

CHEMISTRY 2020 ARTICULATION MEETING (by videoconference) BRITISH COLUMBIA COUNCIL ON ADMISSIONS AND TRANSFER

Committee Chair: Todd Stuckless

Committee SLP: Margaret Heldman

School Representatives:

Institution	Name	Institution	Name
Alexander College	Jason Mirzaei	North Island College	Sherrie Wang
BC Institute of Technology	Jimmy Lowe	Okanagan College	Jasmine Korcok
BC Institute of Technology	Jennifer Wolf	Selkirk College	Allyson Perrott
Camosun College	Neil Meanwell	Thompson Rivers University	Bruno Cinel
Capilano University	Urmila Deo Jangra	Simon Fraser University	Evon Khor
Coast Mountain College	Reto Riesen	Trinity Western University	Paul Brown
College of New Caledonia	Lyndia Susag	UBC – O	Tamara Freeman
Columbia College	Taraneh Lajevardi	UBC – V	Andrew MacFarlane
Coquitlam College	Amanda Gronotte	UFV	David Fenske
College of the Rockies	David Dick	University of Northern BC	Andrea Gorrell
Douglas College	Paul O'Connor	University of Victoria	Violeta Iosub
KPU	Patrick Duffy	VCC	Diem-Ly Van
Langara College	Patricia Aroca-Oullette	Vancouver Island University	Jessie Key
		Yukon University	Ernie Prokopchuk

Guests:

Athabasca University (AB)	Lawton Shaw	BC OpenCampus	Melanie Meyers
BCCAT	Mike Winsemann	College of the Rockies	Darrell Bethune

1. Call to Order

9:05 am, Meeting Chair Todd Stuckless (Langara)

2. Welcome – Darrell Bethune, College of The Rockies (COTR), Dean of University Studies

- Dean Bethune opened the meeting with acknowledgement and thanks of the Shuswap and Metis nation on whose traditional lands the COTR campus is located.
- He recognizes the importance of articulation for COTR students, and the unprecedented challenges facing faculty in 2020. The hope is to return to classrooms in September, but much is uncertain.
- For articulation committees facing the challenge of interruptions, he addresses both the short term – what can the system do to support student programs and transfer through this crisis, and the long term – what makes more sense on a permanent basis for face to face for the purposes of articulation?
- Dean Bethune closes by noting that the relationship between students and faculty is the core of our post-secondary system

3. Presentation of BCCAT Report: Mike Winsemann

Reports are located on the Chemistry Articulation Committee Moodle

- Mike discussed how things are looking regarding articulation meetings this Spring: roughly 1/3 of the committees have decided to meet online, with 1/3 deferred until Fall, and 1/3 cancelled for the year.
- Online seems to be working out, with Zoom the most common platform, and Teams more challenging to work with though good for small meetings.
- There are major issues facing articulation this year, for instance the implications of changed grading schemes in response to campus closures, such as options where students are allowed to take pass or fail, or keep a regular grade. What impact might that have on transfer students when being awarded a transfer credit, and earning promotion within a program, can be two different things.
- There will likely be more case-by-case approach at each institution. With an acknowledgement of exceptions based on the circumstances of 2020.
- Committee members are encouraged to consult the “BCCAT System News” web page, which provides information in respect to alternative delivery and general institutional policies – and which can be updated daily.
- Chemistry articulation in particular must address issues around online labs. BCCAT has found that most institutions are offering to honor existing transfer after the move online.
- The Province’s intent, as of May, is for K-12 to be back to regular classes, with post-secondary in hybrid on-line and on-campus format. While hoping for certainty from the Ministry, there can be no clear direction yet. School Presidents and Academic VP’s have to be concerned about COVID resurgence in the Fall.
- Some committee members at the recent Anatomy/Physiology meeting spoke highly of on-line learning, that some students are more focused and attentive, and that it offered opportunity for innovation.
- A link has been sent to the Chemistry committee chair, where BC Campus is working on a curated list of online teaching resources. BC Campus is looking for volunteers in different discipline to develop labs online
- There is a regular update every Spring and Fall to highlight projects supported by BCCAT on transfer innovation. 70 such projects have been completed . The application process is being revised, now named the Articulation Committee Program (ACP), committee members are encouraged to apply for funding.
- Committees are being advised where BCCAT is finding transfer agreements which have not been reviewed in over 10 years. This is meant to be an awareness raising exercises, and institutions are requested to look at the list to see if the articulation is still accurate, and to update a current course outline to have sent out for re-articulation. With particular focus on first- and second-year courses. If there is substantive change to the course content, then BCCAT requires an updated agreement
- Discussion:
 - Around how the 10 year mark was decided.
 - Clarification on how to read the Excel spreadsheet.

4. Chemistry SLP – Margaret Heldman

- BCCAT’s Chemistry Articulation Committee has an important role during the pandemic. The trust member institutions have for delivering learning outcomes to ensure student success, is at the heart of our transfer system.
- Responses to the pandemic that would involve sweeping changes to articulation agreements, must be considered carefully for potential harm to student success, and to the trust between institutions.

5. Institutional Reporting and Roundtable Discussions

Complete institutional reports are located on the Chemistry Articulation Committee Moodle

University of Victoria – Violeta Iosub

- Institutional Change: new Dean of Science starting January 2020, Peter Look
- Departmental Change: 3 new hires
- Chemistry enrollments were similar to previous year
- COVID adjustments:
 - There are six courses offered in the summer CHEM 101, 102, 150, 231, 234, and 225
 - For summer courses with lab component (CHEM 101, 102, and 150), Labster is being used, and the weighting of lab was reduced.
 - The school has impressed with how quickly they were able to adapt to moving online, and by paying for the Labster license.
 - The department has not yet made a decision about labs for the Fall
 - Summer courses use Blackboard Collaborate and Zoom for lectures, delivered synchronously
 - The school is prioritizing senior students to help them graduate, less certain how to proceed with first and second-year students
 - Transferability is going to be a case by case basis provided the current situation, students will not be penalized for having labs online

University of Northern B.C. – Andrea Gorrell

- Enrolment numbers have been fairly consistent – roughly stable for the fifth year with current declared Chemistry majors
- Continue to offer an ‘off-semester’ version of Chem 100 in Winter semester (enrollment of 55) and the faculty strike in November is a likely reason for the increase from past-off semester offerings (40% higher).
- A three-year term position was hired for in August 2019.
- One faculty member is retiring as of June 30, due to Early Retirement Option planning by the institution, and a term position has been converted to a full-time continuing SLI position for Organic Chemistry.
- A Chemistry tenure-track position was one of a group delayed for 1-year before being able to hire.
- In the process of hiring for a one-year term position for general and analytical chemistry.
- New engineering programs at UNBC, increase in workload on admin, position was split and a new academic administrative assistant for Chemistry/Biochemistry was hired in February.
- Curriculum developments: The Provost response from 2017 external review has been received and there have been no changes to the chemistry curriculum
- Departmental Changes – faculty strike in fall semester interrupted November (and so two semesters in a row now where students have been impacted)
- COVID adjustments:
 - UNBC registration for 2020/2021 academic year has been delayed until June.
 - Currently evaluating virtual laboratory and other options for delivering laboratories this Fall.

University of British Columbia Vancouver – Andrew MacFarlane

- Departmental Changes/Updates: new faculty have been hired in atmospheric chem, machine learning applied to chem, and inorganic chemistry.
- New course introduced, CHEM 355 in response to inadequate preparation for third year Chem labs.
- There is a new address: bccat@chem.ubc.ca for updated program/course articulation enquiries.
- COVID adjustments:
 - Split lecture and lab components for several 100/200 level courses
 - New lecture-only courses offered in a distance format (online); lab course deferred until they are possible – no plan to replace practical hands on learning experience in Chemistry labs by means of virtual experiences
 - One-credit lab courses will be run once a return to campus is approved by government – providing students opportunity to catch up with their programs. Various options for course structure are being discussed. UBCV Chem 121 has 5 in person wet labs and 5 virtual labs (3 hours each). UBCV Chem 123 has 6 in person wet labs and 5 virtual labs.
 - After Summer 2020, new virtual-laboratory courses will not receive laboratory credit from UBC

Round Table Discussion:

- Colleges with smaller classes intend to run face-to-face labs, for instance North Island College are limiting to 8 people per lab, with PPE provided to students at cost to the department.
- Concern is expressed about how limits set by the Provincial Government might differently affect schools with different class sizes.
- How many years will the new UBC lab courses be offered (some transfer students take longer to complete their degree)?
- What if a course starts with in-person labs, but has to switch to remote labs half-way through due to new covid restrictions?
- Would a week-long in-person “bootcamp” of fundamental lab skills be sufficient?
- A large backlog of students who require lab credit to move onto second year might necessitate a bootcamp approach.
- Would students enrolled in the Fall in 4-credit courses with virtual-lab, still receive 4 credits total?
- Concern raised by Mike (BCCAT) whether UBC Registrar’s office/Enrolment Services, has been asked to review articulations. Transfer guide needs to be updated, with logistical issues based on the number of articulations.

University of British Columbia Okanagan – Tamara Freeman

- The 2019/20 enrollment at UBC Okanagan is over 9,643 undergrads, with 2,185 internal students, 1065 graduate students, 649 aboriginal students
- While UBC-O is in the process of hiring in an inorganic tenure-track research position, the search has been paused for now.
- COVID adjustments:
 - All chemistry courses have been cancelled for the summer.
 - A careful approach is being made to any online delivery. Currently in planning stages for first-year courses, combining synchronous and asynchronous instruction.
 - Third and fourth year students will need priority in access to teaching labs.
 - First year labs are scheduled to be a 3 hour period. Remote labs can be mixed with in-person labs to allow for more physical distancing.
 - There is discussion of extending the Fall semester for second year, by possibly extending an hour each week and by possibly starting one week earlier and ending one week later, to accommodate physical distancing.
 - UBC-O at this time will accept all standing articulations for transfer credits from institutions that have needed to make covid adjustments to their course delivery.

Simon Fraser University – Evon Khor

- Student Enrollments – 3% down from previous year
- Program/Course Update – CHEM 382 a new 4-unit lecture/lab course in chemical biology, which will be scheduled for Spring 2021
- COVID adjustments:
 - Spring 2020 Pass or Fail grade
 - Summer semester is completely online. Online labs are run asynchronous
 - Transfer agreements are still in place as usual

More Roundtable Discussion

- Confirming that for covid adjusted Summer courses, the current transfer agreements to UBC are still in place.
- How would schools assess high-school applicants who might not have completed a regular school year? This perhaps does not reach the department level, undergrad admissions being done through the Registrar's office.
- Can specific requirements for the transferability of COVID adjusted courses, be provided in time for September? And would any such adjustments, anyway be subject to further change as dictated by necessary responses to this health threat?

6. Guest Presentation: Athabasca University – Lawton Shaw

- First BCCAT Chemistry meeting for AU. Very limited travel budget.
- AU has a year-round registration system. Students are largely self-paced, with online instruction.
- Probably at least 10% international students
- The students first chemistry labs are offered through a very complete home-lab kit that is sent out to them.
 - Lab kits are re-usable
 - To purchase a kit on your own, about \$1000/kit.
 - Low loss rate, there is no deposit taken in a situation there is no grade given if kits do not make it back – but that rarely happens
- The students later labs are offered through a boot-camp method where students are on-site for a few days
- Students are advised that labs can be delayed in this current COVID-19 situation.

7. Further Institutional Reporting + Round Table (23 schools in reverse alphabetical order):**Yukon College University – Ernie Prokopchuk**

- Planning of new science building: push for instructors to have individual offices
- Searching for Dean for Applied Science Division
- Budget uncertainty for term positions ended April 2020
- COVID adjustments
 - Campus closed but most Spring chem labs were complete, courses completed by remote delivery
 - Alerted grading scheme – students had choice to take their grade; students who got D got a pass, students who failed could choose to withdraw due to COVID-19 and be given a W
 - Tentative plans for Fall 2020 include remote delivery of lectures with some combination of asynchronous and synchronous; willing to make face-to-face labs happen with 6 students per section; several sections will be taught.

Vancouver Island University – Jessie Key

- Enrolment in both first year and upper level courses for 2019/20, were similar to the previous year.
- Textbook list hasn't changed.
- VIU is in the process of hiring three new members: full time lab tech, two full time instructors
- Three new courses offered in 2019/20. CHEM 341, CHEM 400, CHEM 351
- CHEM 351, a 3 credit laboratory course, has no textbook, prepared through readings from library. No articulations yet.
- COVID adjustments
 - Remaining Spring labs cancelled; content delivered electronically by methods including pre-recorded lecture videos and Zoom lectures; ongoing use of D2L learning management system; final assessments done electronically with 'take home' or online assessments

Vancouver Community College – Diem-Ly Van

- VCC plans to offer Associate degrees in Science and Humanities
- Are doing new construction on the Broadway campus
- VCC offers 5 to 7 sections each of Chem 1 and Chem 2
- Enrollment has been stable, intend to maintain sections for the upcoming year.
- COVID Adjustments
 - For summer 2020, intend to offer Chem 1 and Chem 2 online

University of the Fraser Valley – David Fenske

- Annual enrolment has dropped slightly, from (2015/16) 1200 to 1100 this year; 7.3 % are international students.
- Upper level courses are being filled to capacity.
- Biochemistry major has been approved by Provincial Government beginning Fall 2019, Biology agreed that Chemistry should host it.
- Some major new equipment purchases this year.
- Continue to offer CHEM 110, 113, and 114 only on Chilliwack campus.
- Textbook list has not changed, TopHat was not satisfying for first year CHEM.
- COVID Adjustments
 - All courses moved online in mid-March, overall going well
 - Offering summer courses as usual but labs will be online and will involve student analysis of lab data and writing of reports – not using Labster, gave them data and got students to analyze that.

Trinity Western University – Paul Brown

- Early enrolment signs for 2020/21 are very positive; last Fall was up a little from previous year, but an unusual drop in Spring
- Revamped course for non-Chemistry major, CHEM 101 - concept corresponding to the BC Science Curriculum through grade 8; demand far exceeded expectations, cap of 65 due to space constraints
- Chem 101 summer (non-majors) labs done at home; 3 prong approach to use virtual labs, home labs and at least a set of skill focused labs that must be done in the lab on campus – boot camp type of idea
- Labs for research currently closed

Thompson Rivers University – Bruno Cinel

- No new courses offered or program changes
- New Dean in the Faculty of the Science, New President
- New Nursing and Population Health building will open soon
- COVID adjustments
 - Online delivery, no summer chemistry offerings, Fall we will see how it will play out

Selkirk College – Allyson Perrott

- Enrollment was down previous year, rebounded this year, but now concern how covid will affect numbers. There may be case-by-case entrance requirement adjustments.
- Department had not really used online teaching previously.
- Comparing next Fall to the completion of this Spring, the absence of prior face-to-face experience with the instructor may make it more difficult.
- There is certainly concern with students having adequate computer and internet access.

Quest University – Emma Davy

- New 3rd course in Organic Chemistry introduced, PHY 3211
- 2018/19 approximately 450 full-time students; Class sizes of 20
- Largely use open-education resources
- In January 2020, CCA status declared, court date late May.
- As a covid adjustment, students were offered Pass/Fail grade option – but no student took it.

Okanagan College – Jasmine Korcok

- OC Penticton has setup the BC Beverage Technology Access Centre, to provide R&D services to the beverage industry. Chemistry faculty are working with students and a technician on research projects.
- Hiring for term positions for the Fall proceeding as normal, with expectation of returning back to campus
- COVID adjustments
 - Students offered late withdrawal option even after receiving grade
 - Cancelled summer offering for first year course
 - Labs usually have 20 students but decreased to 10, health and safety committee ensured there was enough physical distancing between students.
 - In the standing Collective Agreement, there is no online delivery of courses as assignable work, and no established workload measure for it. For the summer, online courses have been granted a 15% increase in workload measure.

North Island College – Sherrie Wang

- First year CHEM down across the college, second year has been strong, international students have subsided in Science.
- 2020/21 Plan: delivering courses digitally in Fall and Winter, synchronous delivery online for lectures; labs planned for blended delivery with both unscheduled digital delivery and scheduled face to face.

Langara College – Patricia Aroca-Oullette

- All Langara chemistry courses have replaced commercial textbooks with online resources.
- COVID adjustments
 - Spring semester option of NG grade, important for visa status of international students
 - Spring exams had some creative approaches: *“We reserve the right to exam students orally on concepts in the exam if there are concerns wrt integrity”*; some instructors cut the exam to 50% exam, 50% oral exam
- There is a drop in enrolment numbers for the Summer, hopefully not catastrophic.
- Planning for on-campus laboratory classes in the Fall, satisfying provincial guidelines around covid transmission, is being undertaken.

Kwantlen Polytechnic University – Patrick Duffy

- Enrollment is strong in Surrey, down in Richmond
- COVID adjustments
 - Remaining Spring labs (two or fewer) were cancelled, with grading scheme adjusted accordingly.
 - Summer courses entirely on-line, in both synchronous and asynchronous modes, primarily using Big Blue Button (a Moodle plugin), and Beyond Labs.
 - Possibly same approach for the Fall semester, but also exploring option of “lab boot camp”

Douglas College – Paul O’Connor

- Virtual labs for the summer, McGraw Hill has an older platform for free virtual labs that will be used
- Beyond Labs being explored as well

College of the Rockies – David Dick

- Enrollment decreased slightly from previous years.
- Chem 115 expanded from 3 hours to 4 hours per week – worked well for covering the large amount of material. Still a 3 credit course, instructor paid an extra hour.
- Associate of Science in Environmental Science revised for Sept 2020 (CHEM 215 course will be sent for articulation).
- New COTR residence opening planned for Sept 2020, but will depend on the covid situation.
- March 23 went to online lectures – organic chem done synchronous, which worked well

Coquitlam College – Amanda Gronotte

- Decrease in science enrolment, and in CHEM 101/102. Increase for Assoc. of Arts.
- More of the international students are from south Asia, coming in with less math/science background, and so perhaps making the Arts program more popular.
- New course articulated CHEM 110-3 (Intro Chem, no lab component), not yet offered.
- COVID Adjustments
 - Final three weeks of the Spring semester delivered online, in both synchronous and asynchronous format.
 - Using the McGraw Hill platform for labs for Summer 2020.
 - Planning for Fall 2020 is in progress.

Columbia College – Taraneh Lajevardi

- Enrolment is strong and steady, over 90% are international students
- Summer 2020 courses will be delivered all online
 - Combination of virtual labs, pre-recorded videos, and some 'kitchen' chemistry
- DQAB, Degree Quality Assessment Board, Organization Review last year
 - course outlines were reviewed in detail, recommendations received, and course outlines subsequently will be updated
 - question of whether to wait for submission for re-articulation until things calm down with pandemic

College of New Caledonia – Lyndia Susag

- New CHEM 150 course, 3 credit – hoping to offer it in the Fall.
- Planning is in progress for how labs will be delivered during the pandemic.
- New Aboriginal student housing is being built by the City of Prince George, and will accommodate 12 first year students.

Coast Mountain College – Reto Riesen

- Stable or slightly higher enrolment than last year
- Few of the new influx of international students have ended up in Chemistry
- There remains a persistent weakness in math for new domestic students at the Rupert campus
- Most Spring labs had been completed before covid lockdown, BlueJeans used for on-line instruction, grading schedule was adjusted but not that big of a difference; open book exams administered .

Capilano University – Urmila Deo Jangra

- Enrollment is down, particularly of domestic students, perhaps due to the local demographic aging, with high property values all around, requiring more commuting by students. Base funding going down.
- A particular decline in enrollment for Engineering transfer programs this year.
- No changes to faculty this year, Mark Vaughan is chair-elect of the School of STEM
- DFW grade rates for international students were comparable to for domestic students
- Bachelor of Science General Degree on the agenda for the DQAB meeting of April 29, 2020 - still awaiting feedback
- Benchtop NMR purchased, to be integrated into 2020-2021 courses
- Consider articulating CHEM 211 which is modelled after UBC CHEM 233/235 and CHEM 215
- Architectural firm hired to draw up plans for a lab renovation
- For the Spring term, weight of assessments were increased for assignments/labs/exams that had already been completed before the lockdown.

Camosun College – Neil Meanwell

- Department continued to experience healthy demand for College prep and first year; strong enrollments in second year courses
- Chem 221 will be offered in Fall semester as opposed to Winter semester
- Chem 253 will be offered in Winter semester as opposed to current Fall and Winter semesters
- COVID-19 response for Summer semester is to be taught all online, Chemistry decided not to use any commercial online lab product for these courses
- Chem 070, 110, 121, and 231 are fully enrolled with long wait list
- Fall semester – loss of revenue anticipated from international students, therefore all TBA sections have been cut
- C3 conference was held at Camosun from May 24 to May 26, 2019
- Construction of the new Centre for Health and Wellness at the Interurban Campus was completed late in 2019

BCIT – Jimmy Lowe and Jennifer Wolf

- In discussion and planning for lab renovations (six vacuum pumps recently purchased)
- Changed assessment weighting for Spring semester, and all failing grades got converted to LW
- BCIT has no summer chemistry courses.
- In Fall 2020, all lectures will be online; some labs will be in-person, depending on the course.
- BCIT Chemistry teaches into various diploma and degree programs, so each instructor is working with the programs they teach into to determine the amount of on-campus work (i.e., labs) each program needs. Some will be doing all online labs (combination of virtual labs and other online activities designed to teach core learning objectives); others will be likely be doing some in-person labs (up to 4 weeks of in-person per class).
- No official BCIT travel until December 31, 2020

Alexander College – Jason Mirzaei

- Student enrolments have increased over the course of the last two years, allowing more selectivity in admissions.
- Adjustment in recruitment policy, for more balanced intake across nations
- Fall 2019 term, first year chemistry sections have capacity of 35 students
- Spring online delivery method was initially BlueJeans but now using Zoom
- Virtual labs for Spring 2020 conducted via Zoom and Canva LMS
- Open source textbooks
- Sapling learning used as supplementary tool quizzes/assessments

8. BC OpenCampus – Melanie Meyers <https://opentextbc.ca/oerdiscipline/chapter/chemistry/>

- Funded by Province to develop means for students to not need to purchase textbooks
- The open education resources of BCcampus have provided a savings of over \$18 million for students, 3.8 million dollars in the last year.
- About 10 institutions have adopted open educational resources in Chemistry, with leading institutions being Douglas, KPU, TRU, BCIT, and Langara
- The largest uptake of open source in STEM seems to be in Physics
- Update regarding STEM projects
 - Working with VCC on a textbook for AutoCAD
 - Mapping the associate science degree program to see if there is a possibility of a complete credential with open source textbooks.
 - The Engineering 1st-year common curriculum to have a pathway to zero textbook cost for students
 - Working on open homework systems
 - How to create a free homework systems
 - Recently called for proposals for HSP – interactive question bank, grants available up to \$10,000 <https://h5p.org/>
- Pivot to online
 - Links provide for
 - upcoming events: <https://bccampus.ca/events/>
 - past event recordings and resources: <https://bccampus.ca/about-us/reports-and-reviews/>
 - Working with BCCAT to create a resource for online virtual labs
 - How are the exams going to be run this Summer?
 - ideas have been discussed overall in the meeting, what is it that we need to assess, looking to put together some solid resources that will be available regarding this

9. Closing Business

- Date and location for next meeting
 - discussion whether virtual or in person meeting, COTR hopeful to host in person.
 - given uncertain circumstances, no decision made regarding the next meeting.

10. Meeting Adjourned by Todd Stuckless 5:00 pm