

BRITISH COLUMBIA COUNCIL ON ADMISSIONS & TRANSFER

## Alternate Paths to SFU:

### A Comparative Academic Performance Study of BC College Transfer Students and BC Direct Entry Secondary School Students Admitted to SFU from 1992 to 1999

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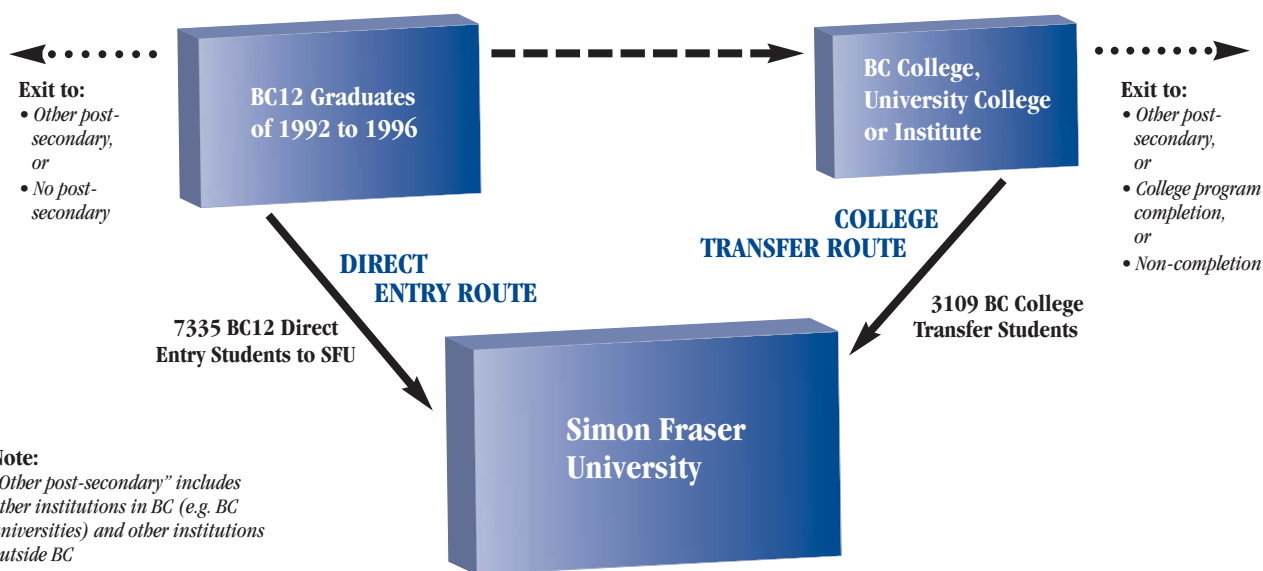
Studies at BC universities show that transfer students perform well at universities, but they tend to achieve somewhat lower grades in university courses than direct entry students. The BC Council on Admissions and Transfer (BCCAT) wanted to develop a better understanding of this disparity in grades and asked the Office of Analytical Studies at Simon Fraser University to conduct a comparative academic performance study of direct entry secondary school students and college transfer students admitted to SFU. The purpose of the study was to determine whether the difference between transfer students and direct entry students still exists when controlling for secondary school performance.

The study compared the academic performance of two distinct admission groups of students who graduated from a BC secondary school in the five-year period from 1992 to 1996 and

who were admitted to SFU from 1992 to 1999. Each of these groups chose an alternate path to SFU: 7335 secondary school students entered SFU directly from a BC high school within one year of high school graduation (referred to as “direct entry” or “BC12” students); another 3109 students entered SFU after completing 30 or more credits in academic transfer courses at a BC college, university-college or institute (referred to as “college transfer” or “BCCOL” students). See *Figure 1*.

The control in this study is secondary school performance or “average high school grade” which is the average of four BC provincial exam grades: English 12 and three other examinable courses with the highest grades. Note that secondary school students are normally admitted to SFU on the basis of their “blended grades” (a 60-40 weighted average of each

Figure 1: Alternate Paths to SFU



The volume of students above includes 764 BC12s and 963 BCCOLs with insufficient provincial exam scores for performance comparisons.

student's school-assigned grades and provincial exam scores), but we chose to use the provincial exam grades only, rather than the blended grades, since the provincial exam scores provide standardized province-wide results for all the students in the study.

On the basis of average high school grades, we found that college transfer students were weaker academically than BC direct entry students: average provincial exam scores were 68.6% for BC college transfer students versus 78.3% for BC direct entry students – a difference of nearly 10 percentage points.

Throughout the admission time period spanned by this study, the cut-off for general admission to SFU Arts and Science programs was roughly 75%, based on blended high school grades. If average provincial exam scores of this study had been used for determining SFU admission eligibility, then roughly three-quarters of the BC college transfer students (N=2146) would not have qualified for general admission to SFU upon secondary school graduation, as compared to approximately one-third of the BC direct entry students (N=6571). For the purposes of this study, we chose to divide each of the admission groups into “lower achievers”, those students with less than a 75% average on provincial exams, and “high or upper achievers”, those with a 75% or higher average.<sup>1</sup>

Recall that without controlling for high school performance, direct entry students generally perform better academically at SFU than college transfer students. However, by looking at several SFU academic performance indicators, we observed that: (a) transfer students who were low achievers in high school often performed *as well as or better than* direct entry students who were low achievers in high school; and (b) transfer students who were high achievers in high school often performed *equally as well as* those high achievers who entered SFU directly from high school. This may seem counter-intuitive when the aggregate SFU performance scores are generally higher for direct entry students, but this can be explained by the fact that the overall performance scores for direct entry students and college transfer students are essentially weighted average scores. The weighted average performance scores for direct entry students are strongly influenced by the presence of proportionately more students from the high achievers

group while the overall performance of college transfer students is strongly influenced by the presence of proportionately more low achievers (see *Figure 2*).

*Table 1* compares the SFU academic performance of college transfer students and direct entry students. The table provides statistical evidence that the overall performance of the full cohort of BC12s is superior to that of college transfer students. However, when we separate the cohorts into upper and lower achievers on the basis of average high school provincial exam scores, the college transfer students perform just as well as or better than

direct entry students. The only exception is on grades in 200- and 300-level SFU courses, but college transfer students evidently make up for their slightly lower performance on these courses by achieving equal or better performance in 100- and 400-level SFU courses. Nevertheless, when controlling for high school performance, college transfer students perform at least as well as direct entry students on many other SFU academic performance indicators. Where statistically

significant<sup>2</sup> differences in academic performance exist ( $p < 0.05$ ), the superior performance score is circled in the table.

What follows is a brief summary of some of the noteworthy observations and findings from the study. The full report available at [www.bccat.bc.ca/pubs/SFUaltpathoct04.pdf](http://www.bccat.bc.ca/pubs/SFUaltpathoct04.pdf) provides a more thorough examination and interpretation of the results.

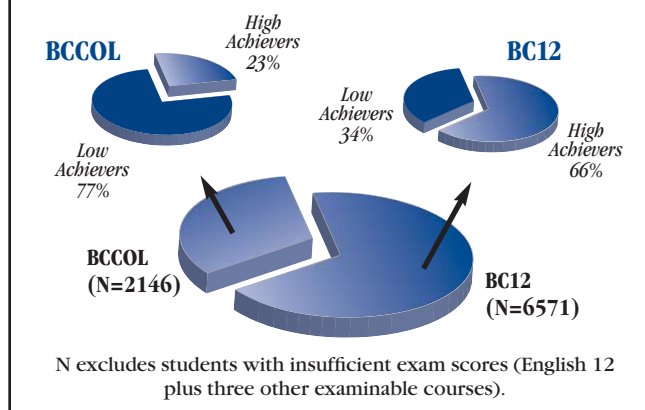
1. Students who perform well in secondary school (the high achievers) perform equally well in their *first 30 credits*<sup>3</sup> at SFU, regardless of the route they choose to enter SFU; students who do not perform well in secondary school (the low achievers) perform better in their first 30 credits at SFU if they attend a BC college first, rather than entering SFU directly from high school.

2. Among SFU bachelor's degree completers, college transfer students and direct entry students achieve roughly equal CGPAs in their *final 60 credits* at SFU, when controlling for high school average grade.<sup>4</sup>

3. Counting the years from the time of high school graduation to the time of *SFU baccalaureate degree completion*, the proportion of students from either cohort who graduated is approximately 72% or 73% after seven years.<sup>5</sup>

4. When we control for high school achievement (lower versus upper), there is no significant difference between direct

**Figure 2:**  
**Distribution of BC12 and BCCOL Cohorts by High School Achievement**



entry students and BC college transfer students in the *proportion of students who will leave SFU before completing a half-year of SFU course work*.

5. Although the *university failure rate*<sup>6</sup> was 8% for the BC12 cohort versus 5% for the BCCOL cohort, when controlling for high school achievement level, there is no statistically significant difference in the university failure rates between college transfer students and direct-entry students.

6. The *average grade achieved in all SFU courses combined* was higher for direct entry students (2.89) compared to college transfer students (2.78) – among 169,000 SFU grades for BC12s and 47,000 SFU grades for BCCOLs. This difference of 0.11 grade points is statistically significant, but no significant difference was identified for upper achievers in high school. Among lower

achievers in high school, the college transfer students out-performed the direct entry students on all SFU course grades combined (2.71 versus 2.64). Grade distributions at SFU show that students typically achieve lower grades in 100-level courses than upper-level courses. Thus, the higher overall SFU average grades of these college transfer students is likely due to the fact that college transfer students mainly transferred into second and third year and completed proportionately more upper-level courses at SFU, while direct entry students completed proportionately more 100-level courses at SFU.

7. When *grades in SFU courses were evaluated by course level* and controlled for high school performance, the following was observed: (a) among lower achievers only, college transfer students out-performed direct entry students by 0.15 GPA points

**Table 1: Comparative Academic Performance, BC12 vs BCCOL by High School Achievement Level**

<i>Academic Performance</i>	<i>Full Cohort</i>		<i>Lower Achievers</i>		<i>Upper Achievers</i>	
	<i>BC12</i>	<i>BCCOL</i>	<i>BC12</i>	<i>BCCOL</i>	<i>BC12</i>	<i>BCCOL</i>
a) Average High School Grade	<b>78.33</b>	68.59	<b>69.89</b>	65.05	<b>82.59</b>	80.51
b) CGPA on First 30 SFU Credits	<b>2.72</b>	2.64	2.40	<b>2.56</b>	2.88	2.89
c) CGPA on Last 60 SFU Credits	<b>3.12</b>	2.93	<b>2.88*</b>	2.86	3.21	3.13
d) 7-Year Degree Completion Rate	72.1%	73.0%	n/a	n/a	n/a	n/a
e) % Early Leavers	<b>5.7%</b>	7.3%	9.5%	7.5%	3.8%	5.7%
f) University Failure Rate	<b>5.0%</b>	7.7%	7.8%	8.5%	3.7%	5.1%
g) Grades in SFU Courses						
All Courses	<b>2.89</b>	2.78	2.64	<b>2.71</b>	3.01	3.00
100-level	<b>2.76</b>	2.67	2.47	<b>2.62</b>	2.90	2.88
200-level	<b>2.86</b>	2.64	<b>2.61</b>	2.56	<b>2.97</b>	2.89
300-level	<b>3.01</b>	2.80	<b>2.79</b>	2.74	<b>3.10</b>	3.00
400-level	<b>3.21</b>	3.07	3.05	3.01	3.27	3.26
h) Distribution of SFU Course Grades						
% A Grades	<b>24.8%</b>	18.3%	13.8%	<b>15.0%</b>	29.6%	29.0%
% Unsatisfactory (C-, D, F, N)	<b>8.5%</b>	9.9%	12.7%	<b>10.8%</b>	6.7%	7.0%
Course Failure Rate (% N or F)	2.0%	2.0%	3.0%	<b>2.1%</b>	1.6%	1.7%

**Notes to Table 1:**

- a) Average high school grade – calculated on the average of four provincial exam scores: English 12 plus the best 3 other exam scores. Students with insufficient provincial exam scores are excluded from this table. Where statistically significant differences in academic performance exist, the superior performance score is **bolded in blue** ( $p < 0.05$ ). Refer to Appendix E and G of the full report for the p-values of each indicator compared in this table and a description of the statistical tests performed (independent sample t-tests, regression analysis and analysis of covariance)
- b) CGPA on first 30 SFU credits – compares BCCOLs and BC12s on equivalent 30-credit blocks of post-secondary credits. For example, the CGPA calculated on SFU credits 1 to 30 for college transfer students (admitted with 30 credits) is compared to the CGPA of direct entry students calculated on SFU credits 31 to 60.
- c) CGPA on the last 60 SFU credits – calculated for Bachelor's degree graduates only. \* No significant difference for lower achievers at  $\alpha = 0.02$ .
- d) 7-Year degree completion rate – proportion of students who graduated from high school

- in 1995, were admitted to SFU from 1995–1 to 1997–2, completed more than 30 credits in total and completed an SFU bachelor's degree by 2002. No analysis for upper versus lower achievers was conducted.
- e) % early leavers – proportion who completed 15 or fewer SFU credits by Fall 2002 without completing an SFU degree.
- f) University failure rate – proportion of students deemed ineligible to re-register in a subsequent semester, based on their unsatisfactory academic standing in their last registered semester at SFU.
- g) Grades in SFU courses are provided on a grade point average scale with a maximum score of 4.33.
- h) Grade distribution is only provided for selected grade values, thus %s are not cumulative.
- i) The above tests were carried out at a 5% significance level. The conclusions are unchanged even after subjecting all comparisons to a stricter significance testing criterion using the Bonferroni correction.

on 100-level courses; (b) for both upper and lower achievers, direct entry students achieved slightly higher SFU course grades at the 200- and 300-level (the statistically significant difference was 0.05 GPA points); (c) regardless of high school achievement level, there was no significant difference between the two admission groups in 400-level course grades.<sup>7</sup>

8. While the full cohort of direct-entry students outperformed the full cohort of college transfer students by receiving proportionately fewer *unsatisfactory SFU grades* (8.5% versus 9.9%), no significant difference was found among the upper achievers; the trend reverses among the lower achievers where college transfer students received fewer unsatisfactory grades (10.8% versus 12.7%).

9. Without controlling for high school performance, there appears to be no difference in the *course failure rates* between the two admission groups (2.0%); however, the lower achievers were more likely to fail an SFU course if they entered directly from high school (3.0%) than if they transferred from college (2.1% course failure rate).

10. Sixty-five *individual SFU courses* with at least 20 students from each admission cohort enrolled were examined for differences in academic performance while controlling for high school average grade (upper versus lower achievers). Direct entry and college transfer students achieved similar grades in the vast majority of the courses. A more granular analysis of 33 individual SFU courses was further conducted to control for high school average grades on the continuous percentage scale (rather than the two-level upper/lower achievers scale) – no

statistically significant differences in SFU course grades were found between the two admission groups.

11. In addition to controlling for upper versus lower high school performance, the study also controlled for high school performance at each high school percentage grade through the use of regression analysis, analysis of covariance and graphical displays. Such additional analyses support the conclusions drawn when controlling for upper versus lower achievers. Appendix H and I of the full report provide visual displays of the comparative academic performance of the two admission groups at each high school percentage score.

The results in this study indicate that the transfer system between the colleges and Simon Fraser University is working effectively and that any differences in performance at SFU can primarily be understood as a continuation of performance differences previously observed in secondary school. The college system provides access to students who would not normally be admitted to SFU directly from high school and to university-qualified students who chose to attend a local college before transferring to SFU. The college transfer students have shown that their SFU academic performance is equal to, and sometimes better than, the performance of their academic peers from high school who entered SFU directly. The BC college experience is especially beneficial to those students who struggled in high school and ultimately wanted to enter SFU. The college experience can help these lower high school achievers attain higher academic success at SFU than those lower achievers who otherwise gained access to SFU directly from high school.

#### NOTES

1. Among the 8717 students with sufficient provincial exam scores, the lower and upper achievers groups were comprised as follows: 3859 lower achievers (2205 from BC12 and 1654 from BCCOL) and 4858 upper achievers (4366 from BC12 and 492 from BCCOL).
2. A difference in academic performance is *statistically significant* if the difference is greater than what might be expected to happen by chance alone (or less than 1 in 20 or 5% of the time).
3. The CGPA on the first 30 credits at SFU compares BCCOLs and BC12s on equivalent 30-credit blocks of post-secondary credits. For example, the CGPA calculated on SFU credits 1 to 30 for college transfer students (admitted with 30 credits) is compared

to the CGPA of direct entry students calculated on SFU credits 31 to 60.

4. College transfer students and direct entry students perform equally as well on the CGPA of their final 60 credits at SFU, using  $a=0.05$  for lower achievers and  $a=0.02$  for upper achievers.

5. Calculated for “survivors” only, that is, students who completed at least 30 credits in total (transfer credits and SFU credits combined).

6. University failure rate is defined in *Table 1*, note f.

7. SFU course grades are assigned on a GPA scale with a maximum score of 4.33. The GPA point-spread between SFU letter-grade increments, such as ‘B’ (3.00) and ‘B-’ (2.67) is 0.33 GPA points, thus average grade differences of 0.15 or 0.05 GPA points are quite small.

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