THE UNIVERSITY OF BRITISH COLUMBIA

Senate Admissions Subcommittee: BC Grade 12 Provincial Examinations
FINAL REPORT – August 2007

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Background:
In light of the fact that the Ministry of Education no longer requires Grade 12 students to write provincial examinations in any subject except English 12 (or an alternative Language Arts 12 course), the Vice-President Academic asked the Chair of the Senate Admissions Committee to convene a group of faculty and senior administrative staff to review UBC's admissions policies with respect to BC Grade 12 applicants. Currently, UBC requires all BC 12 applicants to write the final provincial examinations in all courses used in the calculation of an admission average.

Current State Assessment:
The Senate Admissions Subcommittee on BC Grade 12 Provincial Examinations (see Appendix A for overview of process and membership) discussed the following aspects of UBC's current use of provincial examinations in the undergraduate admission process:

1. ***Competitiveness in post-secondary student recruitment across Canada***
   Due to changing demographics and increasing access to post-secondary education in Canada, recruitment of top students has become more competitive on a national level. As almost no post-secondary institutions in central Canada still require BC secondary school applicants to present provincial examinations, UBC is at a competitive disadvantage in recruiting the best students from our own province (including international students currently studying in the BC secondary school system). See Appendix B for a list of Canadian post secondary institutions that no longer require BC applicants to present provincial examination results.

2. ***Relevance to the admission decision***
   Because almost all BC grade 12 students write provincial examinations in June, final grades—a 60/40 blend of school-based marks and provincial exam results—are not available until the end of July or even the beginning of August. (For the current admissions cycle, final grades were not available until August 2nd.) This is too late to provide students with an initial offer of admission, so most admission decisions are made without the benefit of complete set of provincial examination results.

   In 2005, 98% of the total offers of admission to BC students were made without a complete set of provincial exam results. As of June 2007, 22% of all admitted BC 12 students have been admitted without UBC having seen *any* provincial examination results. Therefore, while UBC requires students to complete provincial examinations, the results are being used inconsistently, and sometimes, not at all.

3. ***Reluctance to rescind offers of admission***

In the past, UBC reviewed all admission decisions upon receipt of a complete set of provincial examination results in the summer. As a result, students perceived UBC's offer of admission as tentative (particularly in comparison with offers from other institutions) and a number of students lost their offers of admission late in the summer, past the point where they could make alternative arrangements at another institution.

4. ***Fairness in the admissions process***

The current requirement that BC12 students write provincial examinations results in UBC employing a different standard for students who attend secondary schools with a semestered calendar (where provincial examinations are written in January and June) as opposed to those who attend schools with a linear calendar (where students write all examinations in June). For example:

> Student A attends a semestered school. After completing the course portion of Math 12 and English 12, she has grades of 85% and 90% (respectively). She writes the provincial examinations for both courses in January, but does not do as well as she would have liked. As a result, her final grades in Math and English drop to 80% and 85%. She submits these grades to UBC via the Self-Admission system in April and is told that her average is not high enough to be admitted to the Faculty of Arts.
>
> Student B attends a linear school. On his March report card (having completed just over half the school year) he receives 85% in Math 12 and 90% in English 12. When he uses the Self-Admission system in April, he is told that based upon these marks, he is admissible to the Faculty of Arts. However, after writing his provincial examinations in June, his Math and English grades drop to 80% and 85%. Because UBC does not get this information until the end of July, he retains his offer of admission.

These scenarios illustrate how the current practice results in two students with similar academic performance receiving two different admission decisions.

5. ***Transparency in the admission process***

UBC tells applicants that the university considers provincial examination results in the undergraduate admission decision. In reality, most admission decisions are made without a complete set of examination results (and some decisions are made without any provincial examination results at all).

6. ***Provincial examinations as indicators of first year success***
A review of BC secondary school students who entered UBC from 2003 – 2005 suggests that Grade 12 final grades (a blended grade comprised of school based marks—60%—and provincial examination results—40%) show a higher correlation with first year sessional average than either classroom grades or examination grades alone (see Appendix C). This supports a 1976 study by the UBC Department of Mathematics showing that students with a "B" in Math 12 who wrote the (then) optional scholarship examination performed at the same level in UBC Math 100 as "A" students who chose not to write the examination.

However, the difference in predictive ability with respect to first year performance between course grades and blended grades in the 2003 – 2005 data is marginal. Furthermore, these results could change now that the examinations are optional (and could change even more were the provincial examinations to be completely discontinued).

7. ***The role of Principles of Mathematics 12***
Because of the higher correlation between Math 12 course and examination grades, the existence of historical data on the importance of a standardized examination in Math 12, and the fact that Grade 12 mathematics is the is the second most-prevalent admission requirement (after Grade 12 English) for all UBC faculties with direct-entry from secondary school, the Subcommittee discussed the importance of Principles of Math 12 within the context of this issue.

8. ***Provincial examinations as a mechanism to standardize classroom-based grading practices*** Whether or not provincial examinations add to the predictability of first year success, the existence of provincial exams may help to standardize classroom-based grades. An analysis of BC Grade 12s admitted to UBC from 2003 to 2005 shows a common variance of 31% to 54% between a student's secondary school classroom grade and examination grade (the relationship varies by subject). Because it is difficult to attribute causation in the relationship, we can say that this represents the *maximum* degree to which the current provincial exams *may* standardize classroom grades (in the current format).

9. ***The role of the university in affecting the secondary school curriculum***
UBC has a significant interest in maintaining the quality of education in BC secondary schools. However, it is not the role of the university's admission policies and practices to regulate and monitor the teaching and/or grading practices of BC secondary schools. UBC should be supportive of the Ministry's efforts to maintain system quality and should provide appropriate feedback on student performance wherever possible.

10. ***Feedback from the community***
There has been considerable feedback on this issue from both the internal and external community. On campus, a number of members of the Department of Mathematics have indicated that they are strongly in favor of provincial examinations (especially for Principles of Mathematics 12) remaining in place. This feeling has been echoed by many secondary and post-secondary educators off campus (mostly in the field of mathematics and the sciences). Their general argument is that provincial examinations support a higher standard of education and that exams serve to even the playing field among different schools.

Enrolment Services has also consulted with the UBC Counsellors' Advisory Committee, consisting of 30 educators and counsellors from a variety of jurisdictions and school types throughout the province. While not opposed to provincial examinations per se, this group has acknowledged the benefits of UBC no longer requiring provincial examinations for the purpose of admission.

The British Columbia Teachers Federation has urged its members to lobby UBC to abolish the use of provincial exams in the admission decision. While response from membership has been varied, a number of teachers indicated that the presence of provincial examinations forces them to "teach to the test" and compromises the quality of instruction in the classroom.

It has also been note that, because the number of provincially examinable courses is limited in BC, the University's insistence that only provincially examinable courses be used in the calculation of admission averages severely constrains high school choice in the humanities and social sciences for BC students as compared with other Canadian students. In BC, the only provincially examinable courses accepted by UBC are Biology 12, Chemistry 12, Physics 12, Mathematics 12, Geography 12, History 12, English 12, English Literature 12, plus a number of modern languages 12. There are no provincially examinable courses in the social sciences or the performing arts (Music, Visual Arts, Theatre, for example). In comparison, students in Alberta—the only other province requiring provincial exams—can choose a combination of provincially examinable and non-provincially examinable courses when applying for admission to UBC, and students in Ontario, Quebec and Atlantic Canada, where there are no required provincial exams, have a long list of courses in the sciences, social sciences, humanities and performing arts from which to choose when applying to UBC. One of the BC Ministry of Education's stated reasons for making provincial exams optional was to increase choice for secondary school students.

Principles:
The Subcommittee identified the following principles as the hallmarks of an effective set of admissions policies and practices:

1) *Attracting Excellent Students.* As per Trek 2010, UBC's admission policies should aim to ensure that the institution "…attracts and retains the best undergraduate and graduate students from across BC, Canada and the world". Policies or practices that have the effect of discouraging the enrollment of top quality British Columbia students should be identified and reviewed.
2) *Transparency.* UBC's admissions requirements should aim to be clear and understandable to prospective students.
3) *Integrity.* Announced policy should conform to practice. The University should be honest and open in its communication of admissions policies and practices.
4) *Equitable and Fair Treatment of all Applicants.* Applicants from British Columbia should not be disadvantaged in comparison with applicants from other jurisdictions (national or international). Similarly, secondary school applicants from one BC school district should not be given inappropriate advantage over applicants from another BC school district.
5) *Student Success.* Our admission policies should allow us to select applicants who are the most likely to succeed at UBC.

Recommendations:
The Subcommittee was not able to reach consensus on a single recommendation; it identified four options for consideration. Option A is essentially the status quo; should UBC be unable to reach agreement on a new course of action, there is always the option of maintaining current practice and monitoring what develops in the community. Options B to D specifically identify school-based marks as the basis for the majority of admission decisions, but either require students to write some varying number of provincial exams or offer students the opportunity to boost their competitive average by writing provincial exams.

Because of the different ways in which schools across the province operate—linear versus semestered, for example, but there are other differences as well—it is impossible to treat all BC 12 applicants in exactly the same way when it comes to making admission decisions. In March/April, when UBC starts making admission decisions on applicants still attending secondary school, students in semestered schools present at least some combination of final and interim grades, while students in linear schools typically only present interim grades. The question is how best to mitigate these inherent differences.

Ultimately the subcommittee's discussion focused on a handful of key questions: Do provincial exams play a meaningful role in helping to maintain the quality of education in our secondary schools? What role should the University's admission policies play with respect to helping maintain the quality of education in BC secondary schools? If the University continues to require provincial examination results from all BC 12 applicants, how will this be seen by the Ministry of Education, given that it has decided to make provincial exams optional in all courses but English 12 (or an equivalent Language Arts 12 course)? What effect will continuing to require provincial examinations for required courses have on the University's ability to attract the best and brightest BC 12 students? And finally, do the perceived benefits of continuing to require provincial examinations outweigh the potential risk in terms of continuing to attract the best and brightest BC students to UBC?

The following provides an overview of the four options. A summary comparison table (Table 1) is provided at the end of this section.

Option A (Status Quo)

Description:
- Provincial examinations required for all Grade 12 courses used in the calculation of the admission average.
- Students admitted on whatever marks are available at the time of evaluation:
- March/April admission decisions are made on all available data: school based marks and/or final blended grades. Students with courses in progress are admitted on course grades and students with completed courses are admitted on final blended grades.
- Final admission averages are based on a blend of school-based marks and provincial exam results. Students not admitted in March/April automatically admitted in July/August if final blended grades are above the competitive cut-off.
- Faculties make independent decisions to rescind offers of admission from registered students whose final blended grades have fallen below an identified threshold.

Evaluation:

Attracting Excellence: Our reliance on final provincial examination results means that offers of admission are conditional until very late in the cycle (i.e. mid-August). From the student's perspective, there is considerably more

	uncertainty and risk attached to accepting an offer of admission to UBC than to accepting offers from other institutions.
Transparency:	It is difficult to provide concise messaging re: admission requirements that is applicable for all BC grade 12 students. Students attending a linear school are told that they are admitted on a different set of grades than students in a semestered school.
Integrity:	Policy does not adhere to practice. Students are told examinations are required for admission, but approximately 98% of admitted BC Grade 12s receive decision prior to writing all provincial examinations. Furthermore, the decision to revoke an offer of admission late in the summer has a negative impact on students' lives and UBC's reputation in the community.
Fairness:	Applicants from linear schools are evaluated in a significantly different manner than applicants from semestered schools, and both groups are held to a higher standard than students from out-of-province and international students.
Student Success	High school marks are of limited utility in predicting success in first year university (see Appendix C, Figure 1). Moreover, adding provincial exam results to school-based marks provides only a marginal increase in explanatory power 28% to 34% (See Appendix C, Table 3). The value of this small increase must be weighed against the potential negative impact of keeping students in a prolonged state of uncertainty with respect to university admission.
Optics:	By maintaining the status quo, the University could be perceived as undermining the Ministry of Education's decision to make provincial exams optional. One of the Ministry's stated reasons for making this change was to allow Grade 12 students more course choice. And, should either Simon Fraser University of the University of Victoria decide no longer to require provincial exams, UBC may be forced quickly to reconsider its position in order to remain competitive.

Option B: Provincial Exams required with no downside risk

Description:

- Provincial examinations are required for all courses used in the calculation of the admission average but examination results are not used in the calculation of an admission average in the first instance.
- The majority of students are admitted on interim grades.
- Should an applicant have already completed a Grade 12 examination, the final blended grade may be used in the March/April admission decision, but only if it is to the student's advantage.
- Students not admitted in March/April may be admitted in July/August on final blended grades if a) their July grades are above the competitive cut-off and b) space permits.
- Offers of admission are only revoked if a student's final blended average falls below the published university minimum of 67%, fails or does not complete a pre-requisite course, and/or does not graduate.

Evaluation:

Attracting Excellence:	UBC is at a competitive disadvantage; out-of-province institutions either do not require BC students to write provincial exams or offer them the option of presenting a combination of provincially examinable and non-provincially examinable courses.
Transparency:	Messaging is similar for all students.

Integrity:	Announced admission policy conforms to practice. However, by requiring the examination component of all grade 12 courses offered for admission, students are required to complete a considerable amount of work (i.e. four provincial examinations) that plays only a minor role in the admission decision.
Fairness:	All applicants evaluated upon (more or less) same criteria. If a student wants to increase his/her chances of gaining admission, they can choose to write the provincial exam knowing that the results can only help their March /April admissibility.
Role of University:	UBC polices serve to regulate secondary school practices by enforcing a higher level of standardization than what is required by the Ministry of Education. The standardization has the negative effect of narrowing the range of courses that British Columbia students can offer for University admission by comparison with other Canadian jurisdictions (Ontario, for example).
Student Success:	High school marks are of limited utility in predicting success in first year university (see Appendix C, Figure 1). Moreover, adding provincial exam results to school-based marks provides only a marginal increase in explanatory power, from 28% to 34% (See Appendix C, Table 3). The value of this small increase must be weighed against the potential negative impact of keeping students in a prolonged state of uncertainty with respect to university admission.
Optics:	By continuing to require provincial examinations, the University could be perceived as undermining the Ministry of Education's decision to make provincial exams optional. One of the Ministry's stated reasons for this change was to allow Grade 12 students more choice in course selection. And, should either Simon Fraser University or the University of Victoria decide no longer to require provincial exams, UBC may be forced to quickly reconsider its position in order to remain competitive.

Option C: Optional Provincial Examinations

Description:

- UBC does not require Grade 12 provincial examinations other than those required for graduation by the Ministry of Education (English 12).*
- March/April admission decisions are made on course grades only. The majority of students are admitted on interim grades.
- Should an applicant have already completed an optional Grade 12 examination, the final blended grade may be used in the March/April admission decision, but only if it is to the student's advantage.
- Students can write provincial exams in any course used in the calculation of an admission average in order to boost their competitive average.
- Students not admitted in March/April may be admitted in July/August if a) their July grades are above the competitive cut-off and b) space permits.
- Offers of admission are only revoked if a student falls below the published university minimum of 67%, fails or does not complete a pre-requisite course, and/or does not graduate.

* The obvious next question, if provincial examinations are no longer required, is whether UBC will allow BC students to present courses that are not provincially examinable and, if so, which courses.

Evaluation:

Attracting Excellence:	Offers of admission to UBC to BC students are now competitive with offers from other top institutions across Canada.
Transparency:	Messaging is similar for all students.
Integrity:	Announced admission policy conforms to practice; all admission criteria play a meaningful role in the admission decision.
Fairness:	All applicants evaluated upon (more or less) same criteria. If a student wants to increase his/her chances of gaining admission, they can choose to write the provincial exam knowing that the results can only help their March /April admissibility.
Role of University:	UBC polices regarding provincial examinations conform to those of the Ministry of Education.
Student Success:	School-based marks account for approximately 28% of the variance in first-year university performance; blended marks (school marks plus provincial exam marks) account for 34% of the variance. There is always the possibility that without provincial exams, school-based marks will vary more widely and therefore become even less of a predictor of university success than is currently the case.
Optics:	It is unclear whether the Ministry of Education would continue to offer provincial exams if none of the major BC universities required them for admission. (Currently, the Ministry still uses some provincial exam results in the adjudication of scholarships.) Some politicians, parents and educators will see a move away from provincial exams as a lowering of standards of education.

Option D: UBC requires Provincial Examination in Math 12 in addition to English 12

Description:

- Same as Recommendation C, except the Principles of Math 12 provincial examination is also required for students for whom Math 12 is a required course.
- UBC requires a minimum score of 50% on Engl 12 and Math 12. This will result in approximately 60 offers of admission revoked each year in mid-August.

Evaluation:

Attracting Excellence:	Relying on provincial examination results in either one (Engl 12) or two courses (Engl 12 and Math 12) means that UBC is at a competitive disadvantage with respect to out-of—province universities. Offers of admission will be conditional upon receipt of provincial examination results and students will continue to feel some anxiety and uncertainty with respect to offers of admission from UBC.
Transparency:	Messaging is complicated: provincial exams are required for some courses but not others and some students are required to write more exams than others. Further, if the main reason for requiring BC students to write the Math 12 provincial exam is because of the correlation between exam results and performance in first year Math (see Appendix C, Figure 6), it should be noted that this requirement can only be imposed on BC students taking Math in first year. Students from other jurisdictions, students entering UBC from another BC post-secondary institution, and students who wish to take Math in second year or later, cannot be assumed or required to meet the same standard.

Integrity:	Announced admission policy conforms to practice. By requiring the examination component of Math 12, students are required to write a comprehensive examination (over and above the Ministry's graduation requirements) that plays only a minor role in the admission decision.
Fairness:	All applicants evaluated upon (more or less) same criteria; however, students required to write the Math 12 provincial exam face more uncertainty than other students.
Role of University:	UBC polices regarding provincial examinations conform to those of the Ministry of Education, with the sole exception of Math, for which UBC requires a provincial examination to be written.
Student Success:	The correlation between blended grades (school-based marks and provincial exam results) in Math 12 and performance in first year Math is high (35%) in comparison to blended grades and first year performance in other disciplines. The value of this information must be weighed against the potential negative impact of keeping a large number of students in a prolonged state of uncertainty with respect to university admission and with the fact that some number of students will have their offers revoked in mid- to late-August.
Optics:	On the one hand, by continuing to require provincial exam results in two of he four courses used in the admission decision, UBC may still be seen to be undermining the Ministry's desire to increase choice for secondary school students. On the other, by requiring a provincial exam in Math as well as English, UBC may be seen to be setting high standards for both literacy and numeracy. Offers of admission will still be seen as tenuous.

Table 1: Summary of Options A – D

	Options			
	A (Status Quo)	**B**	**C**	**D**
Number of provincial examinations required	Four	Four	One: English 12 (as required by Ministry of Education)	Two: English 12 (as required by Ministry of Education) and Principles of Math 12
Provincial exam results used in March / April decision	Yes	Optional	Optional	Engl and Math; others optional
Provincial exam results used in July / August decision	Yes	Optional	Optional	Engl and Math; others optional
Criteria for July / August decision	Same as March / April	Same as March / April and if space permits	Same as March / April and if space permits	Same as March / April and if space permits
Revoking offers	At faculty discretion	Only if student no longer meets published admission requirements	Only if student no longer meets published admission requirements	Only if student no longer meets published admission requirements
University – wide minimum threshold of performance on provincial examinations	No	No		50% for English 12 and Principles of Math 12

Appendix A: Overview of Consultation and Process

Subcommittee Membership

Dr. James Berger (Chair), Professor, Zoology; Chair, Senate Admissions Committee
Dr. George Bluman, Professor, Department of Mathematics
Ms. Katriona MacDonald, Asst Dean & Director, Undergraduate Program, Sauder School of Business
Dr. William McKee, Associate Head, Educational and Counselling Psychology and Special Education
Dr. Wes Pue, Associate Vice President, Academic
Ms. Deborah Robinson, Associate Registrar & Director, Student Recruitment, Admissions and Awards
Dr. Herbert Rosengarten, President's Office, Department of English, past Chair, Senate Admissions Committee

Report and analysis prepared by Andrew Arida, Associate Director, Enrolment, Enrolment Services; additional subcommittee support provided by Michael Bluhm, Associate Director, Undergraduate Admissions

Dates of Meeting

February 9, 2007 (initial meeting with Dr. James Berger and Dr. William McKee)
March 23, 2007
March 30, 2007
April 13, 2007
April 27, 2007
May 25, 2007

Consultation:

January 17, 2007	Discussion at UBC Enrolment Management Committee
January 26, 2007	UBC Counsellors' Advisory Committee
March 12, 2007	Feedback solicited from secondary school community via Graduation listserv
March 21, 2007	Teleconference meeting with Britta Gundersen-Bryden, Director of the Assessment Branch and French Programs, BC Ministry of Education
April 11, 2007	Discussion with UBC Heads of Science facilitated by Dr. Bluman
April 25, 2007	Consultation with Math teachers (secondary and post-secondary) in BC
May 17, 2007	UBC Counsellors Advisory Committee
June 19, 2007	Presentation to UBC community via Enrolment Services Fair

Appendix B:
Canadian University Provincial Exam Requirements for BC Grade 12 Applicants

Institution	Prov. Exams Required?	Comments
BCIT	No	
Carleton	No	
Dalhousie	No	
McGill	No	
Mount Allison	No	
St Francis Xavier	No	
Langara College	Yes/No	A provincial examination is required if the course is specifically identified as an admission requirement or pre-requisite.
Queen's	No	
U of Alberta	Yes	Will use non-provincially examinable grade 12 course in the calculation of an admission average; will admit conditionally based on grade 11 grades.
U of Calgary	Yes	Will use non-provincially examinable grade 12 course in the calculation of an admission average; will admit conditionally based on grade 11 grades.
U of Guelph	No	
U of Saskatchewan	No	
U of Toronto	No	As of intake into September 2008
U of Waterloo	No	
U of Western Ontario	Yes	Will also use non-provincially examinable grade 12 courses in the calculation of an admission average.
Simon Fraser University	Yes	
University of Victoria	Yes	Will also use non-provincially examinable grade 12 courses in the calculation of an admission average; will admit conditionally based on grade 11 grades.

BC:
Simon Fraser University and the University of Victoria have not changed their policies regarding provincial examinations, but have indicated that they are "waiting to see what UBC does on this issue". Many of the colleges are actively reviewing their policies.

Alberta:
Because Alberta also has mandatory provincial exams, it is likely that the University of Alberta and the University of Calgary will continue to ask for BC provincial exam results. Because both of these schools make admission decisions very early in the cycle (using Grade 11 or Grade 12 grades in the fall), the use of provincial exams in admission decisions is really a non-issue. Furthermore, the Alberta universities have always been particularly attuned to the BC market and will likely play close attention to what others are doing to recruit BC students.

Rest of the country:
Conversations with university affairs colleagues suggest that many Canadian universities do not use provincial exam scores because final admission decisions are made on interim grades (that often do not include the provincial exam); final grades are used to confirm completion of all

required courses and to affirm that students' averages are above the university minimum. Therefore, using the provincial exam scores is somewhat of a non-issue.

Appendix C: A Quantitative Analysis of the Role BC Provincial Examinations Play in UBC Undergraduate Admission Decisions

The purpose of this report is to use a variety of statistical methods to describe the role BC provincial examinations play in the UBC undergraduate admission process.

UBC Enrolment Services, in conjunction with UBC faculties, use secondary school grades as the primary (although not always sole) basis of evaluation for BC secondary school applicants applying to a UBC undergraduate program. The unit implements undergraduate admission policies and procedures to achieve the following enrolment objectives:

1. To achieve optimal enrolment at UBC (with "optimal" being defined by the institution)
2. To admit students who will be successful at UBC
3. To be fair to the applicant in how admission decisions are made
4. To be strategic in our enrolment practices to ensure that we enroll the best and the brightest students from BC, Canada and the world

For the most part, this analysis will focus on the role BC provincial examinations play in achieving goals 2 and 3 mentioned above. However, the practical implications of UBC's use of provincial examinations as a means of determining admissibility has an important impact on all the abovementioned goals.

This report attempts to answer the following questions:

1. How effective are provincial examinations as indicators of first year success at UBC?
2. Does the effectiveness of provincial examinations as predictors of first year success vary from faculty to faculty?
3. Does the effectiveness of provincial examinations as predictors of first year success vary among disciplines?
4. What are the ranges of grades in the various admission criteria that may be presented to UBC by BC secondary school applicants?
5. To what extent are provincial examination grades and class-only grades associated with one another in BC Grade 12 secondary school courses?
6. What effect would establishing minimum thresholds of performance on selected provincial examinations have on admission to direct-entry UBC undergraduate programs?

Data:
The data in this report comes from two sources.

In 1976, Dr. George Bluman and Warren Smith, members of the UBC Department of Mathematics, conducted a study that observed first year performance in mathematics courses of students who wrote and those who did not write the (then optional) provincial examination. In total, the performance of 1,667 BC students was observed.

Data was also collected from all the BC secondary school students (including students who graduated with an IB diploma) who entered UBC directly after graduation in 2003, 2004 and 2005 (9,294 students in total). First year international and domestic students were included from the

following degree programs: BA, BASC, BCOM, BDSC, BHK, BMUS, BSC, BSCF, BSCN, BSCW, BSF, BSFN, and BSN[1].

The following 2003 – 2005 students have been excluded from the analysis:

- Students enrolled in an integrated first year program (Science One or Arts One) where a disaggregated course-by-course sessional average is not available.
- Students with a sessional average of 0.0.
- Students with English 12 missing from their high school record.

Table 1: UBC Enrolment Data, First Year UBC Students Direct-Entry From BC Secondary Schools, 2003 – 2005.

	2003	2004	2005
(n)	3,250	3,028	3,011
Mean, admission average	87.3%	87.2%	87.75%
Standard Deviation, admission average	5.7%	7.2%	5.8%
Mean, 1st year sessional average	71.3%	71.3%	71.5%
Standard Deviation, 1st year sessional average	9.3%	9.5%	9.0%

For a full summary of the sample pools in the 2003 – 2005 study, see Appendix C1.

The report uses the following definitions and abbreviations:

Engl 12	English 12
Math 12	Principles of Mathematics 12
Chem 12	Chemistry 12
Phys 12	Physics 12
Biol 12	Biology 12
Geog 12	Geography 12
Hist 12	History 12

Course Grades — Average calculated on teacher-assigned course marks for English 12, Principles of Mathematics 12, Chemistry 12, Biology 12, Physics 12, History 12, and Geography 12[2].

Exam Grades — Average calculated on BC provincial examination marks for English 12, Principles of Mathematics 12, Chemistry 12, Biology 12, Physics 12, History 12, and Geography 12[2].

Blended Grades — Average calculated on blended final grade of 60% teacher assigned course mark and 40% provincial examination for English 12, Principles of Mathematics 12, Chemistry 12, Biology 12, Physics 12, History 12, and Geography 12[2]. This criterion adheres to the 1995 BC Ministry of Education Graduation Program.

Course Grades with

[1] BSN data for 2003 only.

[2] Note that this is not a comprehensive list of courses that can be used to calculate an admission average for UBC. Second language courses were excluded as bilingual or trilingual students may bias the results. Furthermore, Geology 12 was not used in order to maintain somewhat of a balance between science and humanities courses. Finally, English Literature 12 was not included as English 12 is far more prevalent.

English 12 Blend	Average calculated on course grades for all provincially examinable courses except English 12, which is calculated on 60% teacher assigned course mark and 40% provincial examination. This criterion adheres to the 2004 BC Ministry of Education Graduation Program.
Course Grades with English 12 and Math 12 Blend	Average calculated on course grades for all provincially examinable courses except English 12 and Principles of Mathematics 12, which are calculated on 60% teacher assigned course mark and 40% provincial examination. This criterion does not align with the BC Ministry of Education graduation program, but serves to illustrate an admission criterion that emphasizes standardization in literacy and numeracy.
Admission Average	Actual admission average calculated for students based upon English 12 and three other provincially examinable courses appropriate for the program to which the student was admitted.
Direct Entry	Refers to students who entered first year UBC in the same year that they graduated secondary school.

Notes:

Much of this report is based upon 2003 – 2005 data of BC secondary school students. This data was observed at a time when provincial examinations are mandatory in the BC secondary school curriculum. Therefore, course-based grades and examination-based grades cannot be viewed in isolation; the course grades observed in 2003 – 2005 may have been different had provincial examination not been present. While this analysis does assess the degree to which provincial examination grades and courses grades are related, there is no way to know what course-based grades in 2003 – 2005 would have looked like had provincial examinations not existed.

In the late 1970s, the UBC Department of Mathematics conducted a study comparing the ability of secondary school mathematics course grades to predict first year success at a time when provincial examinations were optional to the following year when the examinations became mandatory. The study showed that secondary school grades with a mandatory provincial examination had a much higher correlation with first year success. However, these results are specific to performance in mathematics and cannot necessarily be applied to all disciplines.

It is also important to note that all correlations in this study will be slightly under-reported due to restriction of range within the sample population being observed. Because we can only observe the first year performance of students who registered at UBC, this study focuses primarily on the higher end of all BC secondary school students. Were ALL BC secondary students to have completed first year at UBC, the correlation observed between secondary school performance and university performance would almost surely be much higher.

1. How effective are provincial examinations as indicators of first year success at UBC?

As one of the goals of UBC Enrolment Services is to admit students who are the most likely to succeed at UBC, the criteria used in the admission decision should be somewhat effective predictors of first year success.

In 1976, the UBC Department of Mathematics conducted a study that observed BC Grade 12s' success in first year UBC mathematics in relation to whether or not the students had written the provincial examination. At the time, provincial examinations were optional and used for scholarship purposes only (much like they are in the 2004 BC Ministry of Education Graduation Program, with the exception of Language Arts 12, where a provincial examination is still required for graduation).

The results of the study are included in Table 2. A student with a B in Math 12 who wrote the provincial examination performed significantly better at UBC than a student with the same grade who did not write the exam. Furthermore, the correlation between performance in the provincial examination and first year mathematics at UBC was much stronger than between course grades and first year math grades; this suggests that examinations were a better predictor of success in 1976 than course-based grades.

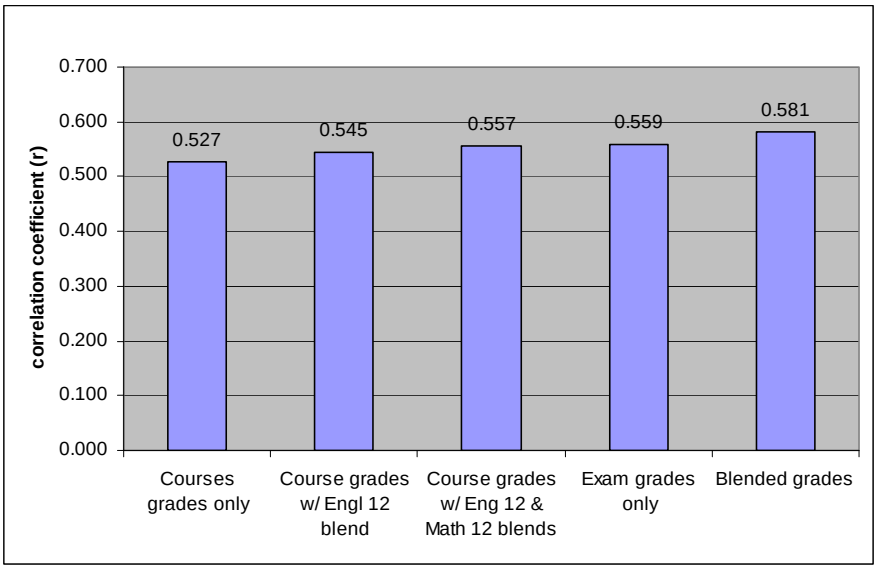
Table 2: Performance in Math 100 of students who wrote the Math scholarship exam, 1976.

Math 12 Grade	Students		Results in UBC Math 100							
	Exam	No Exam	Wrote scholarship examination				Did not write scholarship examination			
			1st class	2nd class	% Pass	% Failed or drop-out	1st class	2nd class	% Pass	% Failed or drop-out
A	299	259	72%	18%	8%	2%	41%	34%	15%	11%
B	190	429	40%	33%	20%	7%	16%	34%	30%	19%
C+	47	264	13%	26%	38%	23%	6%	22%	38%	34%
C	13	166	8%	15%	46%	31%	4%	13%	31%	51%

It is important to note that <u>many schools with students writing scholarship examinations offered additional classes to help students prepare for the exam</u>; in other words, examination takers did more mathematics work and spent more time in class. Therefore, exam takers' success in first year may be attributed to both better preparation and the benefits of completing a standardized examination.

The suggestion that standardized examination grades offer a stronger correlation with first year performance than course grades is supported in more recent data. Figure 1 shows the correlation coefficient between the various admission criteria for entering BC secondary school students and their subsequent first year sessional average at UBC. In all years, there was a significant relationship between the five admission criteria and first year sessional average (all *p*s <.001).

Figure 1: Average correlation between admission criteria and first year sessional average, BC 12 students, 2003 - 2005



The observed difference among the admission criteria does not seem large. In order to measure the difference between the predictive abilities of the different admission criteria, a multiple regression is used to determine what percentage of the variation in the student's first year sessional average is explained by the variation seen in the student's admission criteria (this is referred to throughout this report as the "common variance"). See Table 3 for the results:

Table 3: Variation in first year performance explained by BC12 admission criteria, 2003 - 2005[3].

Admission Criteria	2003	2004	2005	Average
Course grades alone	28.5%	27.0%	27.8%	27.8%
Course grades and blended grades	33.1%	34.1%	35.0%	34.1%
Difference	4.6%	7.1%	7.2%	6.3%
Significance of change	$p < .001$	$p < .001$	$p < .001$	

For example, over a three year average, course grades alone explained 27.8% of the variation seen in first year performance at UBC; the remaining 72.2% of variation in first year grades was the result of other (potentially) unknown variables (i.e. time spent studying, class attendance, health, etc.). When blended grades are added to the model, we are better able to predict (or explain) first year performance. By adding the blended grade into our predictive model, we are able to explain 34.1% of variations seen in first year grades. This means that we gain 6.3% of predictive ability by using an admission requirement that includes both course and exam grades than if we looked at course grades alone. In all cases, the incremental predictive ability afforded by blended grades is observed to be statistically significant ($p < .001$), meaning it is unlikely that the variation is random in nature.

[3] For full details of the linear regression used to obtain this data, see Appendix C2.

Conclusions:

1. A 1976 study, conducted when provincial exams were still optional, shows that students who wrote exams performed much better in first year mathematics than students who did not.
2. There is a large correlation between secondary school performance and first year success. However, the predictive ability of secondary school performance does not vary greatly by which measure of secondary school performance is observed.**
3. Blended grades have the highest correlation with first year success.
4. At best, secondary school criteria can explain approximately 35% of the variation seen in first year performance.
5. Using blended grades in the admission decision provides approximately 5% more predictive ability than course-based grades.**

Note: ** these conclusions were observed when provincial examinations were mandatory and may change were provincial examinations to become optional.

2. Does the effectiveness of provincial examinations as predictors of first year success vary from faculty to faculty?

All UBC faculties that admit students directly from secondary school have different admission requirements. If the predictive ability added by provincial examinations varies from course to course, then the relationship between secondary school admission criteria and first year performance at UBC should vary from faculty to faculty.

The following four figures show the common variance between admission criteria and first year performance in the four largest UBC faculties that admit directly from secondary school:

Figure 2: BA, common variance between admission criteria and first year sessional average 2003 - 2005

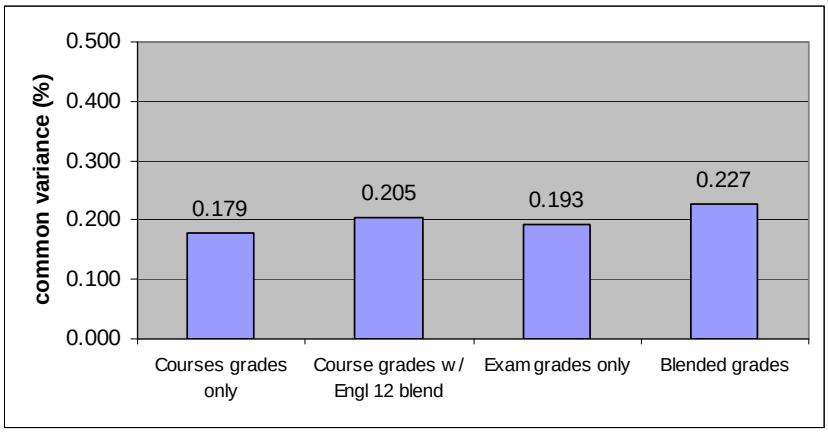


Figure 3: BSc, common variance between admission criteria and first year sessional average 2003 - 2005

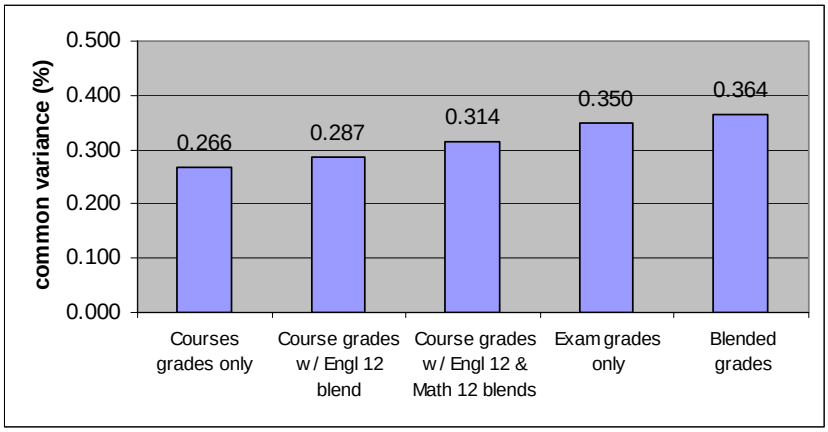


Figure 4: BASc, common variance between admission criteria and first year sessional average 2003 - 2005

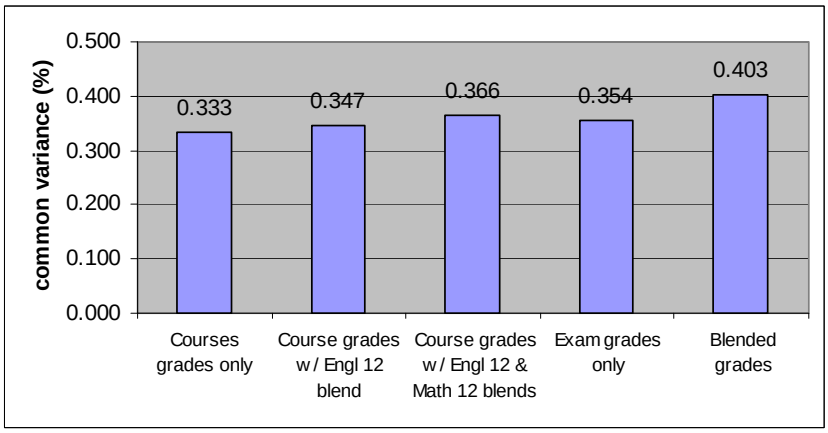
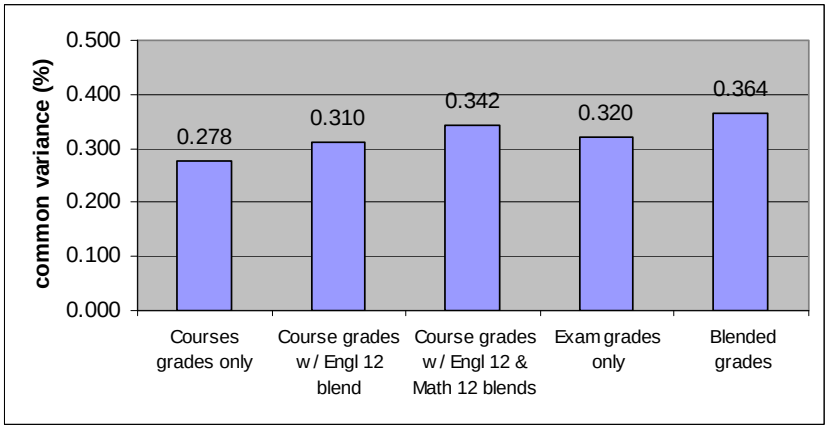


Figure 5: BCom, common variance between admission criteria and first year sessional average 2003 - 2005



Generally speaking, the difference in predictive ability is varied among the different admission criteria, but in all cases, blending course grades and exam grades is a better predictor than either measure alone. It is also interesting to note that Applied Science, which is the most prescriptive in its admission requirements, shows the highest common variance between admission criteria and first year success, while Arts, which is the most flexible in its admission requirements, shows the lowest common variance. In all years and faculties, there was a significant relationship between the five admission criteria and first year sessional average (all *p*s <.001).

Conclusion:
- For all faculties, a blended grade remains the strongest predictor of first year success.
- Students in the Faculty of Applied Science show the strongest correlation between admission criteria and first year performance; students in the Faculty of Arts show the weakest.

3. Does the effectiveness of provincial examinations as predictors of first year success vary among disciplines?

Previous assessments of the predictive ability of provincial examinations have focused on using an aggregated admission average to predict an aggregated outcome of first year success. However, it is worth investigating if the different admission criteria have different predictive abilities in *discipline-specific* success. In other words, does the English 12 exam, course grade, or blended have the greatest ability to predict success in first year English courses?

Figure 6 demonstrates to common variance between performance in a discipline-specific secondary school measure (i.e. course, examination, or blended grade) and discipline-specific first year outcome. In other words, secondary school grades in History 12 are measured against first year success in history, secondary school Geography 12 grades are measure against first year geography, etc..

In all disciplines, variation in blended grade showed the strongest relationship with variation in first year performance. Generally speaking, secondary school performance in mathematics has the strongest relationship with first year success in the same discipline. This is particularly important to note considering how many first year programs at UBC require first year calculus.

Figure 7 shows the common variance between all discipline-specific secondary school grades and overall first year success. It is interesting to note that in all cases, an aggregated measure of all secondary school courses is a better predictor of overall first year performance than performance in any one specific course.

Conclusions:
- At a discipline-specific level, blended grades are the best predictor of first year success.
- Performance in secondary school mathematics shows the greatest correlation with discipline-specific first year success.
- No single course grade has a stronger correlation with first year success than a student's aggregated secondary school average.

Figure 6: Common variance between discipline-specific admission criteria and discipline-specific first year performance 2003 – 2005

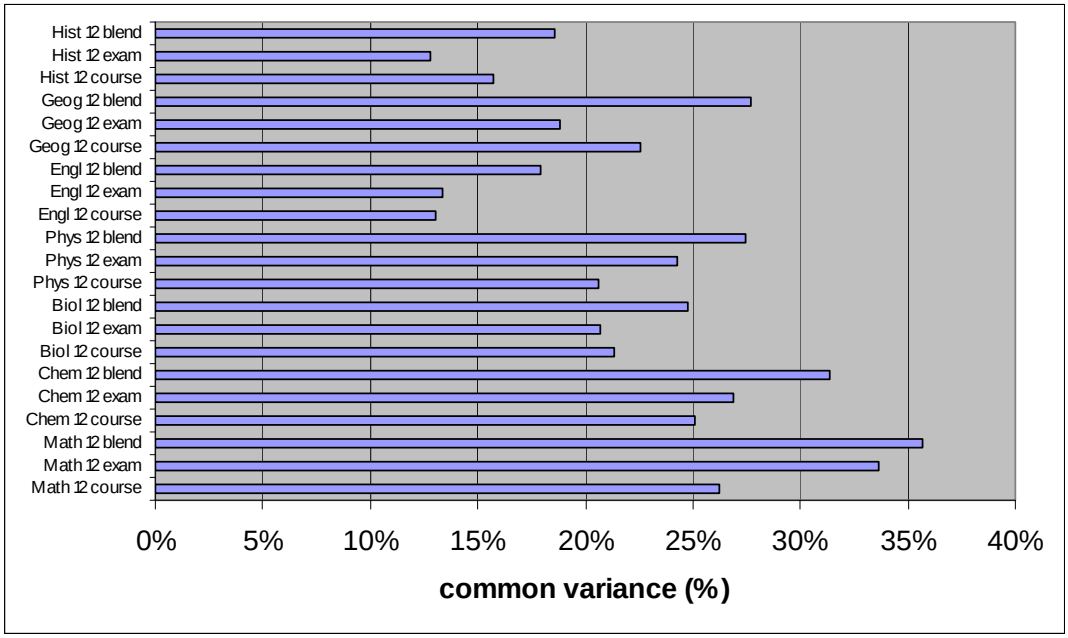
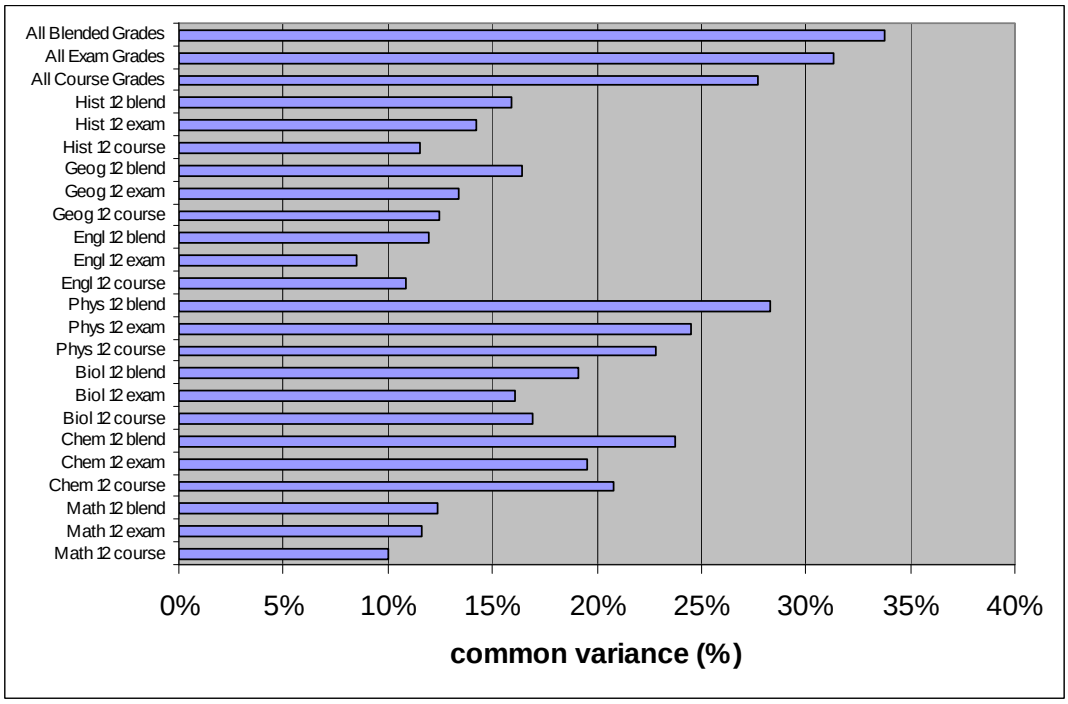


Figure 7: Discipline-Specific Admission Criteria Correlation with Overall First Year Sessional Average 2003 – 2005



4. What are the ranges of grades on the various admission criteria that may be presented to UBC by BC secondary school applicants?

Regardless of how well the different admission criteria correlate with first year success at UBC, it is important to note the range of grades that each set of criteria presents. Most UBC faculties use secondary school blended grades as the primary basis of admission and an admission average is calculated on four courses (specific to the program to which the student has applied). A cut-off is established for each faculty based upon a) the number of first year seats available, b) the volume of applications for those seats, and c) the anticipated registration rate of admitted students.

Because BC secondary school applicants are UBC's largest feeder group, the grades presented by this group essentially determine the competitive admission average used for all students applying to UBC. Therefore, the range of grades presented on each admission criteria play an important role in determining UBC's admission cut-offs.

Table 4: Mean admission average on four admission criteria for BC Grade 12 students entering UBC, 2003 - 2005

	2005		2004		2003		Average	
	Mean (%)	Std. Dev	Mean (%)	Std. Dev	Mean (%)	Std. Dev	Mean (%)	Std. Dev
Course grades	87.3	5.1	87.2	5.2	86.7	5.5	87.1	5.2
Course grades with ENGL12 blend	86.8	5.1	86.6	5.2	86.2	5.5	86.5	5.3
Course grades w/ Eng 12 & Math 12 blends	86.7	5.1	86.4	5.2	86.2	5.5	86.4	5.3
Exam grades	83.5	7.1	83.3	7.3	83.7	7.2	83.5	7.2
Blended grades	85.8	5.5	85.6	5.6	85.5	5.8	85.6	5.6

We can see that admission criteria that use BC provincial examination grades produced averages that are typically lower than course-based grades. Furthermore, examination grades show the highest standard deviation, indicating that a greater range of grades are seen on examination results than in school grades. Possible explanations include:

- Teachers using a narrower band of grades when assessing course performance.
- Course grades normalize student performance over a series of assessments, whereas exam grades are the result of a single assessment.

Conclusion:
- Examination grades are typically lower and more varied in distribution than course grades.

5. To what extent are provincial examination grades and class-only grades associated with one another in BC Grade 12 secondary school courses?

As mentioned before, an argument can be made that the reason that examination and course grades do not show big differences in predicting first year performance is because the presence of examinations serves to standardize teachers' grading practices within the course. BC teachers deliver content and grade students' work according to a curriculum and grading scheme established by the provincial examination. Were the provincial examinations to be removed, there may be less consistency in how the classroom portion of the course is taught and graded.

It is very difficult to predict what will happen to the course grades were the provincial examinations to be removed because we cannot control for every variable that affects a student's course grade. We can however provide an assessment of the extent to which course-based grades and provincial examination–based grades affect (or vary with) one another.

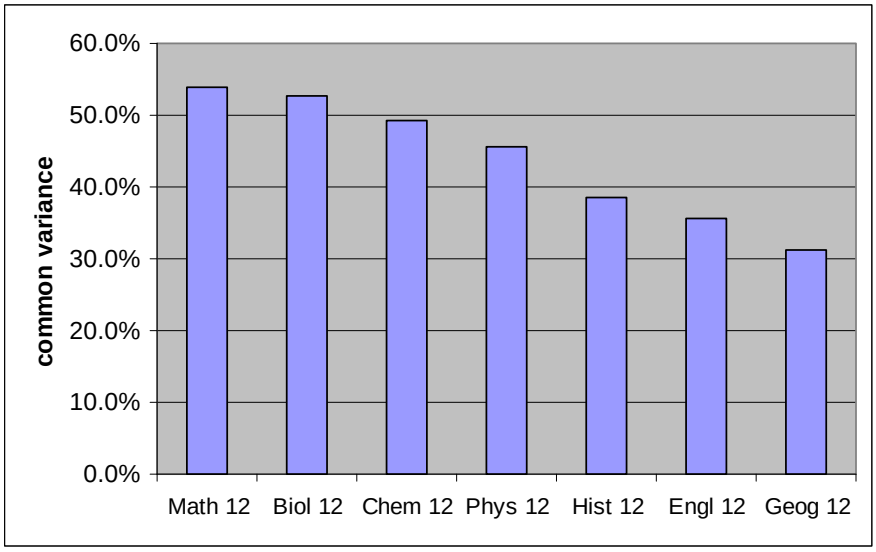
Imagine that provincial examinations grades are not associated whatsoever with course grades. Course grades and examination grades are distributed in a manner that is completely independent of one another. We can assume that if one of those two measures was eliminated, it would have no effect on the other measure.

On the other hand, if provincial examination grades and course grades are completely dependent upon one another, a very strong relationship will exist between the two scores. When the grade in one measure changes, the grade in the other measure changes in a completely predictable manner. Such a relationship could be explained in one of two ways:

1. Course grades and exam grades independently measure the same thing in the same manner.
2. Course grades and provincial exam grades are dependent on one another in some manner.

Figure 8 demonstrates the relationship between the two measures by observing the common variance between course grades and examination grades in seven BC grade 12 subjects.

Figure 8: Common variance between course grades and examination grades, BC12s registered at UBC, 2003 – 2005



For example, 54% of the variation in Math 12 examination results from 2003 – 2005 could be explained by observed variations in the students' Math 12 course grades (and vice versa). From this observation, one can conclude that either:

1. 54% of the variations observed in Math 12 course grades and provincial examination grades suggest that both grades are measuring the same thing independent of one another. If this is true, nothing would change in the variation observed among Math 12 course grades were the provincial examination component to be removed.

2. 54% of the variations observed in Math 12 course grades and provincial examination grades are related to one another, suggesting that the two measures are somehow dependent on one another to measure the same thing. If this is true, 46% of the variation in Math 12 course grades would not change were the provincial examination component to be removed.

Figures 9 and 10 visually represent the common variance for both Principles of Mathematics 12 and English 12. The full results of the linear regression for the 2005 data are provided in Appendix C3.

Figure 9: Independent and common variance in Math 12 course grades and examination grades, 2003-2005

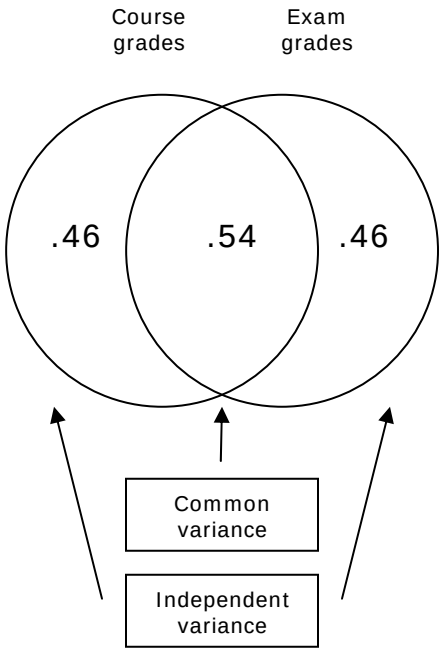
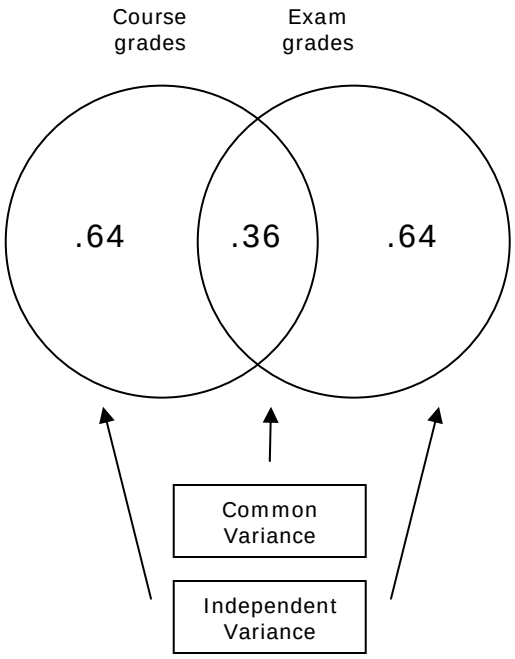


Figure 10: Independent and common variance in English 12 course grades and examination grades, 2003-2005



Generally speaking, less subjective disciplines like math and the sciences show a higher relationship between course grades and provincial examination grades than in the humanities and social sciences. This suggests that a) the empirical nature of the math and the sciences makes it more likely that course grades and provincial examination grades independently measure the same thing and/or b) that course grades benefit more from the presence of provincial examinations in the sciences and math than in the humanities and social sciences.

Conclusions:

- It is very difficult to predict what will happen to the course grades were the provincial examinations to be removed because we cannot control for every variable that affects a student's course grade.
- Provincial examination grades show a common variance with course-based grades between 31% and 54% (depending upon the subject area). Therefore, 69% - 46% of the variability seen in course grades (depending upon subject area) would not be affected were provincial exams to be eliminated.
- Less subjective disciplines like math and the sciences show a higher relationship between course grades and provincial examination grades than in the humanities and social sciences.

6. What effect would establishing minimum thresholds of performance on selected provincial examinations have on admission to direct-entry UBC undergraduate programs?

The Senate Admission Subcommittee reviewing the use of BC provincial examinations in the UBC undergraduate admission decision has discussed the option of calculating a student's competitive admission average on course grades alone, but establishing a minimum threshold of overall performance on selected provincial examinations. For example, what would be the impact on enrolment of establishing a minimum of 50% (a passing grade) on the English 12 provincial examination, the Math 12 provincial examination, or both?

Table 5 provides a summary of registered first year UBC students from 2003 – 2005 who presented interim grades in the spring that were strong enough to be admitted, but failed to attain a minimum of 50% on either the English 12 or Math 12 provincial examination:

Table 5: First year UBC students from BC secondary schools who did not achieve a minimum 50% on English 12 and Math 12 provincial examinations, 2003 2005[4].

	2003	2004	2005
Total Admitted BC 12 students	3,255	3,028	3,011
Mean, Admission Average	87.3%	87.2%	87.8%
Engl 12 examination < 50%	29	57	30
% of Registered BC 12s in program	0.9%	1.9%	1.0%
Mean, Sessional Average	64.7%	61.5%	65.6%
Proportion in bottom 10% percentile, overall 1st year	24.1%	31.6%	30.0%
Math 12 or Engl 12 examination < 50%	44	73	55
% of Registered BC 12s in program	1.4%	2.4%	1.8%
Mean, Sessional Average	66.7%	62.0%	65.4%
Proportion in bottom 10% percentile, overall 1st year	18.2%	31.5%	30.9%

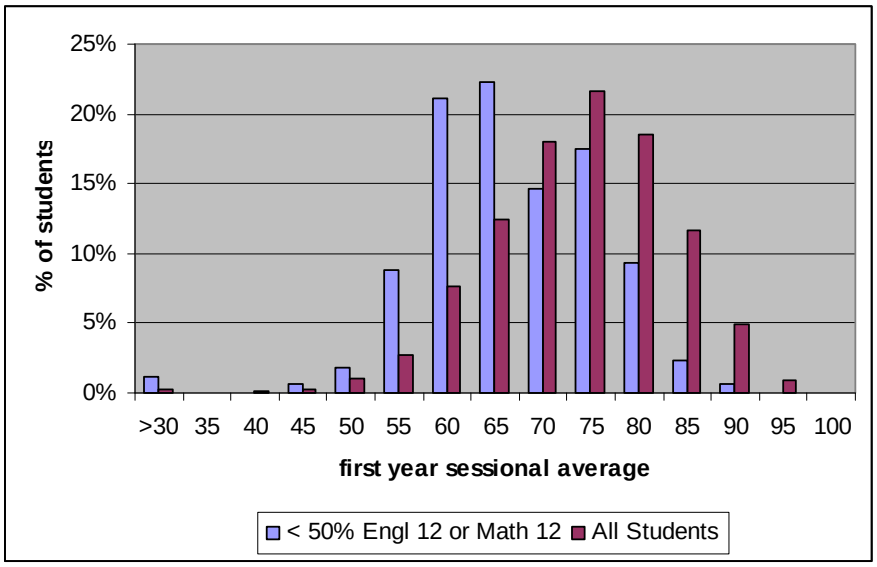
As we can tell from Figure 11, up to 172 students between 2003 and 2005 may have had their offer of admission revoked in the summer had UBC imposed a minimum standard of 50% on both English 12 and Math 12 provincial examinations[5].

Interestingly enough, the majority of this group passed their first year at UBC; see Figure 11 for a distribution of first year performance of these 172 students. Considering that the mean first year performance of all first year UBC students from BC secondary schools is approximately 71%, this group is seen to perform below average.

[4] Appendix C4 provides a breakdown of this information for the four largest faculties at UBC: Arts, Science, Applied Science, and Commerce.

[5] This number is slightly over inflated, as not all UBC students are required to present Math 12 in their admission average.

Figure 11: First year average of UBC students from BC secondary schools who did not present min. 50% on English 12 or Math 12 provincial examination results, 2003 – 2005



It is important to note that while these 172 who may have lost their offer of admission performed below average in first year UBC, there is no way of knowing if the 172 students who would have been admitted in their place would have performed significantly better.

In terms of managing enrolment, Figure 12 suggests that this admission criterion would have had the greatest impact on students within the Faculty of Arts (although this number is over-inflated, as not all Arts students are required to present Math 12 in order to be admitted). However, Figure 13 shows that two Forestry programs (BSCN and BSF) would have lost the greatest proportion of their BC12 classes due to this new admission criterion.

Figure 12: Total UBC first year students **from BC secondary schools** who did not present min. 50% on English 12 and/or Math 12 provincial examination results, 2003 – 2005

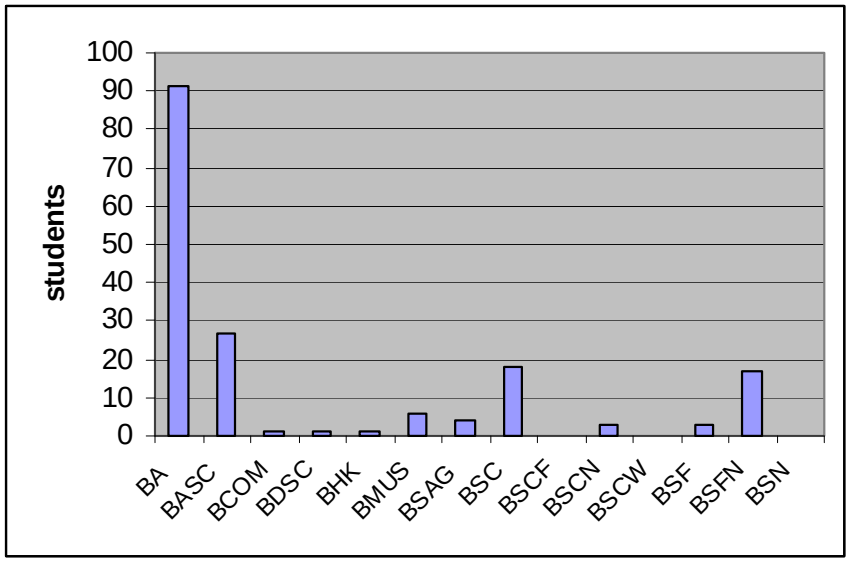
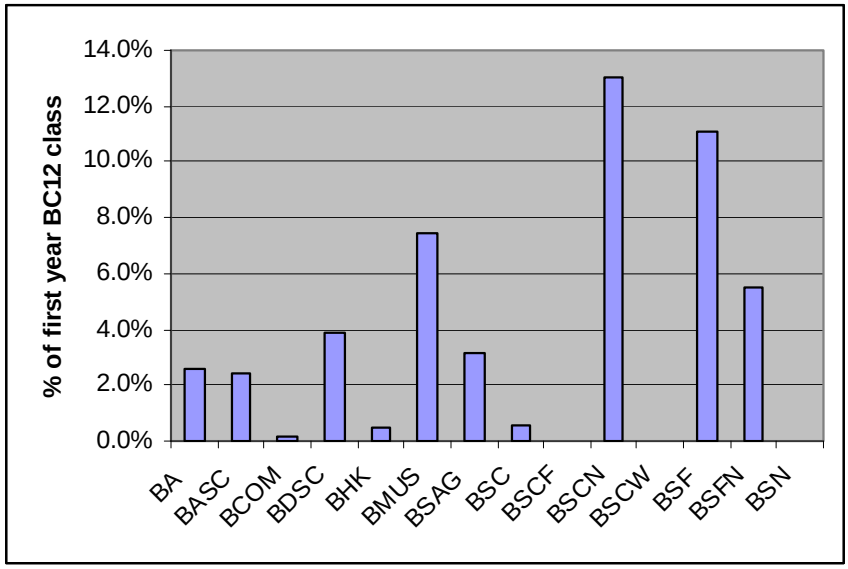


Figure 13: UBC first year students from BC secondary schools who did not present min. 50% on English 12 and/or Math 12 provincial examination results as a proportion of total program enrolment, 2003 – 2005



Conclusion:

- Based on 2003 – 2005 enrolment data, requiring a minimum of 50% on the English 12 and Math 12 provincial examination would have resulted in up to 172 students having their offer of admission revoked in the summer.
- Although most of these students were registered in the Faculty of Arts, the Faculty of Forestry would have lost the greatest proportion of their first year class.
- Although these students typically perform below average in UBC, over 88% obtained a first year average of 60% or higher.

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Appendix C1: Summary of sample pool, first year UBC students from BC secondary schools, 2003 – 2005

	2003				2004				2005			
	(n)	% of total	mean grade (%)	Std. Dev.	(n)	% of total	mean grade (%)	Std. Dev.	(n)	% of total	mean grade (%)	Std. Dev.
Biology 12	2,153	66.2%	86.53	8.51	2,009	66.3%	87.25	7.96	2,010	66.8%	87.81	7.56
Chemistry 12	2,507	77.1%	86.96	7.86	2,320	76.6%	86.32	8.09	2,318	77.0%	85.92	8.42
English 12	3,250	100.0%	82.49	7.84	3,026	99.9%	82.28	7.99	3,010	100.0%	83.25	7.62
Geography 12	716	22.0%	87.81	5.91	767	25.3%	88.33	5.98	779	25.9%	86.45	6.44
History 12	905	27.8%	85.43	7.31	845	27.9%	86.02	7.27	802	26.6%	86.19	6.96
Math 12	2,978	91.6%	87.57	8.62	2,777	91.7%	87.75	8.65	2,768	91.9%	87.67	8.58
Physics 12	1,629	50.1%	85.37	9.03	1,476	48.7%	85.11	9.34	1,488	49.4%	85.43	8.79
UBC Biology	1,436	44.2%	67.51	12.06	1,394	46.0%	69.20	12.56	1,350	44.8%	68.69	12.02
UBC Chemistry	1,667	51.3%	69.61	13.44	1,662	54.9%	69.89	13.65	1,578	52.4%	69.73	13.11
UBC English	2,243	69.0%	72.33	7.00	2,163	71.4%	73.19	7.06	2,273	75.5%	73.27	6.75
UBC Geography	222	6.8%	70.14	8.68	185	6.1%	68.68	10.03	292	9.7%	69.44	10.52
UBC History	193	5.9%	73.04	8.45	195	6.4%	72.63	9.10	229	7.6%	73.45	8.65
UBC Math	2,202	67.8%	66.94	16.08	2,151	71.0%	67.55	16.42	2,127	70.6%	67.13	15.97
UBC Physics	1,451	44.6%	73.64	11.44	1,352	44.6%	72.83	11.52	1,315	43.7%	73.63	11.91
TOTAL	**3,250**				**3,028**				**3,011**			

Note:

- Secondary school grades represent final blended grades, based upon 60% teacher assigned course mark and 40% provincial examination. For example, in 2003, 2,153 first year UBC students had previously completed Biology 12 in a BC secondary school, with a mean final blended grade of 86.53%. In total, 66.2% of the BC secondary school students in first year UBC completed Biology 12 while in secondary school.
- UBC grades represent the mean final grade on all 100-level courses with a final grade in the student's first year within that particular discipline. For example, in 2003, 44.2% of the first year class from BC secondary schools took at least one 100-level UBC biology class or lab in their first year, achieving a mean final grade on all attempted biology classes of 67.51%.

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Appendix C2: Multiple Regression Details for Course Grades and Blended Grades

Coefficients(a), 2003

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-6.988	2.181	
	Course Grades	.903	.025	.534
2	(Constant)	-5.936	2.111	
	Course Grades	-.164	.075	-.097
	Blended Grades	1.070	.071	.667

a Dependent Variable: Session Avg

Note: R^2 = .285 for Step 1; R^2 change = .046 for Step 2 (*ps* <.001).

Coefficients (a), 2004

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-11.414	2.479	
	Course Grades	.949	.028	.520
2	(Constant)	-8.453	2.361	
	Course Grades	-.328	.076	-.180
	Blended Grades	1.266	.070	.748

a Dependent Variable: Session Avg

Note: R^2 = .270 for Step 1; R^2 change = .071 for Step 2 (*ps* <.001).

Coefficients(a), 2005

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	-9.930	2.400	
	Course Grades	.934	.027	.527
2	(Constant)	-5.641	2.290	
	Course Grades	-.372	.076	-.210
	Blended Grades	1.279	.070	.748

a Dependent Variable: Session Avg

Note: R^2 = .278 for Step 1; R^2 change = .072 for Step 2. (*ps* <.001).

Appendix C3: Linear Regression for Course Grades and Examination Grades, 2005

Math 12 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	38.757	.873		44.402	.000
	math_exam	.570	.010	.736	57.114	.000

a Dependent Variable: Math 12 course grade. Note: R^2 = .541, p <.001)

Chem 12 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	50.530	.740		68.289	.000
	chem_exam	.450	.009	.727	50.973	.000

a Dependent Variable: Chemistry 12 course grade. Note: R^2 = .529, p <.001)

Physics 12 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	51.378	1.036		49.571	.000
	phys_exam	.442	.012	.676	35.361	.000

a Dependent Variable: Physics 12 course grade. Note: R^2 = .457 p <.001)

Biology 12 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	51.302	.835		61.417	.000
	biol_exam	.438	.010	.712	45.428	.000

a Dependent Variable: Biology 12 course grade. Note: R^2 = .507 p <.001)

English 12 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	57.105	.724		78.901	.000
	engl_exam	.349	.009	.581	39.137	.000

a Dependent Variable: English 12 course grade. Note: R^2 = .337, p <.001)

Geography 12 Coefficients (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	52.234	1.919		27.219	.000
	geog_exam	.421	.023	.556	18.624	.000

a Dependent Variable: Geography 12 course grade. Note: R^2 = .309, p <.001)

History 12 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	52.295	1.612		32.445	.000
	hist_exam	.417	.019	.613	21.967	.000

a Dependent Variable: History 12 course grade. Note: R^2 = .376, p <.001)

Appendix C4: First year UBC students from BC secondary schools who did not achieve a minimum 50% on English 12 and Math 12 provincial examinations, 2003-2005 by faculty.

	2003	2004	2005
Total Admitted - BA	1,193	1,169	1,134
Mean, Sessional Average	70.2%	69.3%	69.3%
Engl 12 exam < 50%	10	20	13
% of Registered BC 12s in program	0.8%	1.7%	1.1%
Mean, Sessional Average	65.0%	58.6%	63.8%
Proportion in bottom 10% percentile, overall 1st year	20.0%	40.0%	30.8%

	2003	2004	2005
Total Admitted - BSC	1,176	987	982
Mean, Sessional Average	72.3%	73.9%	73.4%
Engl 12 exam < 50%	7	7	4
% of Registered BC 12s in program	0.6%	0.7%	0.4%
Mean, Sessional Average	68.6%	65.7%	69.6%
Proportion in bottom 10% percentile, overall 1st year	28.6%	0.0%	25.0%
Math 12 or Engl 12 exam < 50%	7	7	4
% of Registered BC 12s in program	0.6%	0.7%	0.4%
Mean, Sessional Average	68.6%	65.7%	69.6%
Proportion in bottom 10% percentile, overall 1st year	28.6%	0.0%	25.0%

	2003	2004	2005
Total Admitted - BASC	390	373	354
Mean, Sessional Average	73.0%	72.8%	74.0%
Engl 12 exam < 50%	5	12	10
% of Registered BC 12s in program	1.3%	3.2%	2.8%
Mean, Sessional Average	66.5%	66.6%	67.0%
Proportion in bottom 10% percentile, overall 1st year	0.0%	25.0%	40.0%
Math 12 or Engl 12 exam < 50%	5	12	10
% of Registered BC 12s in program	1.3%	3.2%	2.8%
Mean, Sessional Average	66.5%	66.6%	67.0%
Proportion in bottom 10% percentile, overall 1st year	0.0%	25.0%	40.0%

	2003	2004	2005
Total Admitted - BCom	156	195	259
Mean, Sessional Average	76.9%	74.5%	74.0%
Engl 12 exam < 50%	0	0	1
% of Registered BC 12s in program	0.0%	0.0%	0.4%
Mean, Sessional Average	0.0%	0.0%	64.4%
Proportion in bottom 10% percentile, overall 1st year	0.0%	0.0%	0.0%
Math 12 or Engl 12 exam < 50%	0	0	1
% of Registered BC 12s in program	0.0%	0.0%	0.4%
Mean, Sessional Average	0.0%	0.0%	64.4%
Proportion in bottom 10% percentile, overall 1st year	0.0%	0.0%	0.0%