	164		
	Major/Minor	42	132	22	134
	Combined Honours	9	143		
Science Total		373	132	174	132
Total		978	131	797	131

Note: excludes records where transfer credits awarded > 100 credits per student.

Appendix 3: Distribution of transfer graduates by sending institution
(Sorted by total graduates)

Last Sending Institution Name	SFU	UBC	UNBC	UVic	Total
Langara College	207	336	12	41	596
Kwantlen Polytechnic Univ	240	166	5	28	439
Camosun College	18	21	2	368	409
Capilano University	187	183	2	35	407
Douglas College	248	58	8	24	338
College of New Caledonia	7	6	91	3	107
Coquitlam College	37	49		15	101
Columbia College	26	54	1	19	100
Thompson Rivers University	8	34	7	27	76
Vancouver Island University (Malaspina)	11	12	2	55	80
Thompson Rivers University	8	34	7	27	76
Simon Fraser University		40	5	7	52
Thompson Rivers University - Open Learning	2	46		1	49
Okanagan University College		6		34	40
University Of Victoria	1	25	6		32
B.C. Institute of Technology		10	3	18	31
Selkirk College	4	12		14	30
BC Open University			22	7	29
University of British Columbia	2	4	11	10	27
University of Northern BC	1	9		12	22
Northwest Community College	1	2	12	6	21
North Island College		1		16	17
Vancouver Community College		14		3	17
Okanagan College	12		3	1	16
Trinity Western University	2	6		8	16
College of the Rockies		1		13	14
Corpus Christi College	2	8		1	11
Open Learning Agency				9	9
Northern Lights College			4	3	7
Others	-	10	1	7	18
Total	1,037	1,137	198	803	3,175

Appendix 4: Transfer Graduates from BC research universities: Average credits (transfer credit awarded plus credit earned at university) by last sending institution for students in programs which require 120 credits (honours and double majors excluded)
(sorted by number of graduates)

Last Sending Institution Name	SFU	UBC	UNBC	UVic	Total average credits	Number of graduates
Langara College	126	124	123	126	125	312
Camosun College	125	127	130	126	126	264
Kwantlen Polytechnic Univ	125	124		126	125	241
Douglas College	126	128	131	137	127	221
Capilano University	126	127	120	122	126	211
Coquitlam College	123	123		127	124	63
Columbia College	123	123		125	124	55
College of New Caledonia	121	128	124	130	125	52
Vancouver Island University (Malaspina)	127	124	128	129	128	46
Thompson Rivers University	124	131	127	129	129	27
Thompson Rivers University - Open Learning	121	130			129	20
Okanagan University College		127		129	129	20
University of the Fraser Valley	127	147		131	131	18
BC Open University			127	140	131	17
Simon Fraser University		133	129	132	132	16
Selkirk College	120	123		126	125	16
University of British Columbia	121	134	132	145	138	15
University of Northern BC	125	131		137	135	11
Trinity Western University	120	126		135	131	11
Corpus Christi College	124	128		120	126	10
University Of Victoria	120	122			122	9
North Island College		124		124	124	9
College of the Rockies				132	132	9
B.C. Institute of Technology		138	120	130	134	8
Northwest Community College		132	124	252	142	8
Open Learning Agency				132	132	8
Vancouver Community College		136		128	134	7
Northern Lights College			129	133	131	5
Grand Total	125	126	126	128	126	

Appendix 5: Variables requested for Credits to Graduation study, 2009

Variables requested for Credits to Graduation study	Provided by:			
	SFU	UVic	UBC	UNBC
Name of institution	X	X	X	X
Student id	X	X	X	X
BC PEN	X	X	X	X
Gender (F/M)	X	X	X	X
Birthdate (YYYYMMDD)	X	X	X	X
Basis of Admission (Transfer or secondary school)	X	X	X	X
Degree program student graduated with	X	X	X	X
Program 1 (Major/Minor/Double Major/Double Minor/Honors, etc)	X	X	X	X
Subject Area 1 (ex: English)	X	X	X	X
Program 2 (Major/Minor/Double Major/Double Minor/Honors, etc)	X	X	X	X
Subject Area 2 (ex: Psychology)	X	X	X	X
CIP code 1 for subject area 1	X	X	X	X
CIP code 2 for subject area 2	X	X	X	X
Convocation Year	X	X	X	X
Convocation Month	X	X	X	X
Degree Program start year	X	X	X	X
Start year at university:	X	X	X	X
Year Level admitted to:	X	X	X	X
Last Sending Institution Name	X	X	X	X
Last Sending Institution Type (College, University, Other, High School)	X	X	X	X
School District Code	X	X	X	X
School District Description	X	X	X	X
Transfer credits presented			X	
Transfer credits earned	X	X	X	X
Total credits required for graduation	X	X	X	X
Total credits attempted at university	X	X	X	X
Total credits earned at University (excludes transfer credit)	X	X	X	X
Cumulative GPA	X	X	X	X
GPA in last semester			X	X
GPA in last academic year				
Program start year (year student started in major, not degree program)		X	X	

1. Select all students who graduated with a BA (Arts), BSc (Science), BCOM (Commerce or Business Administration) or BASC (Engineering) degrees in Academic year 2007/08 (Fall 2007 and Spring 2008 graduates)

2. Select only students who were admitted from a BC Institution

3. Exclude all credits completed after graduation date

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