

# Unarticulated Courses:

Examining the Extent of Unarticulated  
Courses and Courses at Differing Year  
Levels in the BC Transfer Guide

*by Plaid Consulting*

*May 2020*



BCCAT

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Levels in the BC Transfer Guide

*Report prepared by Plaid Consulting; edited by BCCAT staff.*

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# UNARTICULATED COURSES:

## Examining the Extent of Unarticulated Courses and Courses at Differing Year Levels in the BC Transfer Guide

### EXECUTIVE SUMMARY

The British Columbia Transfer Guide (BCTG, or BC Transfer Guide) contains approximately 300,000 course-to-course articulations for over 30,000 individual courses. While the comprehensiveness of the BC Transfer Guide is a strength, there is limited research on the gaps in the articulation data currently included in the BC Transfer Guide. This study evaluated two aspects of the BC Transfer System (BCTS) that have not been previously reviewed: the volume of courses that are offered by institutions but have not been articulated, and the volume of courses that have been articulated at different year levels (e.g. a third-year course at a sending institution being articulated as a second-year course at a receiving institution).

*This study evaluated two aspects of the BC Transfer System that have not been previously reviewed: the volume of courses that have not been articulated, and the year level of those courses.*

We utilized course-to-course articulation data from the BCTG and institutional course lists provided by 36 of the 40 BCTS member institutions. These data do not capture the totality of transfer activity within the BCTS, as they do not include block transfer or other non-course-to-course transfers. Additionally, some institutional courses would not be expected to be transferrable: for example, outgoing exchanges, cooperative education placements, special topics courses, directed studies courses, and thesis or research courses. These types of courses are included in institutions' course listings and cannot easily be excluded. While there is a relatively small number of these types of courses, because they cannot be excluded, we expect the numbers in our analysis will slightly *overstate* the number of unarticulated courses in the BCTG.

In total, 16,261 out of the 35,285 (46.1%) courses on institutional course lists were not articulated in the BCTG. This percentage differed significantly by the year level of the course. Second-year courses were the most likely to be in the BCTG, with 68.0% of these courses in the BCTG. This was followed by first-year courses (64.2% in the BCTG), third-year (51.1%) and finally fourth-year (32.4%) courses.

Across institutions, there are variations in the unarticulated course rate, having three institutions with more than 70% of their courses unarticulated, and nine institutions with less than 20% of their courses unarticulated. Some subjects and programs have very high rates of unarticulated courses, with Nursing and Engineering both having more than 70% of their courses unarticulated.

There are no institutions which have articulated all courses or all of those at first- and second-year levels, nor are there types of programs where this is true. This suggests the impacts of unarticulated courses are being felt somewhat by many different students rather than acutely by only some. Providing additional clarity to students through ensuring the articulation of courses would also help institutions by avoiding transfer credit requests that must be dealt with manually.

While most of the 140,679 articulations we analyzed were between courses in the same course year or level (108,036, 76.8%), 32,643 (23.2%) articulations were across course years or levels. The most common articulations across years or levels were second-year courses articulated as first-year courses (32.5% of 32,643), first-year courses articulated as second-year courses (22.9%), third-year courses articulated as second-year courses (15.5%), and second-year courses articulated as third-year courses (10.8%). Of the 32,738 articulations that crossed years or levels, 88.8% (29,068) varied by one year or level, 10.0% (3,290) varied by two years or levels, and 1.2% (374) varied by three years or levels.

On average, for institutions that have at least 50 articulations in the BCTG, the percentage of cross-year or cross-level articulations is 19.5% among articulations from lower-division courses and 40.1% among articulations from upper-division courses, and 21.7% among articulations to lower-division courses and 31.5% among articulations to upper-division courses. Among program subject areas, Business, Music, and Physical Education & Kinesiology have the highest rates of articulations that cross years or levels. Over time, a linear regression shows that the rate of new articulations that cross year levels has been growing by 0.25 percentage points between 1995 and 2019.

Unlike with unarticulated courses, the proportion of courses articulated across year levels is concentrated at particular institutions and within particular program areas. This suggests that students transferring to or from those institutions or who are studying with one of those program areas may have more difficulty with mobility than students at other institutions or in different areas. These students may take longer to complete their programs or may require more credits in order to complete. We also see significant variation in the rates of cross-year or cross-level articulations between lower division and upper division courses, with upper division courses seeing a much higher rate.

We have several recommendations arising from this study:

- > **Recommendation 1:** *BCCAT should work with institutions and the Central Data Warehouse to regularly collect institutional course lists for verification of course codes contained in articulations.*
- > **Recommendation 2:** *BCCAT should communicate to the BC Transfer System which courses are currently unarticulated that would normally be expected to be articulated within the BCTG.*
- > **Recommendation 3:** *BCCAT should research the impact on student mobility of unarticulated courses, or courses articulated across year levels.*
- > **Recommendation 4:** *BCCAT should research the rationale behind why courses may be unarticulated, or articulated across year levels.*

# TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	v
BACKGROUND .....	1
CONTEXT .....	1
METHODOLOGY.....	3
BC Transfer Guide Data.....	4
Institutional Course Lists.....	6
Limitations .....	7
ANALYSIS.....	8
Unarticulated Courses.....	8
Articulations Across Different Years or Levels .....	14
RECOMMENDATIONS .....	21
REFERENCES .....	22

## LIST OF FIGURES

<b>Figure 1:</b> Courses from institutional course lists by whether the course is articulated in the BC Transfer Guide .....	8
<b>Figure 2:</b> Courses from institutional course lists by year level and whether the course is articulated in the BC Transfer Guide.....	9
<b>Figure 3:</b> Percentage of unarticulated courses in institutional course lists by institution .....	10
<b>Figure 4:</b> Percentage of unarticulated first- and second-year courses in institutional course lists by institution .....	11
<b>Figure 5:</b> Number of courses and percentage of courses that are not articulated by academic discipline.....	12
<b>Figure 6:</b> Number of first- and second-year courses and percentage of courses that are not articulated by academic discipline.....	13
<b>Figure 7:</b> Number of courses and percentage of courses unarticulated by first year of course offering at the institution .....	14
<b>Figure 8:</b> Number of articulations between courses at different year levels .....	15
<b>Figure 9:</b> Number and proportion of cross-year articulations by sending institution.....	16
<b>Figure 10:</b> Number of receiving articulations and proportion of receiving articulations that cross years or levels by sending institution.....	17
<b>Figure 11:</b> Number of articulations and proportion of articulations that cross years or levels by academic discipline .....	18
<b>Figure 12:</b> Number of articulations between different years or levels and proportion of articulations that cross years or levels that cross two or more years or levels by academic discipline.....	19
<b>Figure 13:</b> Number of articulations and proportion of articulations across year levels by start year of the articulation agreement.....	20

## LIST OF TABLES

<b>Table 1:</b> Information contained in articulation agreement details in exported BCTG data.....	4
<b>Table 2:</b> Classification of Instructional Programs (CIP) codes of courses excluded from analysis.....	6

# BACKGROUND

The British Columbia Transfer Guide (BCTG, or BC Transfer Guide) contains approximately 300,000 course-to-course articulations for over 30,000 individual courses. While the comprehensiveness of the BC Transfer Guide is a strength, there is limited research on the gaps in the articulation data currently included in the BC Transfer Guide. This study evaluated two aspects of the BC Transfer System (BCTS) that have not been previously reviewed: the volume of courses that have not been articulated, and the volume of courses that have been articulated at different year levels (e.g. a third-year course at a sending institution being articulated as a second-year course at a receiving institution).

This paper first provides some background information in the Context section, followed by a discussion of the data used in our analysis. We then provide our results and discussion in the Analysis section and conclude with our Recommendations.

## CONTEXT

The BC Transfer Guide contains information on articulations between courses at 40 different BC post-secondary institutions that are members of the BC Transfer System (British Columbia Council on Admissions and Transfer [BCCAT]). This number includes the University of British Columbia's Vancouver and Okanagan campuses as separate institutions, as they have different programs and courses. An articulation agreement means that courses at different institutions are considered equivalent to one another. Transfer credit may be granted by the institution to which the student is transferring (receiving institution) if they had taken the equivalent course at another institution (sending institution), subject to any conditions of the articulation such as a minimum grade achieved. Articulations are between courses at two institutions, but a single course at one institution could be articulated to many different institutions. For example, a single course at an institution could be articulated to multiple institutions; each of these is a separate articulation.

Articulations are valuable to both students and institutions. Typically, for a student to receive transfer credit for an unarticulated course, the student must gather their transcript and course outlines and provide those to the institution's Registrar's Office, which forwards the request to the appropriate academic area for review and determination of the appropriate transfer credit. The articulation decision is then processed by the Registrar's Office, added to the student's record, and communicated to the student. This process can take weeks or months and is generally labour-intensive; due to its intensive nature, many institutions will not review requests for transfer credit for unarticulated courses until the student has committed to attend the institution, which removes clarity for the student prior to deciding on an institution to attend. For a course that is already articulated and listed in the BCTG, the process of awarding transfer credit is largely handled automatically by information systems once the institution receives the student's transcript. This automation provides efficiency to the institution, clarity for the student, and time savings for all involved.

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Historically the BC Transfer Guide identified “sending” and “receiving” institutions. Senders were institutions at which students took courses and then transferred them to receivers, where the students were granted transfer credit. Senders were generally colleges while receivers were generally universities, and articulations were done primarily between these two groups rather than within the groups. As the BC post-secondary system has evolved – in particular, with the introduction of the teaching-intensive universities in 2012 and as colleges have been allowed to grant degrees in particular areas – the BC Transfer Guide underwent the “Enabling Initiative” beginning in 2012 (British Columbia Council on Admissions and Transfer [BCCAT], 2012). Part of this initiative was to enable all BCTS member institutions as both senders and receivers, allowing for articulations to occur between any two institutions in the system. While all institutions have been enabled for sending and receiving functions, the terms “sending” and “receiving” are still used to designate the roles of institutions participating in a specific articulation agreement. Additionally, some institutions continue to articulate in the BCTG primarily as either a sender or a receiver, rather than as both.

The BC Transfer System members include different kinds of institutions, some of which have mandates to focus on particular types of students and/or programs. As examples, the Justice Institute of British Columbia focuses on training justice and public safety professionals, the British Columbia Institute of Technology focuses on applied education and builds programs based on the needs of industry, and Royal Roads University focuses on graduate studies for applied and professional fields and uses a cohort model for its programs. With these specific mandates, these institutions are distinctive in their offerings. As a result these institutions’ courses have fewer equivalent courses at other BC institutions, leading to fewer articulations in the BCTG.

The organization responsible for the BC Transfer Guide – the British Columbia Council on Admissions and Transfer (BCCAT) – coordinates provincial articulation committees, which are groups of institutional staff and faculty members from across the system within a particular disciplinary area. These committees meet regularly to “share information and engage in discussions related to curricular matters, particularly those affecting student mobility” (BCCAT). While articulation committees do not articulate courses directly, they have a crucial role in ensuring institutions are generally aware of the plans and changes occurring at other BCTS member institutions.

The responsibility for articulating courses and awarding transfer credit generally rests with the registrars and academic faculty at individual institutions, and is directly connected to each institution’s and program area’s overall approach to curriculum. Disciplines are organized differently among institutions – art history may live in a history department at one institution and fine arts at another – and programs have developed within a specific institutional context. This leads to situations where courses with equivalent content may be situated very differently. For example, some programs do not or did not allow students to enter directly from high school, and instead required a year of initial post-secondary study. Such programs may number their introductory courses at the 200 level, indicating a course most often taken in the second year of study. At another institution the same program may accept students directly from high school and teach the same course content in an equivalent course numbered at the 100 level, indicating a first-year course.

The transfer credit received through an articulation may be assigned or unassigned credit. Assigned credit is given for a specific course at the receiving institution, while unassigned credit is credit awarded at a particular year level but not for a specific course. An example of unassigned credit would be “2XX”, which would fulfill a requirement for second-year credits but would not result in transfer credit for a specific course.

The BC Transfer Guide, with 300,000 articulations across 30,000 courses, includes a significant amount of the courses that are transferable between BC institutions. This study seeks to look at the BCTG from the outside by looking at what may be missing from the BCTG.



# METHODOLOGY

The research questions for this project are:

1. What are the volumes, features, and trends of unarticulated courses in the BC Transfer Guide?
2. What are the volumes, features, and trends of courses articulated at different year levels in the BC Transfer Guide?

To answer the research questions, two types of foundational data were used: the agreements and pending articulation requests from the BC Transfer Guide (BCTG; used for both questions 1 and 2), and the course lists of the BC Transfer System (BCTS) member institutions (used for question 1). Each set of data required cleaning and transformation to conduct analysis that would answer the research questions.

We utilized data on courses offered at institutions and articulations that were available to students from the last five academic years in order to focus on courses that would be most seen in student transfers from September 1, 2014 to August 30, 2019. Constraining the dates allowed us to exclude courses which are no longer offered and also to ensure that brand new courses which haven't been offered yet but are in the institutional course lists are not inflating the number of unarticulated courses.

## BC Transfer Guide Data

The BCTG data used were extracted from the British Columbia Council on Admissions & Transfer's (BCCAT) Transfer Credit System (TCS), the electronic application that is used to create and maintain articulation agreements in the BC Transfer Guide. The data were extracted on October 17, 2019, and contain data current as of that date. The data extracted included course-to-course articulations between BCTS member institutions (see BCCAT website for a list of system institutions). Member institutions may have articulation agreements with non-BCTS-member institutions that are maintained internally, and these were not included in our analysis. Other types of transfer agreements, such as block transfer, were also not included. Block transfer is defined as:

*The process whereby a block of credits is granted to students who have successfully completed a cluster of courses, certificate or diploma, recognized as having an academic wholeness or integrity, and related in a meaningful way to part of the degree program. (BCCAT)*

The data consisted of two files: agreements and pending articulation requests. The pending articulation requests typically represent new courses at BCTS member institutions that have been submitted for other member institutions to review; additionally, institutions may request re-articulation if a course has undergone significant change. The agreement data contains approved articulations in the form of *agreements*, with each agreement representing one or more courses taken at a sending institution, and one or more courses that would be given transfer credit at a receiving institution. There may also be notes or conditions attached to agreements.

The pending articulation request data primarily consisted of the name of the institution submitting the course for articulation, and some details on the course, such as its subject, number, and amount of credits. Additionally, information was provided on which institutions had reviewed the articulation request. As this information wasn't relevant to our research questions, it was removed. Pending course information was used to account for courses that are in the process of being articulated but are not yet in the BCTG, which otherwise would be flagged as unarticulated.

The agreement data are substantially more complex. For each articulation, the agreement details are contained in a text field with the basic structure shown in **Table 1**.

**TABLE 1:** Information contained in articulation agreement details in exported BCTG data

Example		
SEND SSUB 101 (3) = RECV RSUB 1XX (3), Notes; Additional combinations		
Label	Element	Description
SEND	Sending institution code	Where the student took the course..
SSUB	Sending institution subject code	Subject code of the sending course.
101	Sending institution course number	The course number of the sending course.
(3)	Sending institution course credits	Number of credits awarded for successful completion of the sending course.
RECV	Receiving institution code	Where the student would receive transfer credit.
RSUB	Receiving institution subject code	The subject code of the receiving course.
1XX	Receiving institution course number	The course number of the receiving course.
(3)	Receiving institution course credits	The number of transfer credits awarded.
Notes	Agreement notes	Notes or conditions on the agreements. Some examples are: <ul style="list-style-type: none"> <li>• Exempt from RECV BIOL 111, 121, 14</li> <li>• If credit already received for ENGL 101 &amp; ENGL 103, credit will be RECV ENGL 1XX (3)</li> <li>• RECV STAT 240 (3) or RECV PSYC 315 (4), RECV PSYC 315 awarded to PSYC majors only</li> <li>• Cannot be counted toward requirements for BIOL major/minor</li> </ul>
Additional combinations	Additional combination options	<p>An articulation can contain multiple agreements. This is most commonly seen when a sending course taken in isolation leads to one direct or unassigned transfer credit, but when a combination of sending courses is taken together, a different type of transfer credit is given. One example of this is Alexander College's BIOL 101 when transferred to Langara College:</p> <p>By itself:</p> <p>LANG BIOL 1XXX (4);</p> <p>In combination:</p> <p>ALEX BIOL 101 (4) &amp; ALEX BIOL 102 (4) = LANG BIOL 1115 (4) &amp; LANG BIOL 1215 (4)</p> <p>In this case, if a student completes BIOL 101 at Alexander College, they would receive four credits of first-year unassigned BIOL credit at Langara. But if they completed both BIOL 101 and BIOL 102 at Alexander they would receive credit for BIOL 1115 and BIOL 1215 at Langara.</p>

An additional layer of complexity is course exemptions. A number of agreements specify courses that the student will receive transfer credit for, but also note that the student is exempted from taking one or more additional courses. BCCAT defines an exemption as:

*The waiving of a prerequisite or required course for students who have proven they have comparable learning. The student may be required to replace the exempted course with an alternate. (BCCAT)*

Exemptions are represented in two ways. SFU presents the exempted course as an additional course listed as 0 receiving credits, while other institutions list the exempted course in the agreement notes and conditions with wording similar to "exempt from SUBJ 101" (see the "Notes" row in **Table 1** for an example).

The notes and conditions occur only in some agreements and are used for different purposes; see the Notes examples in **Table 1**. Where specific courses were listed, for example in “[i]f credit already received for ENGL 101 & ENGL 103, credit will be RECV ENGL 1XX (3)”, we captured the course information and ignored any notes or conditions.

Our end goal for the data transformation was two data sets: one that gave us a list of all sending courses without duplicates, and one that gave us a list of all receiving courses without duplicates. For the list of sending courses, little cleanup was necessary, as the BCTG data included the information required; the only cleanup was to remove agreements that ended prior to September 1, 2014, which was outside our analysis timeframe. The list of receiving courses required more cleanup because the BCTG data contained the receiving courses within the agreement details field discussed above. Our general process for cleaning up the data set of receiving courses was:

1. Filtering out any agreements that ended prior to September 1, 2014.
2. Filtering out any agreements that did not provide the student with transfer credit, such as agreements that specifically indicate “No credit.”
3. Accounting for any articulations that had both direct and combination portions, such as Alexander College to Langara College articulations in first-year Biology described in **Table 1**. We captured courses listed in either the direct or combination portion of the articulation.
4. Finding any exemptions or exclusions, which don’t allow students to take a course for further credit but don’t provide transfer credit, as identified in the articulation notes and conditions. We ignored any courses listed only as an exemption or exclusion.
5. Removing any articulations where the sending or receiving year level assigned (see below) is greater than four or where the sender is Okanagan University College or the Institute for Indigenous Government.
  - a. Courses assigned to year levels above four were assumed to represent either graduate-level work or that the course is intended to be taken as part of an undergraduate credential to be completed after a baccalaureate degree. As the focus of the BCTG is on undergraduate courses, these courses were removed from consideration.
  - b. Okanagan University College (with operations split between the University of British Columbia’s Okanagan campus and Okanagan College) and the Institute of Indigenous Government (now part of the Nicola Valley Institute of Technology) no longer exist.

The extracted data from the BCTG included 223,633 articulations. The first cleanup step removed 75,919 articulations and the second step removed 15,507 articulations, leaving us with 132,207 articulations, some of which contained both direct and combination agreements. Separating the direct and combination agreements resulted in a data set that contained 140,789 articulations, with 27,505 different sending courses and 16,649 different receiving courses; some courses appeared in both lists.

Courses in the BCTG were assigned to a year level based on the course’s number. The British Columbia Institute of Technology (BCIT) uses a numbering convention that ranges from 1000 to 8000 (British Columbia Institute of Technology, 2016), with course numbers beginning with 1 and 2 corresponding roughly to first-year courses, 3 and 4 to second-year courses, 5 and 6 to third-year courses, and 7 and 8 to fourth-year courses. Other institutions occasionally number foundational courses with numbers beginning with a 0 or an X, and these were assigned to first year as we expect they would be taken by a student in their first year of studies. In all other cases, we took the first digit of the course number to be the course’s year level. So, for example, a course numbered 101 would be a first-year course and a course numbered 201 would be a second-year course.

Articulations were assigned to a BCCAT articulation committee subject area based on the subject code of the sending course. These assignments are necessarily rough – many subject areas do not fit only within a single articulation committee's area of expertise, and many institutional subject codes don't fit cleanly within any articulation committee. Courses clearly within a common subject area but with no direct match to an existing articulation committee were assigned to an articulation committee for the purposes of this report. Examples in the Figures below include Nursing, Humanities & Religious Studies, Education, and Linguistics. These assignments are indicated in figures prefixed with an asterisk. Where courses could fit the disciplines represented by multiple articulation committees, we selected the committee we thought to be the best fit.

Some courses were excluded from the year level comparison because their year level could not be definitely determined. These courses were usually awarded unassigned transfer credit fulfilling a general program requirement but lacked the course number indicator, in such forms as "SCIE Elective" or simply "ELEC." The total number of articulations excluded for this reason was 110 (less than 0.1%).

## Institutional Course Lists

Our collection of institutional course lists comes from two sources: British Columbia's Central Data Warehouse (CDW; Government of British Columbia) and institutions themselves. The CDW contains information from the majority of public institutions in British Columbia. The BCTS institutions that do not submit data to the CDW are four BC public institutions governed by the University Act (1996), two public institutions located outside BC, and 12 private institutions.

The CDW provided usable data from 15 of the 21 institutions that submit data to the warehouse; the six for which the CDW data were not usable do not provide course subject and catalog numbers in their submission. The CDW provided us with a list of courses taken by students between September 1, 2014 and August 30, 2019.

The data provided by the CDW included all courses which institutions submitted to the CDW. This is a wider range of courses than those listed on the BCTG. Graduate courses, trades courses, and non-credit courses are all typically included in the CDW information. To capture those courses that we expect to be within the purview of the BCTG, we excluded data from courses in these categories in the Classification of Instructional Programs (CIP) (Statistics Canada, 2011):

**TABLE 2: Classification of Instructional Programs (CIP) codes of courses excluded from analysis**

CIP Code	Subject matter description
12	Personal and culinary services
21	Pre-technology education/pre-industrial arts programs
32	Basic skills (not for credit)
33	Citizenship activities (not for credit)
34	Health-related knowledge and skills (not for credit)
35	Interpersonal and social skills (not for credit)
36	Leisure and recreational activities (not for credit)
37	Personal awareness and self-improvement (not for credit)
46	Construction trades, general
47	Mechanics and repairers, general
48	Precision production trades, general
49	Transportation and materials moving
89	Continuing or community programs

Some courses have a CIP code which indicates a credit program (i.e. the CIP code starts with 33, 34, 35, 36, or 37, which indicates non-credit) but are identified as non-credit by the number of credits awarded for successful completion. Courses identified as non-credit in this manner were removed from the data.

For the institutions which do not submit to the CDW, and the six institutions for which the CDW data would not work, we directly requested a list of courses taken by students between September 1, 2014 and August 30, 2019. Of the 24 institutions contacted, 20 provided course lists; four institutions did not respond to our original request or subsequent follow-ups. UBC has separate course lists for the Okanagan and Vancouver campuses, and these campuses were treated as separate institutions in our analysis.

Some institutions provided the date of the first course offering and whether or when the course was discontinued. Course levels and subjects were assigned to the courses in the universities' course lists in the same way as they were for courses in the BCTG.

*A number of institutions with the BCTS have entered into block transfer agreements within which individual courses are not listed in the BCTG.*

*Courses that are part of block transfer agreements may be listed in the BCTG if they will transfer as part of a smaller cluster of courses to specific course credit.*

## Limitations

There are several limitations to the methodology we employed. Most importantly, information in the course lists does not necessarily reflect the intended use of courses by institutions, and a number of courses included in the lists may not typically be transferable courses.

Institutions providing course lists directly were asked to limit their data to undergraduate courses, and our review indicates that trades and other classes with non-academic credit were either not included or were marked so they could be excluded in our processing. We similarly excluded courses in the CDW that were not undergraduate courses (such as non-credit, developmental, and trades). However, it's likely that neither of these methods definitively excluded all the courses which do not fit the definition of undergraduate courses.

Many institutions have courses within their undergraduate course lists that we would not expect to see in the BCTG. Examples of such courses are outgoing exchanges, cooperative education placements, special topics courses, directed studies courses, and thesis or research courses. These types of courses were included in the course lists provided and, as there is no consistent way to exclude them across all institutions, they are included in our analysis. While these course types do not represent a significant number of courses in the institutional course lists, we expect their inclusion will result in the numbers in our analysis slightly *overstating* the number of unarticulated courses in the BCTG.

The articulations in the BCTG represent course-to-course articulations, including articulations involving sets of courses. A number of institutions with the BCTS have entered into block transfer agreements within which individual courses are not listed in the BCTG. Courses that are part of block transfer agreements may be listed in the BCTG if they will transfer as part of a smaller cluster of courses to specific course credit. As such, the analysis below will not capture the total scope of transfer activity in the BC Transfer System.

# ANALYSIS

## Unarticulated Courses

While the approximately 300,000 articulations in the BC Transfer Guide cover over 30,000 courses, research has not determined the coverage of the BC Transfer Guide has of the courses within the BC Transfer System – that is, how many courses are unarticulated.

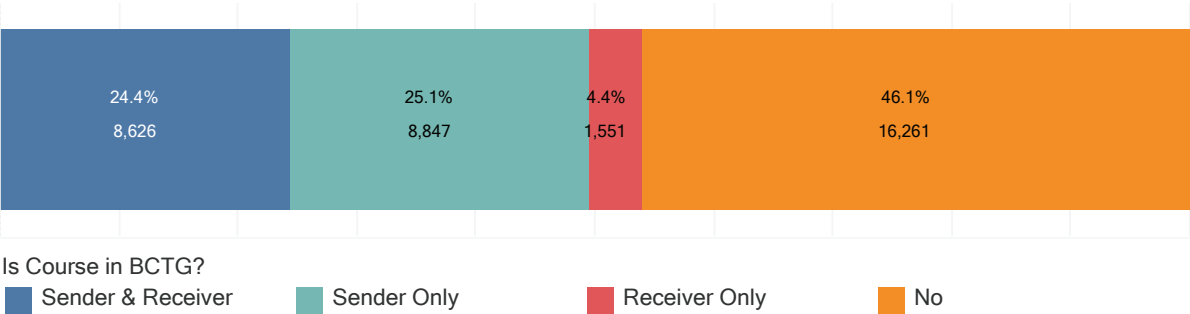
For our review of unarticulated courses, we have excluded courses from the British Columbia Institute of Technology, the Justice Institute of British Columbia, Quest University, and Royal Roads University. These four institutions have not historically participated in transfer agreements on a course-by-course basis, and thus show very high numbers of unarticulated courses. Additionally, we have excluded courses with ABT (Applied Business Technology) codes, as these have historically not been articulated.

The 32 remaining institutional course lists included 35,285 distinct undergraduate courses. We categorized each course into one of four general statuses:

- The course is in the BCTG as both a sending course & receiving course
- The course is in the BCTG as a sending course only
- The course is in the BCTG as a receiving course only
- The course is not in the BCTG as either a sending or receiving course

The status of these courses in relation to the BCTG is shown in **Figure 1**. In total 16,261 (46.1%) of the 35,285 courses were not articulated in the BCTG. Across the three categories of courses that appear in the BCTG – “Sender & Receiver”, “Sender Only”, and “Receiver Only” - 53.9% of courses in institutional course lists are present in the BCTG. Among courses that are in the BCTG, those that are listed as a sending course only are the largest group (25.1% of all courses), followed by those courses listed as both sending and receiving (24.4%) and those courses listed as receiving only (4.4%).

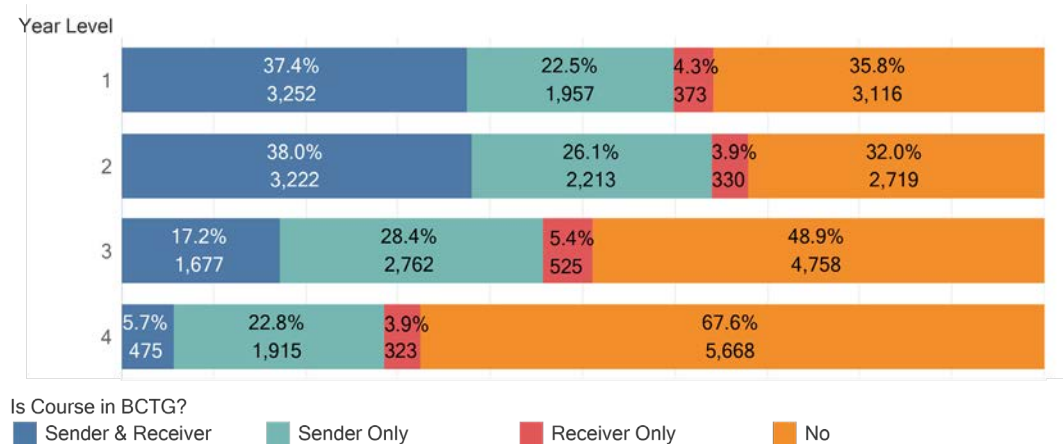
**FIGURE 1:** Courses from institutional course lists by whether the course is articulated in the BC Transfer Guide



Based on the history of the BCTG where institutions were initially designated as either sending or receiving, but not both, we would expect to see differences in the overall rate of articulated courses when the courses are separated by year level. The sending institutions often only offered courses within the first two years of post-secondary study, with the receiving institutions offering courses across all four years; this suggests we would see higher rates of articulation in courses in the first two years.

A breakdown of the data by course year level is shown in **Figure 2**. Second-year courses were the most likely to be in the BCTG as either sent or received, with 68.0% of courses in the BCTG and 32.0% of courses not in the BCTG. This was followed by first-year courses (64.2% in the BCTG), third-year (51.1%) and finally fourth-year (32.4%) courses. It is unclear why second-year courses are more likely to be articulated than first-year courses.

**FIGURE 2:** Courses from institutional course lists by year level and whether the course is articulated in the BC Transfer Guide



For the same historical reasons, we’d expect to see differences by institution and, specifically, types of institutions. Historically sending institutions would likely have higher articulation rates than historically receiving institutions as they offer fewer third- and fourth-year courses than the receivers.

**Figure 3** displays the percentage of unarticulated courses by institution. Nine institutions have unarticulated course rates of 20% or less. All of these are institutions which generally send high numbers of students to receiving institutions. Three institutions have unarticulated course rates above 70%. We see that even within post-secondary sectors there is substantial variation in unarticulated rates, as among colleges Vancouver Community College and Selkirk College have rates above 61% while Coast Mountain College and Northern Lights College have rates below 11%.

FIGURE 3: Percentage of unarticulated courses in institutional course lists by institution

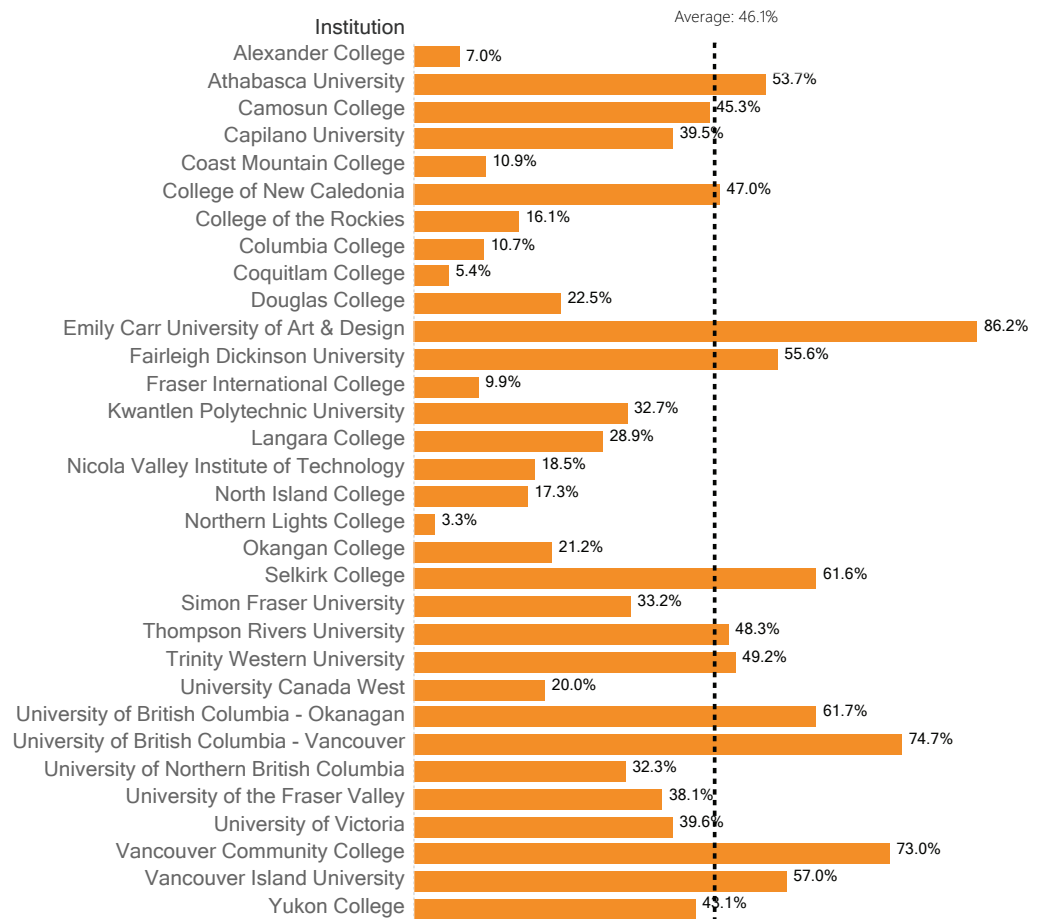
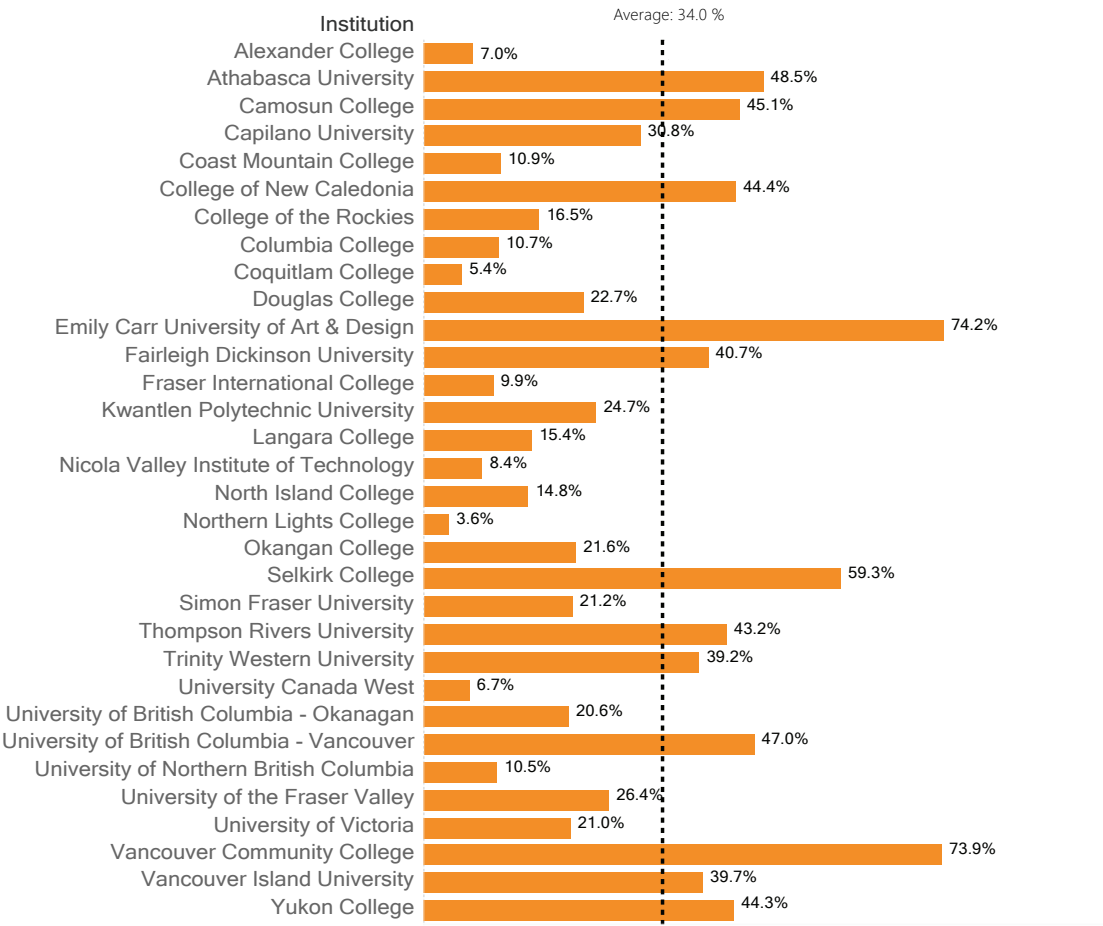


Figure 4 focuses on first- and second-year courses by institution. The average rate of unarticulated courses is 34.0%, represented by the vertical dashed line. Ten institutions have unarticulated course rates below 20%, with the three institutions with the highest rates in these year levels all having rates above 59%.

Of note is UBC Okanagan having a 20.6% unarticulated rate for first- and second-year courses compared to 61.7% across all four year levels (shown in Figure 3) and UBC Vancouver having a rate of 47.0% for first- and second-year courses compared to 74.7% across all four year levels. Other traditional receiving institutions also lower articulation rates for first- and second-year courses, compared to their third- and fourth-year courses, though not as dramatic as UBC's. Part of the reason for this is historical – prior to BCCAT's 2012 Enabling Initiative (BCCAT, 2012) the research universities functioned solely as receivers in the BCTG, their courses would only appear in the BCTG if they had been articulated as receiving transfer credit elsewhere. As many historical sender institutions have courses that articulate primarily to first- and second-year courses at the research universities, the rates of unarticulated courses at these year levels are much lower than the rates at third- and fourth-year.



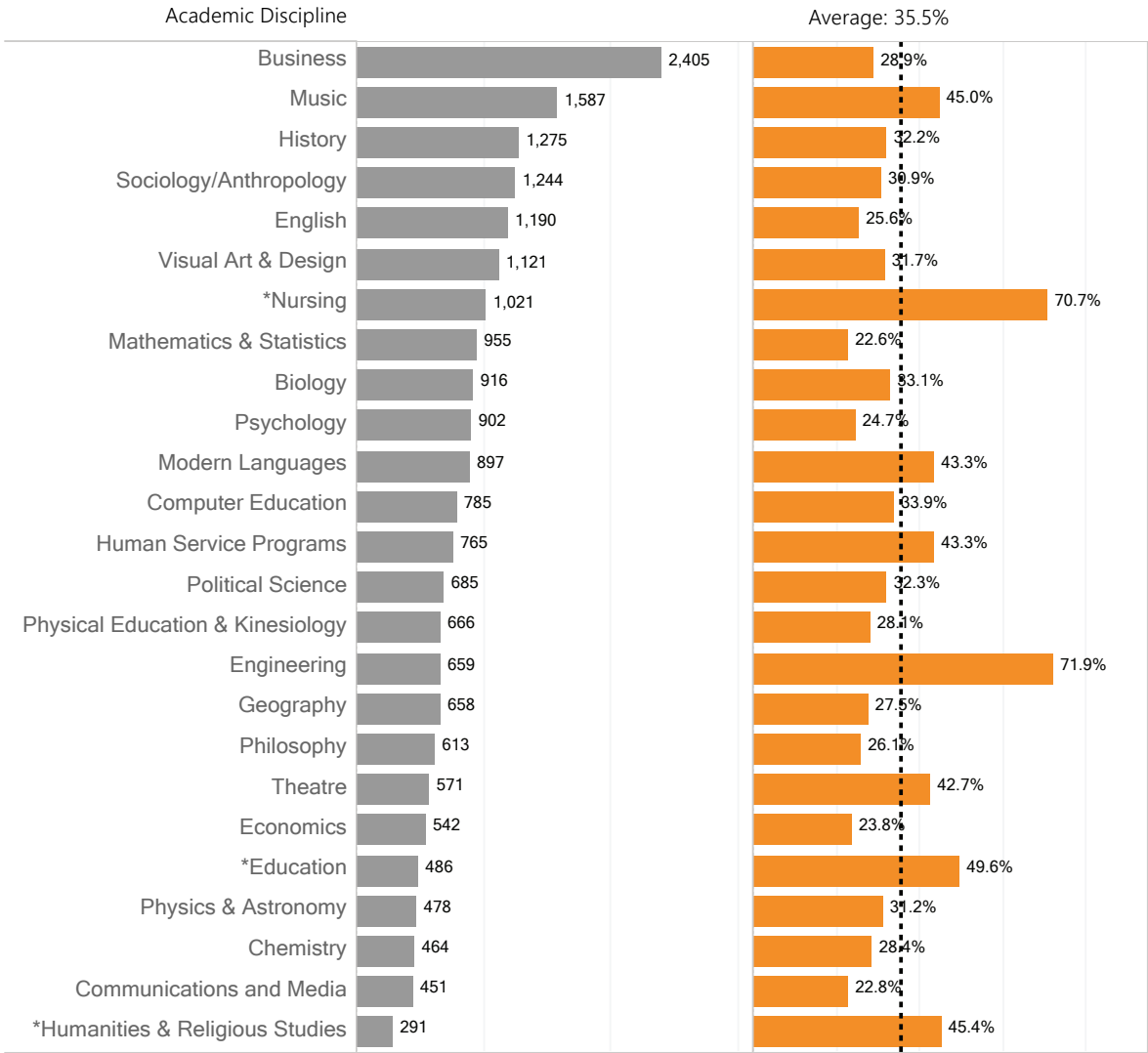
FIGURE 4: Percentage of unarticulated first- and second-year courses in institutional course lists by institution



Different institutions have different mixes of programs, with more programs and courses in some subject areas and fewer or none in other subject areas. Some of the differences in course articulation rates between institutions are likely due to these differences, with some subject areas having lower rates of unarticulated courses than others.

Figure 5 presents the number and percentage of unarticulated courses categorized by academic discipline. The grey bar on the left represents the total number of courses, while the orange bar on the right represents the proportion of those courses that are unarticulated. The average percentage of unarticulated courses across these academic disciplines is 35.5%, represented by the dashed line. Disciplines with high levels of unarticulated courses include Engineering and Nursing with rates above 70%; Disciplines with the lowest proportions of unarticulated courses include Mathematics & Statistics, Communications and Media, Economics, Psychology, Philosophy, and English.

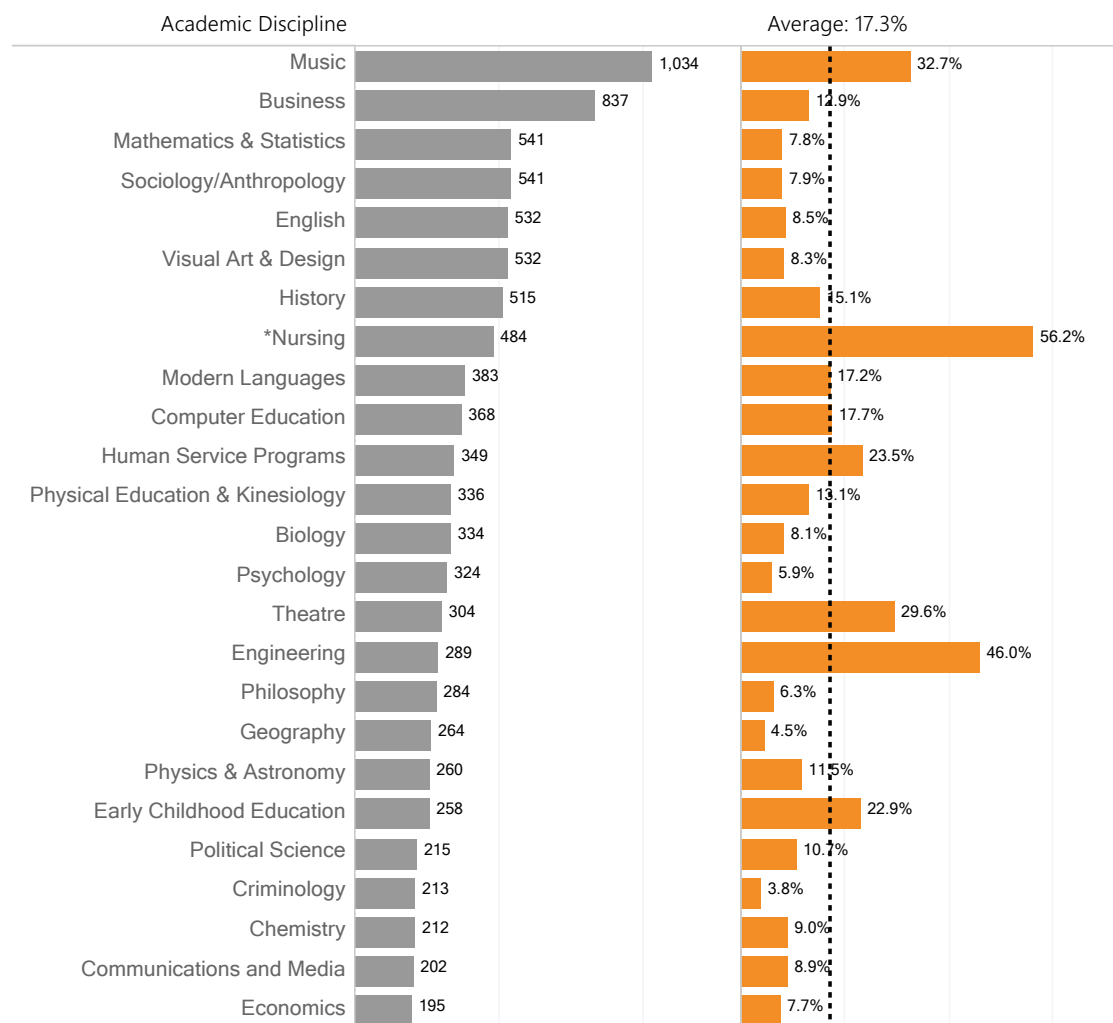
FIGURE 5: Number of courses and percentage of courses that are not articulated by academic discipline



Notes: The grey bars on the left represent the total number of courses; the orange bars on the right represent the proportion of those courses that are unarticulated; asterisks identify categories created for the report; the dashed line represents the overall average among these 25 academic disciplines.

Figure 6 also looks at the total number of courses and the percentage of those courses that are unarticulated by academic discipline, but focuses on first- and second-year courses. First- and second-year courses are among the most important in student mobility as students are most likely to transfer after one or two years of post-secondary study. The academic disciplines listed here differ slightly from those in Figure 5, and the average unarticulated course rate among these academic disciplines (the dashed line) is 17.3%. Nursing, Engineering, Music, and Theatre have the largest proportions of unarticulated courses in first- and second-year with rates above 29%, while Criminology, Geography, Psychology, Philosophy, Mathematics & Statistics, and Sociology/Anthropology have the lowest proportions, all below 8%.

**FIGURE 6:** Number of first- and second-year courses and percentage of courses that are not articulated by academic discipline

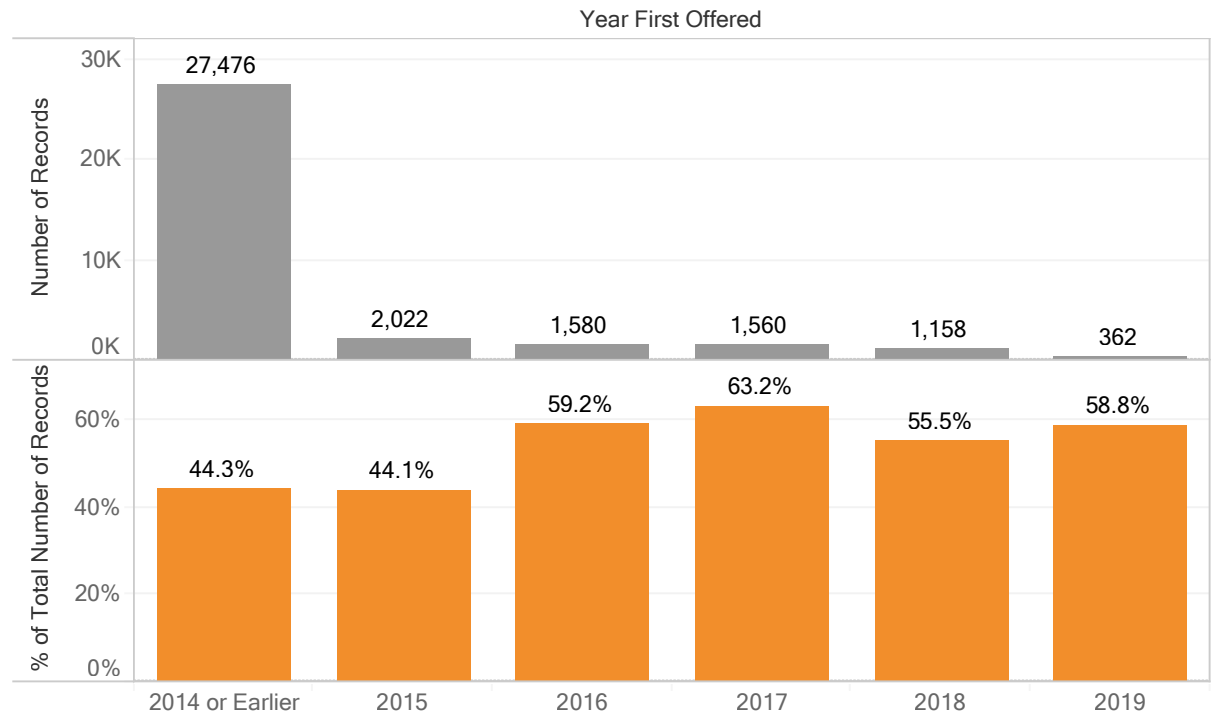


Notes: The grey bars on the left represent the total number of first- and second-year courses; the orange bars on the right represent the proportion of those courses that are unarticulated; asterisks identify categories created for the report; the dashed line represents the overall average among these 25 academic disciplines.

Over time, measured from the first time a course was offered, we expect that the rate of unarticulated courses would decrease. In particular, as students request transfer credit directly from an institution for courses not previously articulated, those articulations may be entered into the BCTG so that future students can make use of them.

**Figure 7** displays the number and percentage of unarticulated courses by the year in which the courses were first offered. Courses from 2014 and earlier are grouped, while courses from each year from 2015 onwards are displayed individually. Courses from 2014 and earlier had the lowest unarticulated course rate at 44.7%, with the rate increasing for courses first offered between 2016 and 2019. Essentially, newer courses are less likely to be articulated than older courses. Note that the University of Northern British Columbia (UNBC) has been excluded from these data as their course list did not provide the date a course was first listed in the calendar or offered.

FIGURE 7: Number of courses and percentage of courses unarticulated by first year of course offering at the institution



Notes: The grey bars on the top represent the total number of courses; the orange bars on the bottom represent the proportion of those courses that are unarticulated; UNBC is excluded.

Overall, 46.1% of courses offered over the past five years by BCTS member institutions are not articulated in the BCTG either as sent or received courses, including 35.8% of first-year courses and 32.0% of second-year courses. There are no institutions that have articulated all courses or all first- and second-year courses, nor are there academic disciplines where this is true. This suggests the impacts of unarticulated courses are being felt somewhat by many different students rather than acutely by only some.

## Articulations Across Different Years or Levels

Articulations across years or levels are a separate issue from unarticulated courses. Institutions have different rules around progression between year levels in programs – at some institutions students can take courses from a mix of years or levels at any given time, while at other institutions students must complete all first-year courses and requirements before taking second-year courses, all second-year courses before taking third-year courses, and so on. The following analysis reviews courses that articulate across different year levels.

While most of the 140,679 articulations we analyzed were between courses in the same course year or level (108,036, 76.8%), 32,643 (23.2%) of these articulations were across course levels. The most common articulations across years or levels, shown in **Figure 8**, were second-year courses articulated as first-year courses (32.5% of 32,643), first-year courses articulated as second-year courses (22.9%), third-year courses articulated as second-year courses (15.5%), and second-year courses articulated as third-year courses (10.8%). All these articulations varied by a single year or level.

**FIGURE 8: Number of articulations between courses at different year levels**

Year or Level of Course at Sending Institution	Year or Level That Course Was Articulated To At Receiving Institution				Grand Total
	1	2	3	4	
1		7,474 (22.9%)	562 (1.7%)	65 (0.2%)	8,101 (24.8%)
2	10,616 (32.5%)		3,535 (10.8%)	351 (1.1%)	14,502 (44.4%)
3	1,224 (3.7%)	5,053 (15.5%)		737 (2.3%)	7,014 (21.5%)
4	309 (0.9%)	1,115 (3.4%)	1,602 (4.9%)		3,026 (9.3%)
Grand Total	12,149 (37.2%)	13,642 (41.8%)	5,699 (17.5%)	1,153 (3.5%)	32,643 (100.0%)

Of the 32,738 articulations that crossed years or levels, 88.8% (29,068) varied by one year or level, 10.0% (3,290) varied by two years or levels, and 1.2% (374) varied by three years or levels.

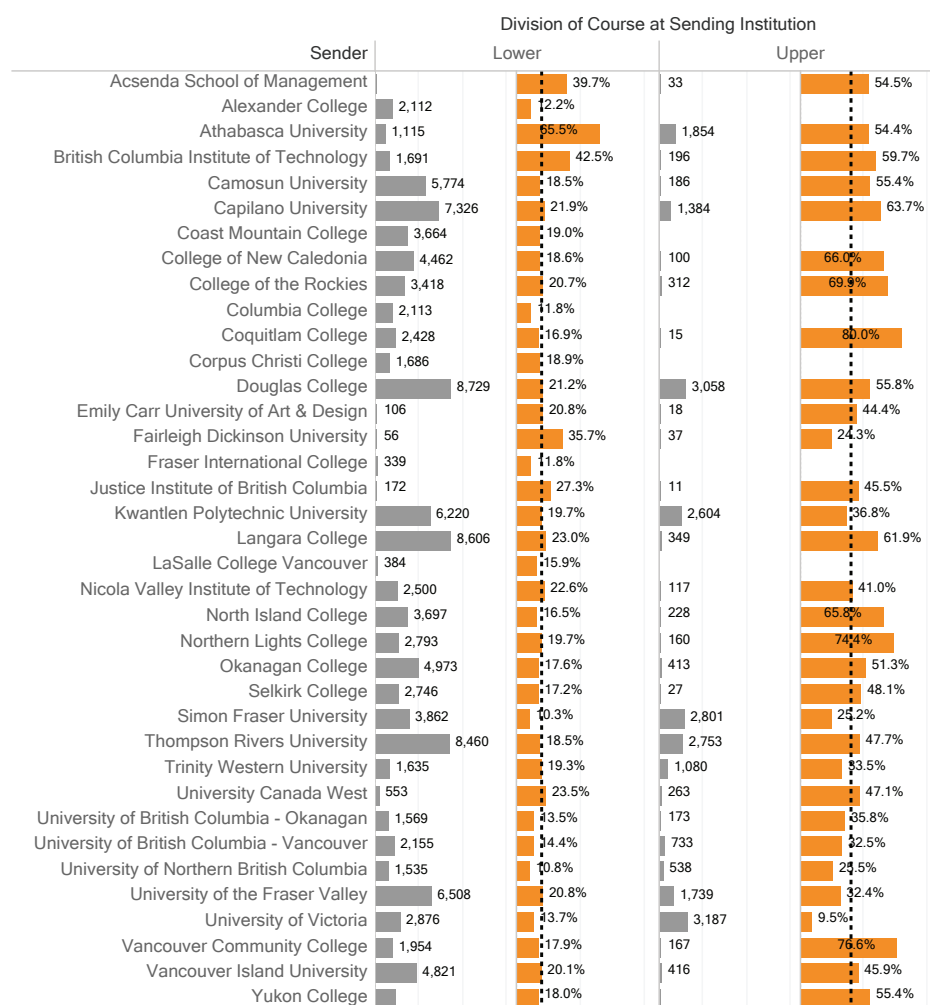
In **Figure 9** and **Figure 10** we analyze articulations across years or levels by institution. We have excluded courses from any sending institutions with fewer than 50 articulated courses (**Figure 9**) or receiving institutions with fewer than 50 articulated courses (**Figure 10**). For these analyses of articulations across year levels, we have separated courses into “lower division” for courses in year or level one and two, and “upper division” for courses in year or level three and four. On average, the percentage of cross-year articulations is 19.5% of articulations from lower-division courses and 40.1% of articulations from upper-division courses (dashed vertical lines on **Figure 9**). In addition, the average is 21.7% among articulations to lower-division courses and 31.5% among articulations to upper-division courses (dashed vertical lines on **Figure 10**).

Sending institutions with the most cross-year or coross-level articulations were Athabasca University (58.5%), the British Columbia Institute of Technology (44.3%), and Acsenda School of Management (42.7%). Sending institutions with the fewest cross-year or cross-level articulations were the University of Victoria (11.5%), Fraser International College (11.8%), and Columbia College (11.8%).

The data here tells us that while there are fewer articulations across years or levels at the upper division in raw numbers (seen in **Figure 9**), cross-level articulations form a much higher proportion of articulations among upper-division courses than among lower-division courses. Among sending institutions, four institutions have rates above 35% for cross-year or cross-level articulation of lower-division courses, with comparable rates at other institutions being between 10% and 28%. For upper-division courses, the historically receiving research universities are among those with the lowest rates of cross-year or cross-level articulations. The University of Victoria has 9.5% of its upper-division articulations across years or levels, substantially less than other institutions.

Among receiving institutions we see a similar difference between upper-division and lower-division cross-level articulations, as well as other notable differences. With the exception of two institutions with rates above 38%, at the lower division the rates at other institutions are between 6% and 30%. At the upper division there is much more variation between institutions, and this continues with the research universities – those with the largest numbers of articulations to upper-division courses – where the rates at the University of British Columbia is below 15% at both of its campuses while the rates at Thompson Rivers University is not far behind at 17.5%. Simon Fraser University, the University of Northern British Columbia, and the University of Victoria all have rates above 40%.

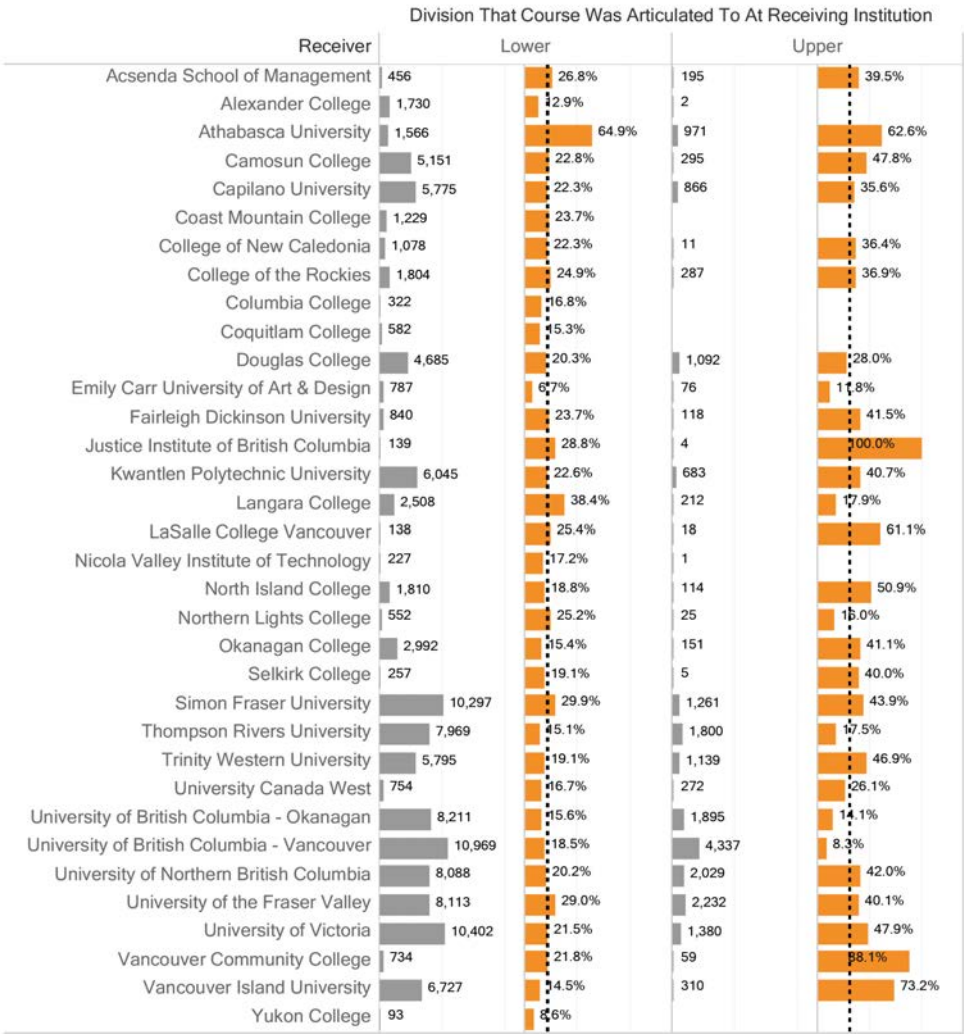
**FIGURE 9: Number and proportion of cross-year articulations by sending institution**



Notes: The grey bars on the left represent the total number of sending articulations; the orange bars on the right represent the proportion of those articulations that cross years or levels; institutions with fewer than 50 sending articulations are excluded; the dashed line represents the overall average among the included institutions and is 19.5% among articulations from lower-division courses and 40.1% among articulations from upper-division courses.

Receiving institutions with the highest percentages of cross-year or cross-level articulations were Athabasca University (64.0%), Langara College (36.8%), and the University of the Fraser Valley (31.5%). Receiving institutions with the lowest percentages of cross-year articulations were the Emily Carr University of Art & Design (7.2%), Yukon College (8.6%), and Alexander College (12.9%).

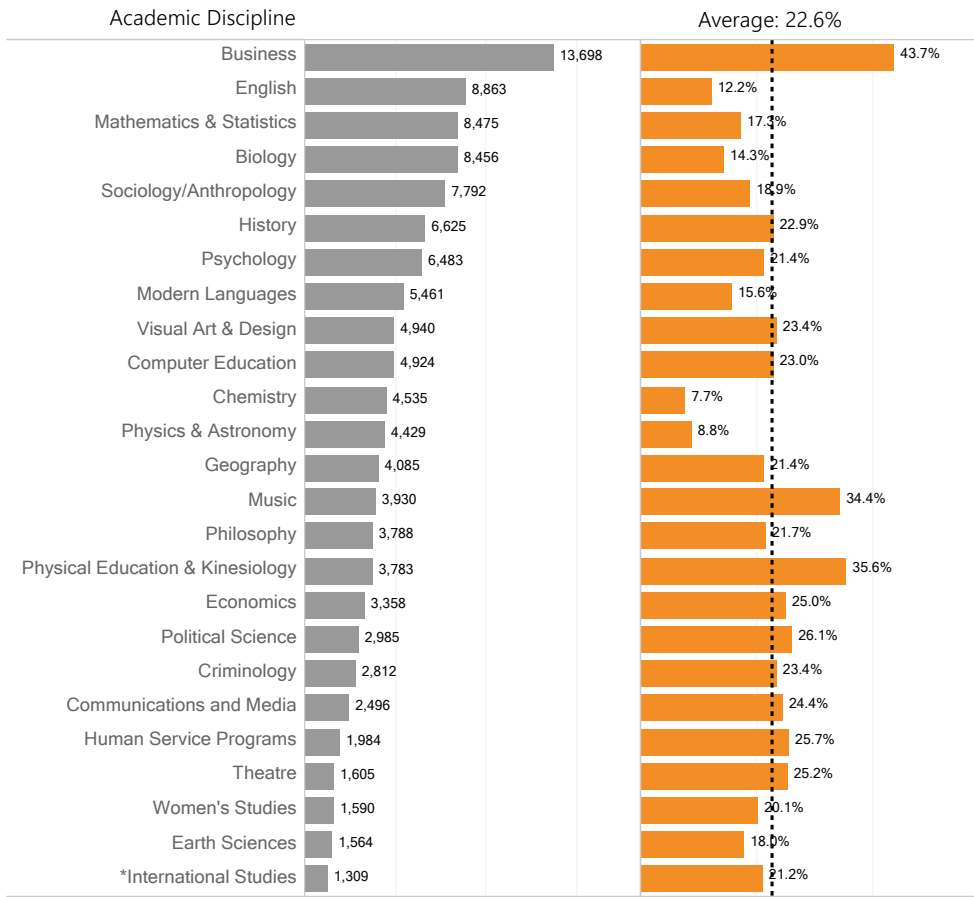
**FIGURE 10:** Number of receiving articulations and proportion of receiving articulations that cross years or levels by sending institution



Notes: The grey bars on the left represent the total number of receiving articulations; the orange bars on the right represent the proportion of those articulations that cross years or levels; institutions with fewer than 50 receiving articulations are excluded; the dashed line represents the overall average among the included institutions and is 21.7% among articulations to lower-division courses and 31.5% among articulations to upper-division courses.

Figure 11 shows that the academic disciplines with the highest proportions of cross-level articulations were Business (43.7%), Physical Education & Kinesiology (35.6%), and Music (34.4%). Disciplines with the lowest proportions of cross-year articulations were Chemistry (7.7%), Physics & Astronomy (8.8%), and English (12.2%).

FIGURE 11: Number of articulations and proportion of articulations that cross years or levels by academic discipline

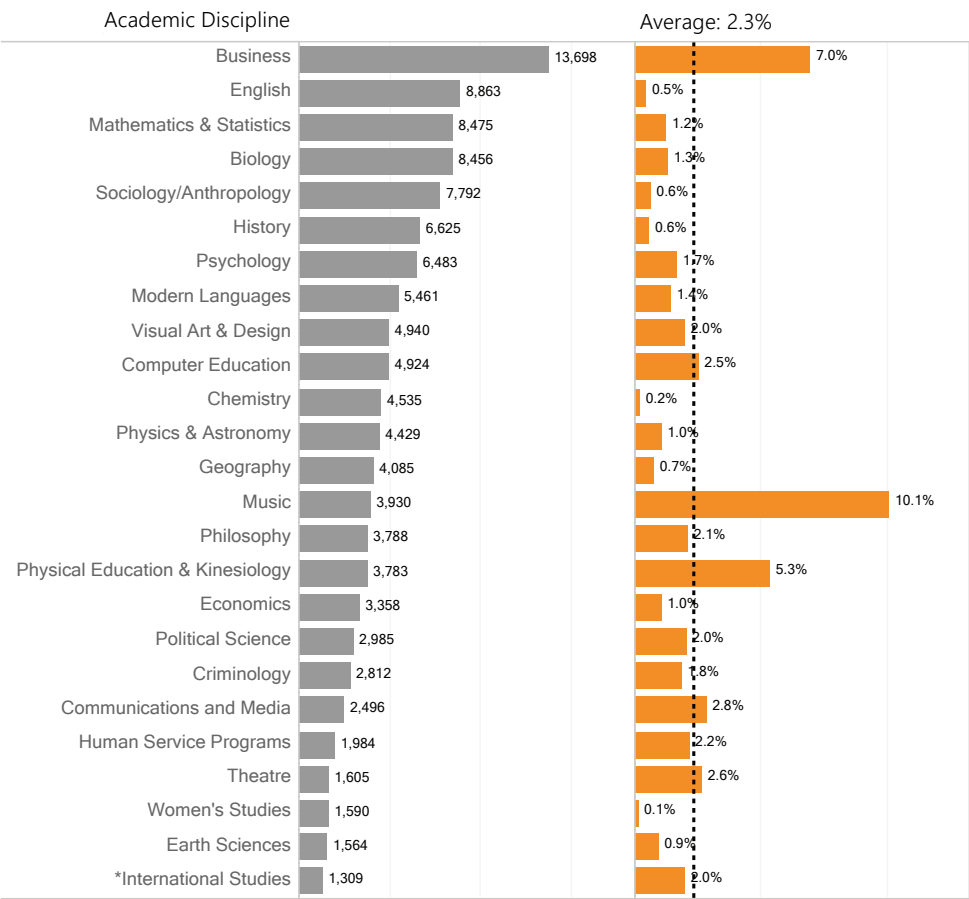


Notes: The grey bars on the left represent the total number of articulations; the orange bars on the right represent the proportion of those articulations that cross years or levels; asterisks identify categories created for the report; the dashed line represents the overall average among these academic disciplines.

Figure 12 displays the total number of articulations in the grey, left-side bar and the proportion of those cross-year articulations that cross two or more year levels, such as a third-year or fourth-year to first-year articulation, in the orange, right-side bar. The academic disciplines with the highest percentage of articulations across at least two years were Music (10.1%), Business (7.0%), and Physical Education & Kinesiology (5.3%). In terms of volume of articulations crossing two or more year levels, Business has the most, with 953 (7.0% of 13,698) of such articulations, followed by Music with 396 (10.1% of 3,930).



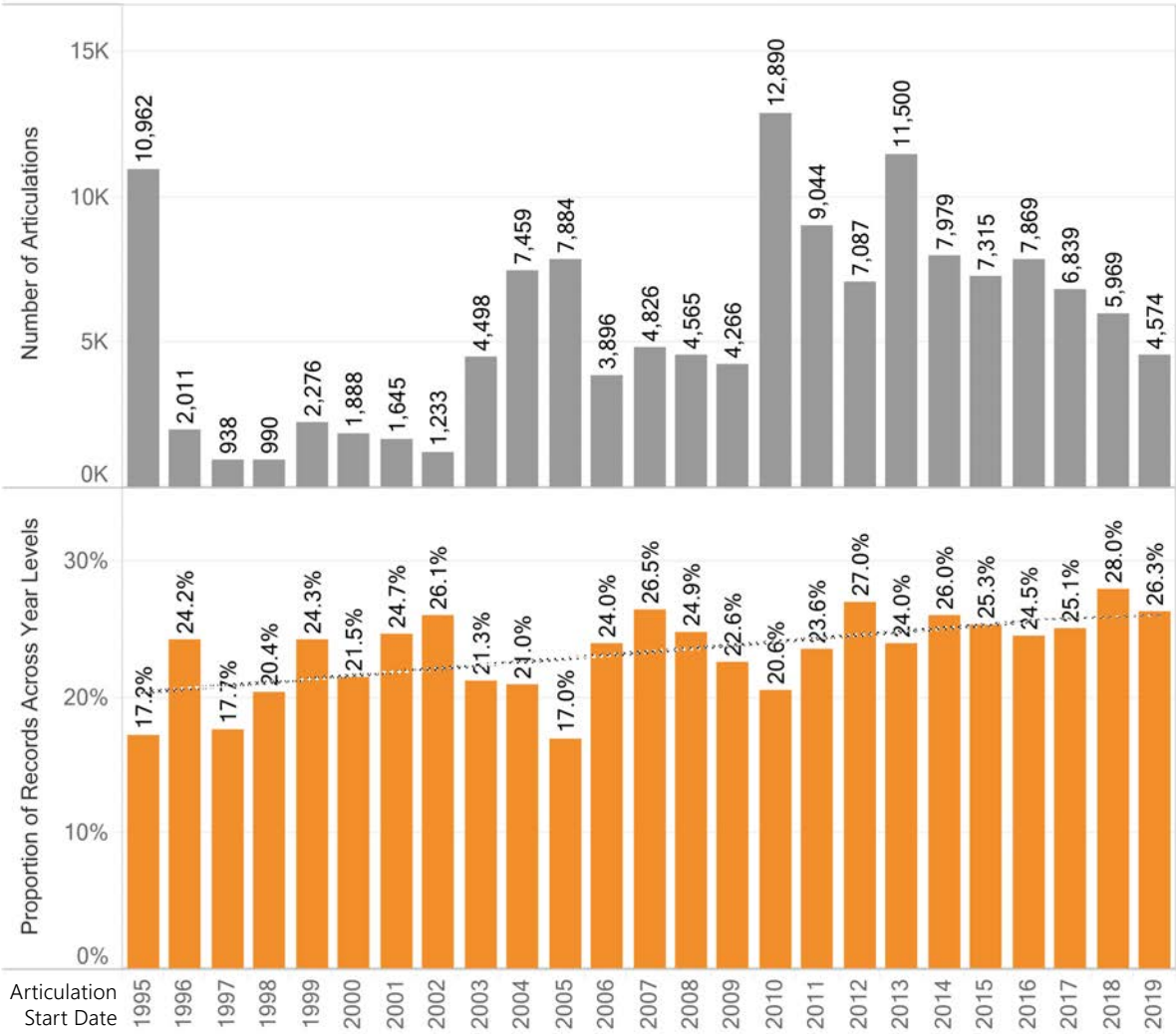
**FIGURE 12:** Number of articulations between different years or levels and proportion of articulations that cross years or levels that cross two or more years or levels by academic discipline



Notes: The grey bars on the left represent the total number of articulations; the orange bars on the right represent the proportion of those articulations that cross 2 or more years or levels; asterisks identify categories created for the report; the dashed line represents the overall average among these academic disciplines.

**Figure 13** looks at cross-year articulations by the year that the articulation was entered into the TCS. While the percentage of articulations has fluctuated each year compared to the years before and after, the proportion of 2019 articulations that cross year levels is 26.3%, nine percentage points higher than the proportion of 1995 articulations (17.2%). Overall, this indicates that the proportion of articulations that cross year levels is increasing over time.

**FIGURE 13:** Number of articulations and proportion of articulations across year levels by start year of the articulation agreement



Notes: The grey bars on the top represent the total number of articulations; the orange bars on the bottom represent the proportion of those articulations that cross years or levels; the dashed line represents the ordinary least squares regression line.

Unlike the pattern of unarticulated courses, the proportion of courses articulated across year levels is concentrated at particular institutions and within particular program areas. This suggests that students transferring to or from those institutions or who are studying within one of those program areas may have less mobility than students at other institutions or in different program areas. These students may take longer to complete their programs or may require more credits in order to complete. We also see significant variations in the rates of cross-year or cross-level articulations between lower division and upper division courses, with a much higher rate in upper division courses.

# RECOMMENDATIONS

Based on the data analysis, we offer the following recommendations for further exploration.

- **Recommendation 1:** *BCCAT should work with institutions and the Central Data Warehouse to regularly collect institutional course lists for verification of course codes contained in articulations.*

This recommendation would improve the accuracy of course data in the BCTG, which are currently only identified through user activity or periodic data reviews. One additional possibility here is using the Central Data Warehouse, as we have, as a catalog source for institutions that submit in usable data formats there, lowering the burden on both BCCAT and the member institutions of the BCTS.

- **Recommendation 2:** *BCCAT should communicate to the BC Transfer System which courses are currently unarticulated that would normally be expected to be articulated in the BCTG.*

BCCAT has a statement on the types of courses normally expected to be articulated in the BCTG (see <https://www.bccat.ca/pubs/Resources/HowToArticulate2018.pdf>). Given the volume of courses that are not articulated, there may be a lack of awareness within institutions as to which courses should be submitted for evaluation, and which courses should be left unarticulated. A greater level of awareness about the unarticulated courses may help address some of the gaps identified within this report.

- **Recommendation 3:** *BCCAT should research the impact on student mobility of unarticulated courses, or courses articulated across year levels.*

This report identifies several directions for future research. For example, if a student has courses that transferred across year levels, do they take longer to complete? If a student takes a course that is not articulated and then transfers, do they ultimately receive credit for that course, or do they end up taking more credits to make up for the course after transferring? Looking into these issues requires a substantially different lens, but would provide further information that could then help inform whether or how to change the levels of unarticulated courses and articulations across year levels.

- **Recommendation 4:** *BCCAT should research the rationale behind why courses may be unarticulated, or articulated across year levels.*

An element that is unclear from these quantitative analyses – quantitative in nature – is why courses might not be articulated or why the articulations cross year levels. A more qualitative investigation could determine why courses are not being articulated or are being articulated across year levels, and whether the rates of unarticulated and cross-year articulated courses are problematic. Additionally, we suggest that regular reviews be conducted to determine whether these rates are significantly changing over time.

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