

THE BRITISH COLUMBIA COMMITTEE ON THE  
UNDERGRADUATE PROGRAM IN MATHEMATICS AND STATISTICS

MINUTES OF THE 101<sup>th</sup> MEETING, May 16-17, 2023  
University of the Fraser Valley, Abbotsford campus, British Columbia  
(in person and online)

TUESDAY, May 16, 2023

**Plenary Session #1**

**1. Welcome and Opening Remarks**

Deanna Baxter (Chair) welcomed the in person and online participants to the 101<sup>th</sup> meeting. It was agreed that online voting was to occur virtually by raising “hand” in ZOOM where not raising a hand signifies a “yes” vote.

**1.1 Welcome from the Host Institution – Dr. Lucy Lee, Dean of Science, UFV**

Dr. Lee welcomed the articulation members and made a territorial acknowledgement. Emphasized the importance of greeting in a variety of languages helps bring people closer. Wished all a productive meeting.

**2. Adoption of Agenda**

**Motion: That the agenda for the 101<sup>th</sup> meeting be approved with the amendment of moving item 5.5 ABE report and item 5.6 Changing the Culture to after the Keynote Address. M – Natasha Davidson, S- Brian Wetton. Approved by consensus.**

**3. Approval of Minutes of 100th Meeting held by Zoom, May 17 & 18, 2022**

Recommendation that the minutes of the 100th meeting be approved the next day.

**4. Announcements**

**4.1 Introduction of Representatives**

Chair scrolled down ZOOM participants list and invited individuals to introduce themselves. Round table in-person members also introduced themselves.

#### **4.2 Notice of election.**

Notice of elections: at this meeting, elections for the Vice Chair and Secretary of the BCcupms and Secretary for the Statistics Subcommittee will be held. These have two-year terms. Formation of a Nominating Committee for math was formed (Susan Oesterle, Susan Chen, Deanna Baxter).

#### **4.3 Conferences**

(Kseniya Garaschuk) Women and Gender Minorities in Math Groups Summit Meeting.

(Natasha Davidson) Canadian Mathematics Education Study Group.

(Justin Gray) Society for Teaching and Learning and Higher Education Annual Conference in PEI.

15-minute break

### **Plenary Session #2**

#### **5. Reports**

##### **5.1 Ministry of Education – Ana Ver Waddington (via Zoom)**

-Competency-based curriculum. There are the core competencies and the content. Value is placed equally to both content and competencies. The student reporting policy is also changing.

-Classroom Assessments and Reporting. Ministry is also redesigning the classroom and provincial assessment framework. Key findings from the Literature Review were that there is a real need to focus on proficiency. Report cards with letter grades have found to reduce motivation. The framework allows to move towards high level learning standards using descriptive feedback.

-Through portfolios, oral assessments, projects, use of self or peer assessment or student-led assessment has been found to be very motivating for students and helps them learn more and be more excited about the work that they're doing.

-Numeracy is defined by the province as a student who is able to interpret a real-world problem, apply their knowledge learned in math classrooms and beyond to solve that problem.

(Melania Alvarez) How can teachers be supported and become successful in teaching math.

(Ana Ver Waddington and Nick Poeschek) (Ministry-Director for curriculum and classroom assistance) suggested that teachers can be informed by the Association of Math Teachers which put on an amazing conference every year in October where teachers share their best Math practices.

(Deanna Baxter) asked if there still will be letter grades for grade 11 and 12, instead of the Provincial Proficiency Scale.

(Ana Ver Waddington-Ministry) answered that letter grades will still be in effect.

## **5.2 BCCAT-Mike Winsemann (Director, Transfer & Technology) (via ZOOM)**

Highlights of the presentation were:

BCCAT Spring Update: <https://www.bccat.ca/pubs/Resources/ACUpdate202304.pdf>

-Conversations concerning AI and Chat GBT. There are concerns about whether this is going to change the entire paradigm of how we deliver education to students. There are concerns about the potential for academic misconduct, whether intentional or unintentional, as students use the AI tools to complete their assignments.

-BCCAT's mandate is to encourage institutions to develop policies and practices regarding the transferability of post-secondary credit and to facilitate the development of credit transfer arrangements through oversight of articulation committees.

-Reciprocity tool. The Transfer Credit System now identifies opportunities to create reciprocal agreements when a course transfers directly to another. A reciprocal agreement enables a student to receive credit for courses regardless of whether they are transferring in or out of an institution.

-In the 300,000 course-to-course agreements, about 45% of the agreements include some form of unassigned credit.

-About 30% of courses have not been reviewed in 20 or more years. Encouraged to review our courses as many of them may have a direct credit equivalency available now.

-When an agreement is created, a five-year anniversary period is set, so that when it reaches that anniversary milestone there is a notification that goes to the institution to review the agreement.

-BCCAT YouTube channel has a lot of information.

-New Publication: Collection and Use of Student Data on Race, Ethnicity, and Ancestry  
<https://www.bccat.ca/intro/REASStudentData>

-Next year's JAM meeting (the biggest transfer credit conference in Western Canada) will occur Nov 2-3, 2024.

## **5.3 BCcampus – Clint Lalonde, Director of Open Education for BC (via ZOOM)**

Main highlights from Clint Lalonde's presentation (online):

- FLO Panel: Artificial Intelligence in Post-Secondary Education, a B.C. Perspective. May 23, 2023 @ 10:00 am – 11:30 am.

- Pilot project that's coming up using a platform called Libre Texts. It is an open textbook platform that includes adaptive learning and homework. It contains a lot of interactives and its based out of California.

- Grants to instructors to pilot LibreTexts in their class:

CFP – June 2023

Grants awarded – August 2023

Pilot Winter (Jan-April) 2024 term

Details will be released via BCcampus newsletter. Subscribe at [Bccampus.ca/subscribe](https://bccampus.ca/subscribe)

-A new openly licensed course that is in our collection is Intermediate level Math for our ABE programs.

- Provincial Ministry's new provincial digital learning strategy. The Digital Learning Strategy outlines strategic priorities, recommended actions, guidance, and resources to support the post-secondary system with digital learning in B.C. The strategy was developed by the Digital Learning Advisory Committee, a collaborative effort between the Ministry of Post-Secondary Education and Future Skills and subject-matter experts from across B.C.'s post-secondary system.

#### **5.4 PIMS – David Leeming (via ZOOM) (report included in Supplemental Reports below)**

- PIMS's Education Associates program for BC institutions and Alberta are eligible for money for math outreach. \$500 a year. There are four associates in Alberta. All four of the institutions in Alberta have a requested and received money for outreach this year. And of the thirteen in BC, only three or four have requested money.

- Mingo: a mathematical type of Bingo.

-Coast Mountain College hosted the BC. Secondary Math Contests for both the junior and senior students.

Break for Lunch at 1:15 pm

#### **Keynote Address 1:10 PM**

*NITEP Students as Educators - What I Learned from Sharing MFEE in Bella Coola* – Dr. Stan Manu, Associate Professor of Mathematics, UFV

-Dr. Stan Manu presented on his background, how he accepted this project, going to Bella Coola and the challenges he faced while teaching math to a cohort of indigenous students. He mentioned that the students also faced many challenges and especially learning math.

He taught MATH 105 to a group of 13 students that needed an elective; It was a condensed course of three weeks and all but one student did well in the course. The majority of the students were young women.

(Deanna Baxter) thanked the speaker and mentioned the importance of having indigenous students learn in their own environment.

(Natasha Davidson) asked if there will be an invitation back to the community. Stan replied that UBC manages the process.

(Costa Karavas) expressed that many of the challenges Indigenous students face in learning are similar to adult basic education students going back to the classroom after a long hiatus from school.

(Deanna Baxter) expressed how it can be extremely helpful for the BCCUPMS group to share experiences that institutions have from their work with Indigenous students. Capilano has an Indigenous student center where students can drop- in and get assistance.

(Eugene Belchev) asked if the student presentations can be shared, at least the slides without the photos. All this work from Indigenous communities can be helpful in steps of indigenizing the curriculum.

### **5.5 Adult Basic Education – Costa Karavas (VCC) (In person) (report included in Supplemental Reports below)**

Main highlights from Costa's presentation

-Adult Basic Education (ABE) working groups function as articulation committees and exist for many subject disciplines. Each working group reports to the Adult Basic Education Steering Articulation Committee. Working group chairs attend the meetings of both their working group and the steering committee each year.

- The ABE Steering committee articulates courses in various subjects and levels against well-defined learning outcomes contained within the ABE Articulation Handbook. This handbook is published each year by the Ministry of Advanced Education and Skills Training and is available on the BCCAT website.

-Adult Basic Education Articulation Handbook in the BC Transfer Guide online

-In 2021 BCCAT completed a project whereby the ABE articulation handbook was moved into a proper database to enable for a searchable guide in the BC Transfer Guide (now available at <https://www.bctransferguide.ca/transfer-options/adult-basic-education>). This included course equivalencies from 2020 onward. Currently, BCCAT is collecting from the various articulation groups updates to course listings in 2023.

- ABE institutions brought forward courses that needed to be re-articulated.

- Comprehensive review of learning outcomes for Advanced Algebraic level (equivalent to Pre-Calculus 11).

- BCCAT Annual Update—Mike Winsemann, Director, Transfer and Technology, BCCAT.

- ABE Steering Committee Update—Shantel Ivits and Stephanie Boychuk (VIU) Co-chairs, ABESC.

- Next year meeting on May 7-8, 2024 at Capilano University.

(Susan Oesterle) mentioned that for ABE courses to transfer between institutions a 100% fit is required. ABE courses are mandated to have at least an 80% fit with the high school curriculum. Asked how is the ABE math committee and its members dealing with the changes to the high school math curriculum.

(Costa Karavas) replied that the ABE math courses continue to have a greater than 80% fit, and that the ABE curriculum thought its structure of core and optional learning outcomes makes this task easier.

### **5.5 Changing the Culture Conference (Friday, May 19, 2023). Malgorzata Dubiel (SFU)**

This year it will be an in-person conference at SFU harbour Centre. Workshops on Zoom didn't work that great. Geometry is an important topic and schools have been neglecting it. Geometry was the first axiomatic theory of mathematics, and therefore teaching geometry is important for general education. One of this year's workshop is on Geometry and Conics presented by Natasha D (Douglas)  
<https://www.pims.math.ca/educational/changing-culture>

### **Plenary Session #3**

#### **6. Matters Arising from 100th Meeting**

(Gary MacGillivray) discussed about the low achievement of 1<sup>st</sup> year students.

(Costa Karavas) mentioned that the discussion on online learning assessments at the heart of COVID was very beneficial.

(Natasha Davidson) raised the issue of Artificial Intelligence and how we are responding to this new issue. Brief discussion of potential usage of AI for math.

(Deanna Baxter) An academic misconduct to a naïve student caught using AI for their work can have devastated consequences for the student, especially to their self esteem, their finances, etc. The potential for danger to the students is very real. We need to have conversation with our instructors every time a new cohort of students start. Institution might look into ways of dealing with academic misconduct. AI is a bigger discussion for courses that have a lot more writing context.

(Brian Wetton) Chat-GPT is not very good in computation and problem solving, at least when it was released in November. But it could make use of a computational search engine like Wolfram Alpha.

(Deanna Baxter) We're all waiting for institutional policies to deal with AI in our schools. Some instructors in the humanities have resorted to oral exams.

(Deanna Baxter) asked how many members will be attending in person next year's BCCUPMS meeting at Douglas College New Westminster campus. The majority of the current in person members committed to attending also in person next year. Next year's meeting will be in person with online options.

#### **7. Institutional Reports (highlights) Part 1 (appended in the minutes below)**

Institutions in alphabetical order outlined highlights from their reports relating to enrolment, new courses or programs, delivery mode and OER. Institutional reports are attached the end of this report.

Break was not taken, as previous break was longer, and the committee continued with more institutional reports.

**Plenary Session #4**

**8. Institutional Reports (highlights) Part 2 (appended in the minutes below)**

Continued with reports.

Adjourned for the day at 5:10 pm

Greek Dinner 6:30 PM Greek Islands Restaurant, 2686 Langdon St, Abbotsford.

## WEDNESDAY, May 17, 2023

The chair shared the agenda for Day 2, opening the meeting by welcoming the participants.

### Plenary Session #5

Minor amendments to the minutes of the 100<sup>th</sup> minute were suggested, and corrections were made.

Discussion on having the institutional reports attached to the minutes of the 100<sup>th</sup> meeting. Costa Karavas will append the institutional reports, currently in a separate file on the BCCUPMS website, to the minutes of the 100<sup>th</sup> meeting. Members wanted more time to go over the minutes.

**Motion: To move the approval of the minutes of the 100<sup>th</sup> meeting to the afternoon. M – Deanna Baxter S- Brian Wetton. Approved.**

### 9. Committee Business

#### 9.1 Webmaster's Report (report included in Supplemental Reports below)

(Deana Baxter) recommend to change the title from “Webmaster” to “Website Coordinator”

(Stephen Brown) gave an overview of the BCCUPMS website. A plan was purchased through *Wordpress* through personal funds of approximately \$80. Discussion on ways of funding the maintenance of the BCCUPMS website were expressed. Some ideas were donations from members, funding from BCCAT, funding from PIMS, articulation expenses of the host institution, etc.

The committee members expressed that the website looks nice and informative. Stephen recommended that he can also include images of the committee members. He also thanked Ian Affleck and Leo Neufeld for their many years of maintaining the BCCUPMS website.

#### 9.2 Report from the Nominating Committee and Election(s)

The nominating committee reported that: Costa Karavas accepted the nomination for Vice-chair of the BCCupms, and Sandra Merchant accepted the nomination for Secretary of the BCCupms.

Call for nominations: three calls for each and nominations were accepted as recorded above.

#### 9.3 Location, Dates, Agenda items for 102st Meeting

Offer from Douglas College, new Westminster campus to host the 102th meeting on May 14-15, 2024. The meeting will be in person with online options.



#### **9.4 Proposed Dates and Location for 103<sup>rd</sup> Meeting**

Offer from Okanagan College to host the 103th meeting on May 13-14, 2025.

#### **9.5 List Updates**

(Gary MacGillivray) Email Gary M. whoever wants to be included on the Math email listserve.

(Susan Chen) Email Susan Can whoever wants to be included on the Statistics email listserve.

#### **Break**

#### **Parallel Session #1**

#### **10. Math Break-out Discussion Part 1**

(Deana Baxter) Some items were suggested from an email sent out in the Spring asking for items for discussion. Committee members proposed the following topics:

(Deanna Baxter) Indigenizing the math curriculum. Suggested to invite an indigenous educational representative in our articulation committee for next year.

(Deanna Baxter) Formula sheets and calculators.

(Natasha Davidson) IB courses and their transfer credit.

(Gary MacGillivray) Achievement of first-year students.

(Kseniya Garaschuk) Create courses, keeping in mind the first people's principles of teaching and learning, and knowing. It is very important for instructors to go out of their way and do their own learning on Indigenization first.

#### **-Discussion on Indigenizing the math curriculum**

(Deanna Baxter) Perhaps we can host on the BCCUPMS website resources on indigenization of learning and teaching.

(Wayne Broughton) It is important that we have some sort of structure to try to move forward with this rather than just the occasional speaker. Suggested a subcommittee be formed to look into this. We

don't want to be trying to ask indigenous people to take the burden of educating us. But, on the other hand, we don't want to be moving forward without authentic, indigenous input, like, we need indigenous people to be involved in this. I'd also support the idea that we should maybe have some funding.

(Deanna Baxter) Indigenizing the curriculum is not something we're going to do overnight. Some students will engage better if if they actually see how the math is actually useful to them in their program, in their lives, in their own experiences.

(Justin Gray) Would like to make a formal request to include Indigenous resources on the BCCUPMS website.

(Eugene Belchev) Asked who will be the target audience for such a repository of materials.

(Natasha Davidson) The target audience is all of us, because this is actually the directives that you're getting to indigenize your curriculum.

(Kseniya Garaschuk) It is something that we can all benefit from as learners and educators.

(Costa Karavas) Mention to send to Stephen relative links of Indigenization resources and also to include the name of the contributor on the website, in case others want to contact the contributor of the link for more information.

(Stephen Brown) also suggested a short discussion on any contribution to the website.

### **-Discussion on formula sheets and calculators**

Free form discussion from many committee members on this widely discussed topic in many past meetings. The policies concerning the use of formula sheets and calculators varied amongst the institutions. The major highlights were: Some institutions allow graphing calculators on tests while others do not. Douglas College has a rental program of graphing calculators through their bookstore. Some institutions allow formula sheets, while others allow students to bring in a “cheat sheet” with formulas but no solved exercises. Students who create their own ‘cheat sheet’ can also benefit by learning from the process of creating one. They use it as a learning tool. Desmos is becoming popular as a graphing utility. Equity issue was raised where some students have their own graphing calculator, and some do not. Memorizing the table of derivatives is just a low-level learning. Students spend way too much time preparing these sheets and not enough time thinking about the ideas and working through problems. SFU math never permitted or encouraged students to use a graphing calculator. Many schools do not have a department policy and is left to the individual instructor. For statistics courses many institutions provide formulas.

Some exams are separated into a non calculator part and a calculator permitted part. For multi section courses some institutions do have a calculator policy. Most institutions leave it up to the instructor to decide the use or not of a graphing calculator. For larger institutions it makes sense to be more consistent on policies around the use of formulas and graphing and calculators.

## **11. Stats Break-out Discussion Part 1 (See Stats Subcommittee Meeting Agenda)**

Lunch hosted by UFV.

### **Parallel Session #2**

## **12. Math Break-out Discussion Part 2**

### **-Discussion on IB courses and their transfer credit.**

(Gary MacGillivray) Talked about the SL and HL courses. Each one is separated into “analysis and approaches”, and “applications and interpretation”. The detailed curriculum is not available on the IB website. Discussion on how IB math can be related to transfer credit with Calculus I and II.

(Natasha Davidson) To find out about the curriculum, you can write a letter to them from your institution on institutional letterhead to indicate the you are looking for the IB math curriculum.

(Patrick Montgomery) A difficulty that was identified was the modular approach of the IB curriculum. They have allowed it as a three-credit course for first term Calculus, unless they are in a program that really requires for students to take Calculus I.

(Gary MacGillivray) In the transfer guide, no institution gives credit for SL. Gary displayed the total number of teaching hours, commented on the various parts of the curriculum and their math rigor for both analysis and approaches”, and “applications and interpretation”, the allowed technology usage. All these are important to consider for transfer credit.

(Justin Gray) For the analysis and approaches course with a score of 6 or higher, we give credit for Calculus I and II. Otherwise, we give 6 credits of unassigned credit. For the applications and interpretations course the score of 6 or higher we give credit for calculus, one for business, social sciences, and intro stats, otherwise we give 6 unassigned credits. The applications and interpretations stream has less calculus, content and there's quite a bit of stats in there.

(Justin Gray) The number of hours of instruction is sufficient for what we transfer, particularly since the applications and interpretation stream carries only one calculus course.

(Kseniya Garaschuk) It is important to teach problem solving and not spend time on teaching basic precalculus skills.

(Eugene Belchev) Who decides on the transfer credit when it is requested online at the institution from the moment there is no detailed explanation of the curriculum.

(Gary MacGillivray). There is an integrated way of teaching all of the topics in the IB curriculum. There are limitations when one seeks to equate to our calculus courses. Displayed learning objectives which are more like program level objectives rather than course learning objectives.

(Deanna Baxter) It is very difficult to assess transferability when number of hours are different and there is not a lot of significant overlap.

**- Achievement of first-year students.**

(Deanna) The pandemic had an effect on student learning. The curriculum also was not taught normally. High level of stress among the students.

(Gary MacGillivray) That achievement is down all over first year Science. Maybe attrition is a little bit higher. Observing student grades sheets, and experience from teaching, you see lack of participation and a lack of student engagement. Some students basically did not show up to class and didn't do the required work on time. Students have been struggling to do well. They many times do not understand the language of mathematics. They're lacking the study skills.

(Jane Butterfield) There are students who had a completely different paradigm learning every year, and this keeps on changing on them. This has added a huge barrier to their learning success.

(Costa Karavas) Creation in the works of a course running parallel with Calculus I with topics directly related to Calculus I can help students become better achievers in Calculus I. This course is not a pure pre-calculus course. The incentive for students taking this course the same term along with Calculus I, is that they have a higher chance of achieving a better grade in Calculus I. Perhaps such a course can be offered tuition free under the Adult basic Education program.

(Kseniya Garaschuk) Would like to see what actual data we have on first year student achievement in order to draw conclusions from, and to identify where the problem is.

(Justin Gray) Gave examples on how we can help students get back on track if they have missed an assignment or test.

(Eugene Belchev) Two courses instead of one can help. But students, especially international students, prefer to take only one single 3 credit course as it is less work and less expensive than taking two courses for the same outcome.

(Sandra Merchant) There are benefits to having a cohort of students. They all experienced hard times coming out of the pandemic. Students were really engaged. We have an opportunity to improve the experience of our students.

Open discussion of various techniques was mentioned on how to improve student learning: giving points for attendance, engagement, slower pace, etc.

### **13. Stats Break-out Discussion Part 2 (See Stats Subcommittee Meeting Agenda)**

#### **Break**

#### **Plenary Session #6**

### **14. New Business**

#### **14.1 Highlights from parallel sessions (details will appear in the minutes.)**

- Indigenizing the math curriculum.
- Formula sheets and calculators.
- IB courses and their transfer credit.
- Achievement of first-year students.
- Some demand for some python-based statistics courses
- Project conducted at UBC from graduated students to look at all the take home assignments and compare to AI systems.

#### **14.2 Transfer agreement online form**

(Deanna) Highlighted that articulation reps of each institution can use the updated BCCAT online form to assess transferability of courses at their home institutions. Typically, the articulation rep resides at the Registrar offices in some institutions, and they receive the link. This link can be forwarded to appropriate faculty which perform the transfer course evaluation.

(Costa) There is an area on the form, called “internal comments” that can be used to provide some feedback on the evaluation decision to the sending institution.

#### **14.3 Sharing of Final Exams**

Discussion on bring to the articulation meeting Final exams. Discussion on identifying which courses to start off with. The BCCUPMS website can be used to host and share final exams, but this was identified as a problem since it is not username/password protected and open to non members. Dropbox, Google Drive, One Drive and WordPress all have limitations.

#### **Adjourn**

The meeting adjourned at 3:40 pm.

**Many thanks to outgoing chair Jane Butterfield and organizing hosts Ian Affleck and Ben Vanderlei for hosting us for this meeting.**

## Meeting with Teachers

### 15. Reports

#### 15.1 BCAMT Susan Robinson (via Zoom)

Shared current challenges teachers and students are facing currently.

Serious teacher shortage. Seems as though more teachers are on leave, but also fewer Teachers On Call are available.

The “new” curriculum isn’t really new any more, but change is slow and many people are still transitioning. You’ll see a wide range of pedagogical and assessment practices across the province and even within schools. Some good work being done on changing assessment practices, including interest in standards-based assessment. But now moving into a new reporting order; push from the ministry that in September K-9 will all be assessed on a four point proficiency scale with a focus on descriptive feedback. This is of course causing some teachers anxiety.

Desmos, graphic calculators, Desmos activities are popular. Supports engagement with both technology and peer-to-peer. “Test mode” in Desmos app allows students to use their phones without being distracted by the other apps on the phone.

#### Questions:

(Natasha) teacher shortage, issue of coverage. Who is covering? How are you doing? Do you get the coverage you need when you’re sick?

Varied responses: Very common to get warnings that LOAs at the last minute wouldn’t be approved because demand for coverage was already too high. Last minute requests to cover a colleague too, during their prep time. Not many people now who are full-time TOCs. In Surry, largest district in BC, failure to fill is increasingly common too. In Mission, over 5000 failures to fill last year – a TOC is requested but cannot be found. Doesn’t seem to be as bad this year, so far.

(Eugene) Why so many teachers on leave? Curriculum stress, post-COVID, something else?

Responses: So much change; being constantly asked to reimagine their jobs. Salaries aren’t changing enough. Violence in the classroom, with teachers being evaluated with PTSD as a result of violence they have to cope with in their classrooms. Teaching is not the same now as it was 25 years ago.

(Justin) New math and stats courses in the high school curriculum. To what extent are those new courses being offered?

Varied responses: In a small school (~600 students, grades 8-12) we've never offered the new ones, not enough students choosing one of them to justify running it. In Surry (large district), few and far between – maybe one school running Statistics, maybe one running Computer Science. Not History of Math or others. Need to have a champion teacher to drum up interest. Would be locally developed; that champion teacher would struggle to find the time to develop the course themselves, which is what they would have to do.

### **15.2 BC Secondary Schools Math Contest – Saeed Rahmati (report included in Supplemental Reports below)**

If you are interested in helping, please contact Suzanne F.; she would welcome new eyes helping to prepare questions. Note that next year it moves to March, from April, to avoid conflict with spring breaks. March 6<sup>th</sup> (preliminary) May 3<sup>rd</sup> (final).

#### **Questions:**

(Natasha) Why the need to write new problems? If a student has indeed seen hundreds and hundreds of contest math problems, and remembers how to solve all of them, they're surely going to be in the top ranks on these tests anyway. Do we really need to make sure to provide an entirely novel experience to the contestants?

(Deanna Baxter) Also want to make sure the test questions engage students, rather than discourage them. Don't just want to make them very hard. But don't want to have too many students scoring near perfect, either.

(Deanna Baxter) Did other institutions this year have trouble with schools wanting to bring too many students to the final round, because they had many students who did very well on the prelim?

Responses: UFV allows 8 participants per school, but you can choose how many juniors, seniors. Regardless of size of the school. Langara had more registrations than who actually showed up (historically doesn't limit the number of participants per school).

Teacher: Is it a priority of the group to run these contests?

(Deanna Baxter) It's sort of a side project, which the articulation committee supports. Not actually part of articulation.

Teacher: This contest model is a good way to provide a chance for a small group of students to show off their skills. But if you want to be inviting students in, this isn't really that format. Students who just love doing math, get blown out of the water in the competition setting. The top achievers are probably not going to a local university, so it's also not recruiting students to an institution.

(Natasha Davidson) Not coming in first or second can be discouraging.

Deanna: Afternoon activities that are not about competition can help to address that too. Other outreach activities are helpful. Outreach is important to so many of us.

(Dan Ryan) What is another format that might encourage kids to study math more?

Teacher: Speaking only for own students, the doing of the questions is why they're there, not the prize. But you do tend to get the same student winning in multiple years.

Varied: Other forms of outreach fun too. Problem-solving sessions, team contests, math circles. The BCAMT has been organizing math circles; see an example at <https://jrmf.org/>

(Saeed Rahmati) A student at TRU has started an event called Math Battles, pitting schools against each other in a creative way.

### **15.3 Math Challengers – Leo Neufeld (via Zoom)** See full report in the *Supplemental Reports* section.

Math Challengers (MC) is a competition for Grade 8, 9 and Grade 10 students who love math and excel in doing it.

This year about 950 students participated at the Regional level, which was down slightly from 2022. Grade 8 teams registered from 40 different schools, Grade 9, from 38 schools and Grade 10, from 38 schools. Students are also permitted to register as individual competitors.

The competition went back to being in-person, but with an online pool still included.

In-person, the competition has 4 stages: two individual written stages, one team session and the final (Face-off) one-on-one stage for the top 10 students. Online, the Face-off Stage is run first and is open to all registered students. The other three stages are held in individual schools.

The top schools from each grade level are then invited to the Provincial Finals competition, which was held at SFU (Burnaby) on April 29th this year. A travel subsidy is offered for schools in the outlying regions.

Regions, besides the main competition site on the Lower Mainland, are Lower Vancouver Island, the Okanagan and the Fraser Valley. Regional organizers are Satoshi Tomoda (Okanagan) and Ian Affleck (UFV). Colleges and universities within a Region are ideal sites for hosting MC.

### **15.4 Calculus Challenge Exam – Brian Wetton**

See [https://outreach.math.ubc.ca/calc\\_challenge.html/](https://outreach.math.ubc.ca/calc_challenge.html/) for details. To register your students, need to have a teacher volunteer for invigilation. Also an option for students to write it in person at UBC-Vancouver. Register by Friday May 26<sup>th</sup> for the test on June 7<sup>th</sup>, 2023. A 2.5 hour exam.

Note: Douglas College accepts the results of the exam as well but is not currently listed on the website.

Question from a teacher: How does it compare with the AP exam?

Justin G: SFU used to survey the students writing the test, and many of them were *also* writing the AP exam, so they were doubling their methods of getting university credit.



## 16. Open Discussion

(Alex Liu) Concerned about the semester system. Daughter is taking four semesters (quarters) now.

(Susan Oesterle): Across the province, a lot of schools moved into the quarter system in 2020/21 due to COVID, but lots of schools have moved back into semester system now. While there are benefits and cons of semesters versus linear, students really did not like the quarter system.

About 20-25 years ago it was investigated. Linear system was at that time best in terms of student outcomes, then semester, and quarterly the worse.

Look at it in terms of how much content of a course a student misses if they are out sick for just one week. They miss so much on the quarter system.

(Bruce Dunham) Lots of research that long courses are better, opportunities for interweaving.

Arguments for semester system always seems to be budget-driven, never pedagogy-driven. Although it can provide early graduation opportunities for some students, which parents can like. The quarter system was absolutely based on the pandemic situation, largely to reduce students' exposures to one another.

## List of Committee members Present

Plenary Session TUE (a.m./p.m.); Plenary Session WED (a.m./p.m.); Concurrent Math/Stat

Name	Affiliation	TUE	WED	MATH	STAT
Krishna Subedi	Alexander College	x	x	x	
Julie Peschke	Athabasca University	x			
Susan Robinson	BCAMT		x		
Clint Lalonde	BCcampus	x			
Mike Winsemann	BCCAT	x			
Simin Jolfaee	British Columbia Institute of Technology	x	x		x
Sandra Merchant	British Columbia Institute of Technology	x	x	x	
Patrick Montgomery	Camosun College	x	x	x	
Susan Chen	Camosun College	x	x		x
Leo Neufeld	Camosun College/Guest	x	x	x	
Deanna Baxter	Capilano University	x	x	x	
Marsha Anderson	Capilano University	x	x	x	
Mahshid Atapour	Capilano University		x		x
Reefat	Coast Mountain College	x	x	x	
Ben Tippett	College of the Rockies	x	x		x
Ana Culibrk	Columbia College	x			
Himadri Ganguli	Columbia College		x	x	
Gera Belchev	Coquitlam College	x	x	x	
Natasha Davidson	Douglas College	x	x	x	
Susan Oesterle	Douglas College	x	x	x	
Dan Henschell	Douglas College	x	x		x
Amir Bazargan	Fairleigh Dickinson University	x	x		x
Alex Liu	Kwantlen Polytechnic University	x	x	x	
Colin MacLeod	Kwantlen Polytechnic University	x	x		x
Eugene Belchev	Langara College	x	x	x	
Michael Lo	Langara College	x	x		x
Maja Grubisic	Langara College	x	x		x
Csilla Tamas*	Langara College		x	x	
Benjamin Willson	Lester B. Pearson United World College of the Pacific	x	x	x	
Ana Ver Waddington	Ministry of Education	x			
Jason Diemer	North Island College	x			
Dennis Lightfoot	North Island College		x	x	
Stephen Brown	Okanagan College	x	x	x	
Emilie Lee	Okanagan College	x	x		x
Benjamin Wilson	Pearson College	x	x	x	
David Leeming	PIMS - UVic	x	x	x	
Doug Henderson	Selkirk College	x	x	x	
Justin Gray	Simon Fraser University	x	x	x	
Harsha Perera	Simon Fraser University	x	x		x
Melania Alvarez	Simon Fraser University	x		x	

Nadia Nosrati	Simon Fraser University	x			
Malgorzata Dubiel	Simon Fraser University/ Guest	x			
Susan Oesterle	SLP/Douglas College	x	x	x	
Saeed Rahmati	Thompson Rivers University	x	x	x	
Mateen Shaikh	Thompson Rivers University	x	x		x
Iain Pardoe	Thompson Rivers University - OL	x	x		x
Sam Pimentel	Trinity Western University	x	x	x	
Costa Karavas	University Canada West	x	x	x	
Wayne Broughton	UBC Okanagan	x	x	x	
Bruce Dunham	UBC Vancouver	x	x		x
Brian Wetton	UBC Vancouver	x	x	x	
Dan.Ryan	University of Northern British Columbia	x	x		x
Ben Vanderlei	University of the Fraser Valley	x	x	x	
Kseniya Garaschuk	University of the Fraser Valley	x	x	x	
Longlong Huang	University of the Fraser Valley	x			
Gillian Mimmack	University of the Fraser Valley		x		x
Ian Affleck	University of the Fraser Valley/Guest	x	x	x	
Jane Butterfield	University of Victoria	x	x	x	
Gary MacGillivray	University of Victoria	x	x	x	
Mary Lesperance	University of Victoria		x		x
Costa Karavas	Vancouver Community College	x	x	x	
Glen Pugh	Vancouver Island University	x	x	x	

## Supplemental Reports

### BC Secondary School Mathematics Contest Report 2023

Reporting institutions are:

Capilano University	(CapU)
Douglas College	(Douglas)
Coast Mountain College	(CMC)
Langara College	(Langara)
Okanagan College/ UBCO)	(OC/UBCO)
Thompson Rivers University	(TRU)
University of the Fraser Valley	(UFV)
Vancouver Island University	(VIU)
North Island College	(NIC)

From the data we have, a total of *at least* 1015 juniors and *at least* 602 seniors participated in the Preliminary round, with average scores of approximately 24 for the juniors and 22 for the Seniors overall, (out of 60). Not all the data was reported for this round, so exact numbers are unknown.

The table below gives a summary of the number of students and the top scores (out of a possible 60) on the Preliminary Round at each institution that reported the Preliminary Round.

<u>Institution</u>	<u>Preliminary Round #</u>		<u>Top Three Scores</u>		<u>Averages</u>	
	<u>Juniors</u>	<u>Seniors</u>	<u>Juniors</u>	<u>Seniors</u>	<u>Juniors</u>	<u>Seniors</u>
CapU	127	68	60,60,55	60,55,51	29.5	27
CMC	No info	-	-	-	-	-
Douglas	No info	-	-	-	-	-
Langara	20	10	60,60,60	60,60,55	49.3	53.1
OC/UBCO	No info	-	-	-	-	-
NIC	125	24	45,44,43	44,35,31	24	25
TRU	121	135	47,45,40	60,50,42	19	19
UFV	267	106	48,47,47	50,42,38	25.8	20.9
VIU	364	259	51,47,45	48,42,39	22	21
<b>TOTAL</b>	<b>1015</b>	<b>602</b>	<b>60,60,60</b>	<b>60,60,60</b>	<b>24</b>	<b>22</b>

The table below gives a summary of the number of students and the top scores (out of a possible 100) on the Final Round at each institution that reported the Final Round.

<b><u>Institution</u></b>	<b><u>Final Round #</u></b>		<b><u>Top Three Scores</u></b>		<b><u>Averages</u></b>	
	<b><u>Juniors</u></b>	<b><u>Seniors</u></b>	<b><u>Juniors</u></b>	<b><u>Seniors</u></b>	<b><u>Juniors</u></b>	<b><u>Seniors</u></b>
<b>CapU</b>	18	16	100,96,83	96,95,91	47.2	42.3
<b>CMC</b>	6	7	76	62	48	41.5
<b>Douglas</b>	15	13	100,100,98	81,81,77	69.9	58.7
<b>Langara</b>	7	9	97,87,80	100,95,90	78.9	75.3
<b>OC/UBCO</b>	32	26	88,83,78	90,70,58	83	72.67
<b>NIC</b>	12	9	43,39,36	74,71,60.5	26.9	44.2
<b>TRU</b>	31	22	56,51,47	100,60,58	29	34
<b>UFV</b>	47	28	98,72,70	79,73,67	30.213	29.28
<b>VIU</b>	37	25	74,73,57	88,59,46	29.9	31.6
<b>TOTAL</b>	205	155	100,100,100	100,100,95	44.5	45.7

A total of 360 students, from the institutions reporting, participated in the Final Round this year. Province-wide, there were three perfect scores on the Junior contest and two on the Senior Contest, and the provincial average was 44.5 on the Junior and 45.7 on the Senior Contest.

This report, together with information on winners from the individual institutions, will be posted on the BCSSMC web site: <http://mathcontest.sites.tru.ca>.

**For those planning for next year, the dates we are suggesting for the 2024 contest are:**

**Preliminary Round: March 6, 2024**

*Note that there was popular demand to move the Preliminary Round earlier to avoid conflict with schools Spring Breaks.*

**Final Round: May 3, 2024**

Special Thanks to Ian Affleck (UFV), Paul Ottaway (CapU) and Ben Vanderlei (UFV) for their help assembling the first drafts of the contest papers at the Brainstorming Session.

Special thanks to Lucas Mol (TRU), Shirin Boroushaki (TRU) and Sean McGuinness (TRU) for their help in typesetting and proofreading the contest papers and solutions.

Special thanks to Lily Yen (CapU) for her help in proofreading, revising, and writing solutions.

All help is welcomed whether in the form of suggested problems, feedback, solutions and TeX typesetting! Please contact Suzanne Feldberg [sfeldberg@tru.ca](mailto:sfeldberg@tru.ca) if you are interested.

The Math Contest website is <http://mathcontest.sites.tru.ca/>. On it you will find the most recent provincial summaries, and previous contest papers dating back to 1999.

**Report updated on May 17, 2023 by  
Suzanne Feldberg  
Department of Mathematics and Statistics  
Thompson Rivers University  
This report will be updated if additional schools submit results.**

## May 2023 BCcupms Webmaster Report

**Representative providing this report:** [Stephen Brown](#)

**Email address:** [bccupms-webmaster@gmail.com](mailto:bccupms-webmaster@gmail.com)

To begin my report, I have to thank Ian Affleck for his many years of keeping the BCcupms website updated with meeting agendas, minutes, and photo galleries. After stepping down from the role of webmaster last year, I was happy to fill the role and give the website a new refresh, while keeping all of the useful content that we've collected over the years.

In the Spring of 2022, I worked with Ian Affleck and Chris Hall to import a substantial amount of content from the old site over to a new site hosted at WordPress. Their help in organising and transferring this content went a long way towards building the new site with minimal downtime.

Once the content was transferred over, design of the new site could begin. A small committee consisting of Asia Matthews, Ben Vanderlei, Michael Nyenhuis, Natasha Davidson, Suzanne Feldberg, and myself combed through the materials and design, with the goal of stripping back some of the unneeded pages and content and focusing on the relevant materials for meetings. The new site was finalized that summer and reflects what you see on [bccupms.ca](http://bccupms.ca) today. Thank you Asia for the awesome logo design!

Some debate was held on where to host the site, but the design committee agreed that having a host that was unaffiliated with any particular institution would provide some benefit. WordPress was an obvious choice with a long-standing reputation and ease of design. I initially purchased an annual WordPress Starter plan for \$94.08, but when I discovered that this plan did not give an ad-free experience, I opted to purchase an additional No-Ad add-on for \$40.32. Total expenses in 2022 totaled \$134.40.

More recently in 2023, I transferred ownership of the [bccupms.ca](http://bccupms.ca) domain from Ian Affleck so that it can be included in my annual costs. I also discovered this Spring that WordPress now has a Personal Plan that removes ads by default and only costs \$67.20 annually. I'm baffled as to why this plan wasn't offered a year ago, or why I wasn't given an opportunity to downgrade earlier. Annual website costs are now estimated at \$83.38 including the WordPress subscription and domain. I have included a PayPal donation button to the website in case that is how we decide to collect fees.

I welcome any feedback or suggestions from other members on the new site design. I was hoping to include profile pictures on the members page if there is interest from the committee. If there are changes to any institution representatives or reports to add to the site, please let me know and I can update the associated pages.

- Stephen Brown

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## ADULT BASIC EDUCATION (ABE) MATHEMATICS WORKING GROUP REPORT PRESENTED TO THE BCCUPMS MEETING, MAY 16-17, 2023

presented by Costa Karavas (co-chair ABE Math Working Committee)

Meeting: Adult Basic Education Mathematics Working Group

Date of meeting: March 2-3, 2023.

Location: *Kwantlen Polytechnic University, Richmond Campus*

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### 1. Adult Basic Education Articulation - Purpose and Goals

- i. Exchange information and enhance cooperation and coordination among institutions in Adult Basic Education courses.
- ii. Promote course and program equivalency.
- iii. Contribute to the facilitation of inter-institutional transfer credit agreements.

Adult Basic Education (ABE) working groups function as articulation committees and exist for a number of disciplines. Each working group reports to the Adult Basic Education Steering Articulation Committee. Working group chairs attend the meetings of both their working group and the steering committee each year.

The ABE Steering committee articulates courses in various subjects and levels against well-defined learning outcomes contained within the ABE Articulation Handbook. This handbook is published digitally each year by the **Ministry of Post-Secondary Education and Future Skills** and is available on the BCCAT website.

### 2. Adult Basic Education Articulation Handbook in the BC Transfer Guide

In 2021 BCCAT completed a project whereby the ABE articulation handbook was moved into a proper database to enable for a searchable guide in the BC Transfer Guide (now available at <https://www.bctransferguide.ca/transfer-options/adult-basic-education>). This included course equivalencies from 2020 onward. Currently, BCCAT is collecting from the various articulation groups updates to course listings for 2023.

### 3. ABE Math Articulation 2023

- ABE institutions brought forward courses that needed to be re-articulated.
- Comprehensive review of learning outcomes for Advanced Algebraic level (equivalent to Pre-Calculus 11).
- BCCAT Annual Update—Mike Winsemann, Director, Transfer and Technology, BCCAT.
- ABE Steering Committee Update—Shantel Ivits, Co-chair, ABESC.
- Next year meeting on May 7-8, 2024 at Capilano University.



## Math Challengers Report to the BCcupms – 2023

Math Challengers (MC) is a competition for Grade 8, 9 and Grade 10 students who love math and excel in doing it.

This year about 950 students participated at the Regional level, which was down slightly from 2022. Grade 8 teams registered from 40 different schools, Grade 9, from 38 schools and Grade 10, from 38 schools. Students are also permitted to register as individual competitors.

Registration Data for Math Challengers Regional Competitions										
	Lower Mainland		Vancouver Island		Okanagan		Fraser Valley		Online	
	2022	2023	2022	2023	2022	2023	2022	2023		2023
<b>Grade 8</b>										
Schools	23	20	5	7	1	3	8	2	-	8
Teams	41	30	21	17	1	4	18	4	-	13
Competitors	203	150	105	85	5	20	90	20	-	65
<b>Grade 9</b>										
Schools	24	21	2	4	1	3	8	0	-	10
Teams	37	35	9	8	3	3	8	0	-	18
Competitors	183	165	45	40	15	15	36	0	-	90
<b>Grade 10</b>										
Schools	23	20	2	2	1	4	9	0	-	12
Teams	34	32	9	6	3	4	11	0	-	19
Competitors	170	160	45	30	15	20	55	0	-	95

The competition went back to being in-person, but with an online pool still included.

In-person, the competition has 4 stages: two individual written stages, one team session and the final (Face-off) one-on-one stage for the top 10 students. Online, the Face-off Stage is run first and is open to all registered students. The other three stages are held in individual schools.

The top schools from each grade level are then invited to the Provincial Finals competition, which was held at SFU (Burnaby) on April 29<sup>th</sup> this year. A travel subsidy is offered for schools in the outlying regions.

This year plaques were awarded to top individuals and schools. Medals for Finalists, the top ten students in each pool, were awarded, as was the PIMS Medal, recognizing the top student in each grade from a participating school on Vancouver Island.

Decisions for 2024 are in progress and the online pool will likely remain. This year participants for this delivery mode were exclusively from Lower Mainland/Fraser Valley regions. The intent was to provide MC access to schools not in a designated Region. Marketing in this regard definitely needs improvement.

All this is possible because of dedicated volunteers and committed teacher coaches, as well as financial assistance from organizations like PIMS, BCHydro, IBM and EGBC. UBC, SFU, BCIT, Camosun College, Okanagan College and UFV provide generous competition-site hosting.

Regions, besides the main competition site on the Lower Mainland, are Lower Vancouver Island, the Okanagan and the Fraser Valley. Regional organizers are **Satoshi Tomoda** (Okanagan) and **Ian Affleck** (UFV). Colleges and universities within a Region are ideal sites for hosting MC.

I challenge you in, say, Central or Northern Vancouver Island, Kamloops, Cranbrook, Creston or other localities, to inform teachers in your area of the opportunity to run the competition right in their own school. All the needed information is on the Math Challengers website.

MC website: <http://mathchallengers.ca/>

Leo Neufeld: [leoneufeld@shaw.ca](mailto:leoneufeld@shaw.ca) May  
17, 2023

## **PIMS Education Associates Report to BCcupms – May 16, 2023**

### **Background**

The PIMS Education Associates program was an initiative of Ivar Ekeland, then PIMS Director, in 2008. Former PIMS Director Alejandro Adem was a great supporter of PIMS initiatives in math outreach and is responsible for the current model for the PIMS Education Associates. Currently, there are thirteen Associates in BC and four in Alberta. Each Associate institution is entitled to claim up to \$500 annually in receipted expenses related to math outreach events in their region. Currently, there are thirteen Associates in BC and four in Alberta.

### **PIMS Education Associates in Alberta:**

Red Deer Polytechnic	Grant MacEwan University
Mount Royal University	Concordia University Edmonton

### **PIMS Education Associates in BC**

Camosun College	College of the Rockies
Coast Mountain College	Douglas College
Capilano University	Langara College
Okanagan College	Selkirk College
Thompson Rivers University	University of the Fraser Valley
Vancouver Island University	North Island College
Quest University	

### **Reports from the BC PIMS Education Associates:**

Note: These reports may present in an uneven style. They are given here essentially as they were written by each Associate contact.

#### **Camosun College**

The main event for Camosun this year was BC Math Challengers. Leo Neufeld will be giving a separate report on BC Math Challengers. Other than that, we had two separate events. First, Pi Day on campus. Although that was supported completely by Camosun, it may be something that PIMS could help with in the future. Second, two faculty supported the Science Rendezvous\* event which is co-sponsored through Camosun and UVic.

\*UVic, Camosun and Ocean Networks Canada will be hosting Science Rendezvous for the second time in 2023. The event will take place on Saturday, May 13th, 2023 at UVic and Camosun Interurban from 10 a.m. - 3 p.m.

Science Rendezvous is a one-day STEM festival geared towards K-12 students. Explore STEM side-by-side with real, world-renowned scientists, engineers and mathematicians who live right here in Victoria.

### **Capilano University**

SNAP Math Fair in November 2022 and March 2023. The SNAP Math Fair is the main project for students in our Math for Elementary Teachers course and we invite local grades 4 and 5 students to visit our Math Fair as a morning field trip on a Friday.

BC Secondary Schools Math Contest in May 2023. We had 34 grades 8-12 students attend along with about 5 teachers.

Paul Ottaway was invited to St. Patrick Regional Secondary to give a talk to math students in fall 2022. This connection was a direct result of the teacher attending the math contest in May 2022 the previous year and seeing Paul's session with the students in the afternoon.

### **Coast Mountain College**

Coast Mountain College hosted this year's BC Secondary School Math Contest for both junior and senior students. Participants from Charles Hays Secondary in Prince Rupert and Smithers Secondary took part in the contest, with a total of 13 students from both schools competing.

After completing the contest, the students attended a talk on Emmy Noether and her famous theorem, which explains the relationship between mathematical symmetry and conservation laws of physics. The talk covered spatial, spacetime, and rotational symmetry, along with their corresponding transformations that have led to important results in physics.

At the end of the talk, the students participated in a demonstration of the conservation of angular momentum using rotational symmetry concept.

### **Douglas College**

Douglas College sponsored the BC High School Math Contest again this year. There were 34 participants, 19 junior and 15 senior - with the top three in both doing very well.

### **Langara College**

As in previous years, we continued to host the AMC\* series: AMC 8 - 30 students, AMC 10A - 12, AMC 12A - 12, AMC 10B - 11, AMC 12B - 8, AIME\*\* 2 - 9

\*AMC = American Mathematics Competition (grades 10 and 12), \*\*AIME = American Invitational Mathematics Exam

This year we hosted the BC Secondary School Math contest in person, the first-time post Covid: 16 students (7 junior, 9 senior).

In addition, a number of our instructors participated in this year's Greater Vancouver Regional Science Fair.

### **Okanagan College**

Math Contest: (partially funded by PIMS)

Fri., May 6, 2022

around 45 grades 8~12 students from ten schools

Math Challengers: (partially funded by PIMS)

Fri., Feb. 24, 2023

around 60 grades 8~10 students from six schools

Math Kangaroo:

Sun., Mar. 19, 2023

around 30 grades 1~11 students

### **Quest University**

My outreach activities:

Saint Margaret's School Math Circles in Victoria:

- 12 math circles throughout this school year (6 high school, 6 middle school)
- aimed at creativity and women in math
- topics include topology, graph theory, symmetry, applied math, and crypto
- Supported by USD5000 grant through MAA and a smaller sum through BCAMT

Collaboration support with teachers from Edgehill Elementary in Powell River

- Aimed at inspiring math teachers and supporting collaboration
- Supported by \$800 grant through BCAMT
- Games and resources provided through PIMS funding

Classroom games for individual teachers at Edgehill Elementary and Brooks Secondary in Powell River

- Cards and dice games donated to teachers via PIMS funds

Classroom visit at Edgehill Elementary in Powell River

- Mingo! (see <https://elenapolotskaia.com/mathematical-reasoning-development-games/mingo-games/>)

### **Selkirk College**

No outreach activities to report.

### **Thompson Rivers University**

The Department of Mathematics and Statistics at Thompson Rivers University (TRU) hosted the final round of the BC Secondary School Math Contest on May 5, Thirteen schools wrote the Preliminary round (121 Juniors and 135 Seniors). Ten schools from across the Thompson-Nicola region participated in the Final round of the contest

(31 Juniors and 22 Seniors along with 13 teachers). In particular, schools from Kamloops, Barriere, Merritt, and Williams Lake were among the participants. This was a day-long event from 9 am to 3 pm. In addition to Junior and Senior contests, other activities were organized for the day. While students were writing the contest, a discussion session with teachers and TRU math faculty was running where teachers and faculty connected to share their concerns and observations in their classes. Also, a keynote speaker was invited from The King's University to give a talk to all students and teachers after lunch. The event concluded with the award distribution. The top three students in each section of the contest received book prizes, and the top three Senior winners received a scholarship from TRU as well.

### **Vancouver Island University**

We had a number of on-campus activities for high school students: the annual BC Secondary School Math Competition as well as a couple of recruitment events involving math demonstrations. We have some new faculty who are enthusiastic about outreach and hope to organize some events for the coming year.

Thank you to those PIMS Education Associates who are taking the time to do Math outreach – whether or not PIMS provides financial support. For those providing numbers of participants for their various events there were over 700 students involved in math activities.

Also, thanks to the following individuals who contributed to the writing of this Report. Patrick Montgomery (Camosun College), Deanna Baxter (Capilano), Erfan Zahra'i (Coast Mountain College), Natasha Davidson (Douglas), Eugene Belchev (Langara), Satoshi Tomoda (Okanagan), Asia Matthews (Quest), Doug Henderson (Selkirk), Shirin Boroushaki (TRU), Ben Vanderlei (UFV), Glen Pugh (VIU).

## BCCUPMS Institutional Reports 2023 - Math

### May 2023 BCcupms Mathematics Report for: **Alexander College**

**Representative providing this report:** Krishna Subedi

**Email address:** [k.subedi@alexandercollege.ca](mailto:k.subedi@alexandercollege.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

There is a change in the leadership. Dr. Barbara Moon (our long-standing Dean of Arts and Sciences, then Provost) became Acting President this year (2023).

We also hired one sessional statistics instructor this year (Winter, 2023) in the Mathematics and Statistics department.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Enrollment has been increasing the past year with 2714 students in Spring 2022, 3224 in Fall 2022, and 4023 in Winter 2023. As such, most subject area disciplines increased the number of course offerings over the past year, with a few exceptions. Enrolment in Economics (ECON), English for Academic Purposes (EAP), and Mathematics (MATH) had been slightly declining due to changing enrolment demographics over the past 5 years. And we expect that this trend will continue in the upcoming year.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We are offering STAT 270 (Introduction to Probability and Statistics)- a calculus-based introductory statistics course for the first time this term (Spring 2023).

In addition, three new associate degree concentrations were also established in 2022:

- a) Associate of Arts (Business and Psychology) degree
- b) Associate of Arts (International Business) degree
- c) Associate of Arts (International Relations) degree

**4. Are there any concerns or issues related to articulation that you'd like to share?**

There isn't any major concern or issue related to articulation but there is a concern related to the academic readiness of our students, particularly those from India. Multiple research and data analysis projects are underway to determine how we can mitigate this complex

issue, and some initiatives have already been implemented (e.g. priority registration, math placement test, review of prerequisites, orientation enhancements etc).

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We are using the following open access resources for the following course:

Course #	Course Name	OER Textbook	Homework System
MATH 100	Precalculus	Algebra and Trigonometry by Jay Abramson	Canvas
MATH 104	Diff. Calculus with Applications to Commerce and Social Sciences	(i) Applied Calculus by Shana Calaway et al. + (ii) Calculus Vol. 1 by Strang/ Herman et al.	Canvas+ myopenmath.com
MATH 105	Int. Calculus with Applications to Commerce and Social Sciences	(i) Applied Calculus by Shana Calaway et al. + (ii) Calculus Vol. 2 & 3 by Strang/ Herman + (iii) Probability (Kuter). (2019, June 23)	Canvas+ Myopenmath.com
Math 115	Discrete Mathematics	Discrete Mathematics: An Open Introduction by Oscar Levin (ii) Applied Discrete Structures by Al Doerr, Kevin Lavasseur	Canvas
Math 123	Mathematics for Everyday Life	Lippman, D., & Lippman, D. (n.d.). <i>Math in Society</i> . Minneapolis.	Canvas+ Myopenmath.com
Math 151	Calculus 1	(i) Calculus Volume 1 by Strang/Herman et al. (ii) Calculus Volume 2 by Strang/Herman et al.	Canvas
MATH 255	Ordinary Differential Equations	Elementary Differential Equations by William F. Trench	Canvas+ Myopenmath.com

Overall, we found that the textbooks and homework system are working good for us. For some courses, we faced challenges to find a single good quality open-source textbook that meets the depth and breadth of our curriculum standard. So, having reviewed a few textbooks thoroughly, and after consultation with our SASC (standing academic standards committee) advisor, we decided to use two or more textbooks (some chapters/contents from one and other chapters/ content from the other) and then supplemented by the materials created by the instructors over the years.



Regarding homework system, use of Canvas and/or Canvas+myopenmath seems to be quite effective. We are also using the publishers' platform (e.g., Pearson's MylabMath) for some courses.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

The college is taking some initiatives towards Indigenization. For example, the main theme of one of our ProD day was Indigenous Pedagogy. The guest speaker gave a talk/workshop on the topic: "Indigenous Pedagogy: Curriculum delivery using First People's Principles of Learning as a model" which was well received by the faculties. In addition, some faculty members in humanities and social sciences department have also taken some initiatives to include indigenous materials in their curriculum but there is nothing particular to the mathematics and statistics department.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

Discussion is going on about this topic among the college management teams, but I have nothing to report here at this moment.

**8. Do you have any other news that you'd like to share about your department or institution?**

Enrollment has been increasing the past year with a large majority of new students are from India. So, the college is working on its diversification strategy, with the goal to increase recruitment efforts in many regions, notably Africa, Latin America, and Southeast Asia.

Last year, Alexander College transitioned from classes being 50% taught through Zoom (online synchronous) and 50% on-campus to 20% of classes online synchronous through Zoom and 80% of classes on-campus. Going forward, all most all of the classes are expected to be in-person in Fall 2023 and there after.

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## May 2023 BCcupms Mathematics Report for: BCIT

**Representative providing this report:**

**Email address:**

- 1 Do you have any announcements of new hires or retirements that you'd like to share?**  
No
- 9. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**  
  
Much lower international particularly in Flexible Learning (PTS).
- 2. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**  
No
- 3. Are there any concerns or issues related to articulation that you'd like to share?**  
No
- 4. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**  
Webwork run by one of our faculty, Joseph Lo. Has been useful for a variety of courses but particularly for statistics courses where we have been using an R server to create tailored statistical questions with quite complex analysis.
- 5. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**  
None particular to do with Math or Statistics.
- 6. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**  
No
- 7. Do you have any other news that you'd like to share about your department or institution?**  
None

## Mathematics Report for: Camosun College

**Representative providing this report: Patrick Montgomery      Email address:**  
**montgomeryp@camosun.ca**

- 1. Do you have any announcements of new hires or retirements that you'd like to share? One retirement: Cathy Frost**
- 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year? This year, we seem to have hit the minimum after the decrease observed post-pandemic. Although I haven't applied any of the derivative tests to prove this hypothesis, our summer enrollment has seen a small uptick in student enrollments.**
- 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about? The latest course is STAT 123 (Introduction to Data Science)**
- 4. Are there any concerns or issues related to articulation that you'd like to share? The second-year calculus and differential equation courses are a bit out of balance in articulation, so I would like to request MATH 220 (Calculus III) and MATH 226 (Differential Equations) be re-articulated.**
- 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective? No changes this year**
- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report? Several members have completed a short training course at the college that helps continue our reconciliation conversation**
- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report? No changes this year**
- 8. Do you have any other news that you'd like to share about your department or institution? Our administration is currently aiming to separate the upgrading mathematics courses from the department and recreate an "ABE" department. This is problematic from a level of faculty members, as potential work is not available to qualified faculty. We're working through this with our FA, but it is a slow process.**

## May 2023 BCcupms Mathematics Report for: Capilano University

**Representative providing this report:** Deanna Baxter

**Email address:** dbaxter@capilanou.ca

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

This past year we hired two non-regular faculty members: Diana Castaneda Santos and Notice Ringa to provide coverage while Lisa Lajeunesse was on a Paid Educational Leave.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Our domestic enrollments are stable, and our international enrollments have increased significantly. We expect to see possible growth in international enrollments for the 2023/2024 year as well.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We launched our B.Sc. (General) program in fall 2022 and we are excited to welcome an increasing number of students into this program. We are developing a minor in Data Science to complement this program.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We continue to use OpenStax for calculus courses and other open resources wherever possible to increase access to resources for students. Lily Yen has developed an online open text for liberal arts math courses called “Mathematics Between Friends” and it can be found at <http://yen-hansen.ca/MBF/>

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Capilano University has a program known as “University One for Indigenous Learners Certificate” that provides academic and support courses that help transition indigenous students who are interested in post-secondary courses but may not feel ready academically. One of the courses students take in this program is a numeracy course for non-science students, Math 123 – Contemporary Mathematics, along with a support course, UOF 098. One of our faculty members, Danielle Wills has been teaching this

course over the past few years at our main campus. This past year, Danielle was invited to teach these courses to a cohort of students at the T'szil Learning Centre in Mount Currie to members of the Lilwat Nation.

- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**
- 8. Do you have any other news that you'd like to share about your department or institution?**

## BCCupms Institutional Report 2023

**Institution:** [Columbia College](#)

**Representative providing this report:** [Ana Culibrk](#)

**Email address of representative providing this report:** [aculibrk@columbiacollege.ca](mailto:aculibrk@columbiacollege.ca)

1. **Is this the only report which your institution will provide, or will there be another, or others, submitted by a representative for another discipline – Math, Stats, or Math Ed?**

[This is the only report.](#)

2. **Do you have any announcements of new hires or retirements that you'd like to share?**

[We have a new regular instructor Dr. Nancy Khalil.](#)

3. **Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

[Yes: the enrollment in Math courses is in decline. Please see the table below.](#)

Academic Year	Number of Students
2017/18	1668
2018/19	1661
2019/20	1936
2020/21	1840
2021/22	1550

4. **Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCCupms community know about?**

[No.](#)

5. **Are there any concerns or issues related to articulation that you'd like to share?**

[No.](#)

6. **Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

[All our courses, except Elementary Statistics, use the WebWork now.](#)

[We use several open access textbooks:](#)

- [Differential Equations for Engineers by Jiri Lebl](#)

- Calculus I for Social Sciences – open-source book adapted by SFU
- CLP Calculus 1 Textbook and Problem book
- CLP Calculus 2 Textbook and Problem book
- CLP Calculus 3 Textbook and Problem book

7. **Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Our high-school Math instructors have incorporated some of the indigenous principles in their lectures, and one of them gave a presentation on our Winter 2023 Math Department Meeting on indigenization when teaching Mathematics. Being Metis himself, he has always followed these principles when teaching.

8. **Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?** No.

9. **Do you have any other news that you'd like to share about your department or institution?** No.

## May 2023 BCcupms Mathematics Report for Douglas College

**Provided by Natasha Davidson**

**Email address:** [davidsonn@douglascollege.ca](mailto:davidsonn@douglascollege.ca)

Long-time department member Larry Tombouljian has retired. We are in the process of hiring for a full-time regular position (closed May 15<sup>th</sup>).

Our enrollment numbers have increased overall and our base has increased to a total of 102 sections or 12.75 FTE faculty.

Riding on the successes of our computing and engineering programs, we have added extra sections of discrete mathematics, calculus and linear algebra. However, we have been challenged to maintain demand for our liberal arts and calculus for life sciences courses. We continue to monitor these courses and the programs that they support for reasons that might explain this drop in demand.

This summer we are running our third offering of Math 3316 – Introduction to Numerical Analysis. In subsequent years, we hope to run this course alternately with our Math 2245 – Introduction to Analysis.

We do not have any significant curriculum changes on the horizon. However, we have withdrawn an old and unused course, Math 1115 – a preparatory course for Business Calculus.

In response to the changes in the IB course offerings, Douglas is interested in how other institutions use IB courses as prerequisites. **Would it be possible to do a survey of institutions to find out how the new IB math courses fit into the framework of prerequisites?**

The department is looking at how we might incorporate explicitly aboriginal ways of knowing into course delivery and possibly aboriginal mathematics content into two of our courses, Math 1191 – Math for Teachers and Math 1234 – Math for Liberal Arts. Both courses are due for an update in their CGs and offer opportunities to have these math courses be broad and inclusive, particularly of aboriginal culture.

We continue to be engaged with offering the BCSSMC – this year there were 28 student participants and 10 large pizzas present at the event. This year we did not host any Math Mania events.



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## May 2023 BCcupms Mathematics Report for: (Fairleigh Dickinson University)

**Representative providing this report: Amirhossein Bazargan**

**Email address: [bazargan@fdu.edu](mailto:bazargan@fdu.edu)**

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

[Dr Michael J. Avaltroni](#) was appointed as the ninth President of Fairleigh Dickinson University in April 2023

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

- [A growth in the graduate programs and the new Master of Science in Applied Computer Science.](#)
- [The decline in undergraduate enrollments remains a cause for concern across all programs.](#)

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

- [The main concentration for BBA students is International Business. Two new concentrations have been added for students to add/switch in: Information Systems and Personal Selling & Sales Management.](#)
- [In addition to a minor in Digital Marketing and a minor in Financial Planning & Wealth Management, the Silberman College of Business has partnered with the International School of Hospitality, Sports, and Tourism Management to offer a minor in Event & Convention Management.](#)

**4. Are there any concerns or issues related to articulation that you'd like to share?**

[In addition to the regular BCCAT articulations, separate \(2+2\) articulation agreements are in progress with a number of private institutions in Vancouver, accredited by the PTIB.](#)

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

[No](#)

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

[No](#)

**7. Are there any outreach initiatives that have been made in your department, or**

**at your institution, that you'd like to report?**

No

**8. Do you have any other news that you'd like to share about your department or institution?**

- The Vancouver campus of FDU celebrated its 15th anniversary in Fall 2022.
- All programs successfully renewed their consent to offer degrees in BC with the DQAB.
- The Silberman College of Business renewed its AACSB accreditation in 2022.
- This year, FDU launched the Center for Empathy Research and Training (CERT) based in the School of Psychology and Counseling. The first training sessions were held at the Vancouver campus in January 2023.
- FDU Press publishes scholarly books for the academic market. While open to a full range of projects in the humanities and social sciences, the press boasts book series in several areas. Current series include a six-volume continuing series of The Annotated Works of Henry George.
- The Cambie Street campus hosts the monthly Poets Corner Reading Series, which is supported by the Canada Council for the Arts, The Writer's Union of Canada, and the League of Canadian Poets
- A group of students from the Vancouver campus participated in the annual UN Model United Nations event in NYC.

## May 2023 BCcupms Mathematics Report for:

### Kwantlen Polytechnic University

**Representative providing this report:** Alex Liu

**Email address:** alex.liu@kpu.ca

9. Do you have any announcements of new hires or retirements that you'd like to share?

Louis Saumier Demers resigned in December, and we are in the process of hiring his replacement.

10. **Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Over all enrolments in math have been steady. Enrolments in calculus and higher have been declining, while enrolments in precalculus have held steady, and in stats have sky rocketed.

11. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?

For the first time we offered Problems and Concepts (MATH 1135). It is intended as a transition-to-proof course, and is also intended to increase our math students' *esprit de corps*. We also offered a course on Applied Data Science, which covered statistical tools for data science, as well as machine learning and deep learning techniques for classifying and clustering data.

12. Are there any concerns or issues related to articulation that you'd like to share?

No

13. **Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

No

14. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?

Math Explorations (MATH 1116) and History of Math (MATH 3450) course have some indigenous content. In both our Math for Elementary School Teachers (MATH 1190) and Introduction to the Mathematics Classroom (MATH 3130), students are asked to select and evaluate sources of indigenous content, and in MATH 1190 and Theory of Math Education (MATH 4130) they learn about indigenous ways of knowing.

15. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?

No

16. **Do you have any other news that you'd like to share about your department or institution?**

We continue to offer our BSc in Applications of Mathematics.

Michael Nyenhuis, the long-time articulation rep for KPU, is stepping down as articulation rep. He'll continue as chair of the math department for another 3 years or until he retires, whichever comes first.

## May 2023 BCcupms Mathematics Report for Langara College

**Institution:** [Langara College](#)

**Representative providing this report:** [Eugene Belchev \(Math\)](#) & [Maja Grubisic \(Stats\)](#)

**Email address of representative providing this report:** [ebelchev@langara.ca](mailto:ebelchev@langara.ca) & [mgrubisic@langara.ca](mailto:mgrubisic@langara.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

We had four math faculty retire – Ros Shahrokh and Ken Collins on the math side and Kevin Craib and Emmanuel Darkoh on the stat side. All were very well respected and long-serving members of the department.

The stat area had two new hires: Jonathan Agyeman and Helen Fu, and the math area had an emergency hire – Cory Ahn.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

The number of DOM students has slightly decreased, but the number of IE students has increased significantly. In fact, the college is considering ways to make the recruitment of IE students more selective.

Our STAT 1123, which is an introduction to statistics for business students has been experiencing long waitlists so we have typically been adding extra two sections (right now we have anywhere between 9 and 11 sections of this course offered per semester).

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

Math area along with statistics is looking to add an Actuarial post-degree diploma program in the next little while.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

In addition to the resources reported in 2022, we are using open textbooks for Math 1274 this Spring, and starting this fall, we will be using one for Math 1174.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Langara College hosted the 3rd annual BC Academic Integrity Day on October 14th with

over 50 participants attending, with institutional representatives throughout the province and Langara faculty both present. This day included Keeta Gladue as the keynote speaker, who discussed [Indigenous Academic Integrity](#) in the post-secondary context, followed by a panelist session and group discussions on hot topics in academic integrity.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

As in previous years, we continued to host the AMC series. This year we hosted the BC Secondary School Math contest in person, the first time post Covid. In addition, a number of our instructors have participated in this year's Science Fair.

**8. Do you have any other news that you'd like to share about your department or institution?**

The college leadership has formally agreed to separate the Math/Stat department into two independent departments – we expect this to happen officially sometime next year.

## May 2023 BCcupms Mathematics Report for: (Lester B. Pearson United World College of the Pacific)

**Representative providing this report:** Benjamin Willson

**Email address:**

- 1. Do you have any announcements of new hires or retirements that you'd like to share?**  
One member of our department (Arno Dirks) is transitioning into an administrative role and another (Mark Bannar-Martin) is retiring this year. We have hired two new faculty members who will at least partially be teaching Mathematics. They are Chiara Khayamian (previously of UWC Mahindra) and Zoe Hamel (previously of UWC Mostar).
- 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**  
We continue to rely on enrollment through national committee nominations and expect full enrollment for our small institution. (approximately 205 students)
- 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**  
We continue to teach the IB diploma program and most students take one of the IB Math courses. This year we began also teaching an IB Career Program for students in Climate Action Leadership.
- 4. Are there any concerns or issues related to articulation that you'd like to share?**  
No.
- 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**  
There are freely available IB Mathematics course notes and problem sets written by Christos Nikolaidis and available at <https://christosnikolaidis.com/> These have been useful for all the IB Mathematics courses.
- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**  
Our college dormitory buildings have been renamed using SENCOTEN names gifted to the institution by the Scia'new First Nation. We have an institutional reconciliation action plan and additional support available for students who identify as indigenous.
- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

No

**Do you have any other news that you'd like to share about your department or institution?**

No



**BCcupms Institutional Report 2023**

**Institution:** [North Island College](#)

**Representative providing this report:** [Jason Diemer](#)

**Email address of representative providing this report:** [Jason.Diemer@nic.bc.ca](mailto:Jason.Diemer@nic.bc.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

No.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

No significant changes, although international student enrolments are rebounding. Some student housing is being constructed at the Comox Valley campus, hopefully ready for fall 2025.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

NIC will be offering a new advanced diploma in Island Pre-Health:

<https://www.nic.bc.ca/programs/arts-science-and-management/math-and-science/island-pre-health-science-advanced-diploma/>

**4. Are there any concerns or issues related to articulation that you'd like to share?**

Are closed-book invigilated exams needed for articulation?

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

Active Calculus (Boelkins, GVSU), Apex Calculus (Hartman et al. ), UBC's CLP series (Feldman et al.) for Calc I, II. For Calc III/IV, plan to use Apex Calculus and CLP, along with Trench's Elementary DE with BVP and Lebl's Notes on Diffy Qs.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Some efforts have been made to decolonize pedagogy in calculus I and II, mainly through a change in the way learners are assessed (embracing constructive failure, reflection, and reassessment) and in the way time in class is used (partially flipped classroom, targeted mini-lessons, group practice, peer instruction). No indigenization of the curriculum in calculus I/II has been done.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

About 25 students participated in the final round of the BCSSMC. While the contest was being written, there was an informal chat between secondary teachers and NIC faculty. A talk on Conway's Rational Tangles was presented to the participants after lunch.

NIC Youth Academy Summer Camps combine fun and meaningful, hands-on learning in focus areas such as STEM:

<https://www.nic.bc.ca/programs/summer-camps/>

**8. Do you have any other news that you'd like to share about your department or institution?**

Like most other program areas at NIC, the math and science area is currently undergoing program review. We are hoping it will help us in implementing some new things into the area. Also, for many years NIC has used interactive television to deliver courses to multiple campuses/sites simultaneously by a single instructor. This technology will be phased out over the next couple of years. The department will be exploring alternative ways to meet the demand for this mode of delivery.

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## May 2023 BCcupms Mathematics Report for: Northern Lights College

**Representative providing this report:** Hongbin Cui

**Email address:** hcui@nlc.bc.ca

1. Do you have any announcements of new hires or retirements that you'd like to share?

No

2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?

No

3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?

No

4. Are there any concerns or issues related to articulation that you'd like to share?

No

5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?

Open source textbooks have been used for all math/statistics courses.

6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?

No

7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?

No

8. Do you have any other news that you'd like to share about your department or institution?

No

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## May 2023 BCcupms Mathematics Report for: Okanagan College

Representative providing this report: **Stephen Brown**

Email address: [scbrown@okanagan.bc.ca](mailto:scbrown@okanagan.bc.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

This year, we have converted 1 faculty member to continuing and hired 2 additional full time continuing faculty. We are also in the process of hiring 2 to 3 term faculty members. We also had one retirement this year as Chris Melin has left after more than 20 years at OC/ OUC.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Okanagan College enrolments were down slightly in university transfer programs. Our two post-baccalaureate programs (health analytics and marketing and data analytics) are both well subscribed. Most departments around the College are well subscribed.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We are introducing a new program in data analytics and economics this year which is expected to generate some additional enrolments.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

We are looking to introduce one or more new 300-level courses in mathematics and statistics, namely a special topics course in Abstract Algebra. This new special topics course may alternate between multiple topics at a 300-level. To get transfer credit to another institution, would this be articulated or be considered on an individual basis by the receiving institution?

Our department has decided to cancel Stat 240 Applied Statistics II, as it was not transferable to other institutions. What do others have for second stats courses?

Our department has voted to switch from Stewart to an open access textbook such as APEX Calculus starting in September. Members of the department have suggested leaving Stewart in our syllabi so that transferability of our courses is easier for receiving institutions. I was hoping to get the committee's opinion on whether this is necessary or if there is some benefit to leaving Stewart on our outlines.

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We had some big changes this year regarding open homework systems this year. I presented MyOkanaganMath (<https://imathas.okanagan.bc.ca/>) to the department at the start of summer last year as an alternative to using WebAssign by Cengage. After a pilot of the homework system in the summer, we have fully adopted the homework platform for first- and second-year calculus courses, statistics, and many other courses in the department.

MyOkanaganMath runs on IMathAS (similar to WeBWorK), which is a very user-friendly platform that integrates with our LMS (Moodle) directly. I built the server using open-source code from David Lippman, who also manages the widely popular MyOpenMath site (<https://www.myopenmath.com/>) in the US. He was happy to provide a majority of the question library from that site.

We now have a question library of approximately 80,000 questions and more than 400 students have used the platform. Feedback from students and faculty has been overwhelmingly positive. Physics, Chemistry, Business, and AACP are all interested in using the platform in their classes.

We have been using open access textbooks in first- and second-year and some of our data analytics courses. Members of the department have also trialed open access books for second year university transfer courses, including linear algebra and differential equations.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

None at this time.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

We participated in Math Challengers, Kangaroo Math, and most recently the BCSS Math Contest (which is jointly coordinated by UBC Okanagan, who was the hosting institution this year.

The department has participated in the usual suite of recruitment events and open-house type events that the college offers every year.

**8. Do you have any other news that you'd like to share about your department or institution?**

Okanagan College has made a few unfortunate headlines this past semester. The first being the recent cyber-attack that occurred on the first day of classes in January. This knocked out nearly every aspect of technology across all campuses. Needless to say, it was a rough start to the semester for the department and the college as a whole. Many systems are still being reestablished, upgraded, or newly designed.

More recently, we made news again with the loss of our Bachelor of Science in Nursing program, which is to be consolidated at UBC Okanagan. This has raised some questions about how quietly and quickly a program can be phased out because it can be offered somewhere else.

Lastly, upper-level administration continues to be going through major changes. We currently have an interim dean and associate dean of science and technology. Hiring is currently underway for those positions. Our new president has also announced high-level changes to the roles of vice presidents and provost. We all await the impacts of new hires and changes to management.

## May 2023 BCcupms Mathematics Report for: Selkirk College

**Representative providing this report: Doug Henderson**

**Email address: dhenderson@selkirk.ca**

- 1. Do you have any announcements of new hires or retirements that you'd like to share? 1 new part-time math/computing instructor.**
- 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year? Overall enrolment is more or less stable and slowly returning to pre-pandemic levels. International student numbers are rising again, as the backlog for student visas is lessened (resulting in more sections of business math and stats being offered). The only large drop is in Math 180 (math for elementary educators) which was previously being filled by a large number of non-educators, and they have shifted to more appropriate Math electives.**
- 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about? - none**
- 4. Are there any concerns or issues related to articulation that you'd like to share? - none**
- 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective? Our linear algebra instructor is using a combination of MathMatize (John Herman/U of T) and the UBC edition of "Interactive Linear Algebra" and is quite happy with the results**
- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report? - none**
- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?- none**
- 8. Do you have any other news that you'd like to share about your department or institution? - none**

**BCcupms Institutional Report 2023**

**Institution:** [Simon Fraser University \(SFU\)](#) – Department of Mathematics

**Representative providing this report:** [Justin Gray](#)

**Email address of representative providing this report:** [tgray@sfu.ca](mailto:tgray@sfu.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

We welcomed Jessica Stockdale to the department this year, whose research interests include infectious disease modelling and genomic epidemiology.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Overall enrollments at SFU for 2021/2022 are virtually the same as the year prior, as measured by annualized activity full-time equivalents ( $(\# \text{ of units}) \times (\# \text{ of undergraduate students enrolled}) / 30$ ). Overall enrollment in math courses is also the same from the previous year. The number of students enrolled in a math major/honors program has decreased from 267 to 263 during this period.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We are working on developing a bio-math stream within the Applied Math Major. We also have plans to split our precalculus course into two streams. Nothing has been finalized yet.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

None

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We are using OpenStax Precalculus for MATH 100 and are using the large problem bank that accompanies this book in the Möbius homework system. Möbius is not open access but is inexpensive. The problems are taken from their Starter Bundle and are coded by experts.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Efforts toward indigenization at the course level in my department have been primarily focused on integrating indigenous pedagogical approaches.

We are planning to start a lecturer search for a position with focusses on the advancement of educational opportunities for members of the Indigenous community in BC.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

There are numerous ongoing outreach initiatives, though many of these were cancelled this past year due to the current pandemic.

[Elementary School Outreach](#)

[Math Catcher](#)



High School Outreach

Academic Summer Camp for Aboriginal Students

Math Ambassadors

SFU Math Camp for High School Students

Teacher Outreach

SFU Math Camp for Teachers

Changing the Culture Conference

See <http://www.sfu.ca/math/k-12/k-12-outreach-programs.html> for more details.

**8. Do you have any other news that you'd like to share about your department or institution?**

None

## May 2023 BCcupms Mathematics Report for: (Thompson River University)

**Representative providing this report:** Saeed Rahmati (Math)

**Email address:** [srahmati@tru.ca](mailto:srahmati@tru.ca)

### 1. Do you have any announcements of new hires or retirements that you'd like to share?

New Hires: Dr. Kyle Schlitt (Math), Dr. Erfanul Hoque (Data Science)

New Chair: Dr. Suzanne Feldberg

Incoming: New hire for the PostBacc Diploma in Applied Data Science

### 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?

Holding steady.

### 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?

The following are the changes we made to our Math Major

- We added a new second-year course **MATH 2210 (Introduction to Algebra)** as a required course from Fall 2023.
- We made **STAT 2000 (Introduction to Statistics)** a required course from Fall 2023 by changing the requirement “one of MATH 2240 (Differential Equations 1) or STAT 2000” to “one of MATH 2240 (Differential Equations) or MATH 2700 (Discrete Mathematics 2)”.
- We added a new fourth-year level elective **MATH 4650 (Topology)** which will be offered every 2-years in winter.
- We are about to submit the proposal for a new course **MATH 3100 (Introduction to Mathematical Computing)**.

### 4. Are there any concerns or issues related to articulation that you'd like to share?

No.

### 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?

We adopted CLP Calculus Textbooks (UBC) for MATH 1140 (Calculus 1), MATH 1130 (Calculus 1 for Engineering), and MATH 1150/1250 (Calculus 1 & 2 for the Biological Sciences).

We also used WebWork in multiple courses such as MATH 1140, MATH 1130, MATH 1650 (Math for Computing Science), MATH 2120 (Linear Algebra 1).

- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

No change from last year.

- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

We hosted the BC Secondary Schools Math Competition for our local high schools.

One of our students held the second “Math Battle” this year (like a Math debate, where opposing high school/ University teams try to poke holes in their opponents Math solutions). She also hosted the second “Integration Bee” for Calc 2 students.

Two faculty members visited local high schools and offered talks for grade 11-12 students.

- 8. Do you have any other news that you'd like to share about your department or institution?**

This year’s valedictorian for science convocation is from our department!

## May 2023 BCcupms Mathematics Report for: **Thompson Rivers University** **Open Learning**

**Representative providing this report: Iain Pardoe**

**Email address: [ipardoe@tru.ca](mailto:ipardoe@tru.ca)**

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

None currently.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

The last enrolment report showed minimal change over the last year, decreases in some course enrollments but increases in others. Long term we also expect more competition as other institutions explore online options.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

STAT 1201 (Introduction to Probability & Statistics), MATH 2121 (Linear Algebra), and BIOL 4001 (Biostatistics) are undergoing or have recently undergone major revision.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

None currently.

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

STAT 1201 (Introduction to Probability & Statistics) had adopted [OpenIntro Statistics](#) and MATH 1901 (Principles of Mathematics for Teachers) uses [Mathematics for Elementary Teachers](#) (developed by TRU Open Learning) as a supplementary resource. We're also starting to use WeBWorK in some courses, starting with MATH 2121 and STAT 1201.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

To support student success, TRU has identified eight institutional learning outcomes that all baccalaureate degree students will achieve as part of completion of their degree. These include “Indigenous Knowledges and Ways: a TRU graduate recognizes and respects the value of Indigenous knowledges and ways” and “Intercultural Awareness: a TRU graduate recognizes and respects the value of diverse cultures and worldviews.”

**7. Are there any outreach initiatives that have been made in your department, or at**

**your institution, that you'd like to report?**

None currently.

**8. Do you have any other news that you'd like to share about your department or institution?**

None currently.

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## May 2023 BCcupms Mathematics Report for: Trinity Western University

**Representative providing this report:** Sam Pimentel

**Email address:** sam.pimentel@twu.ca

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

None

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

No

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We have a few new courses:

Stat/Math 203: Introduction to Probability and Statistics I (*a calculus-based introduction*)

Math 191: Mathematics, History & Culture (*aimed at non-science majors*)

Math 333: Mathematics of Data Science

Math 381: Topological Data Analysis

The requirements of our major have been slightly changed; students must now take:

Math 311: Ordinary Differential Equations (3sh) or Math 323: Differential Equations (4sh)

and

Math 313: The Real Line (3sh) or Math 323: Analysis (4sh)

**4. Are there any concerns or issues related to articulation that you'd like to share?**

None

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We continue to use WeBWork and recommend a variety of open access textbooks

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

No

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

No

**8. Do you have any other news that you'd like to share about your department or institution?**

No

## University Canada West

**Representative providing this report:** [Costa Karavas](#)

**Email address of representative providing this report:** [costa.karavas@ucanwest.ca](mailto:costa.karavas@ucanwest.ca)

### 1. Do you have any announcements of new hires or retirements that you'd like to share?

At the university level, we have some additions in the university senior management team:

- Dr. Stephanie Chu was promoted to Associate VP of Teaching, Learning, and Scholarship as of December 2022.
- Kathleen Campbell was appointed as Associate VP of Administration as of May 2022.
- Amy Hua was appointed as Director, Academic Planning and Budgeting as of September 2022.
- Harpreet Ahluwalia was promoted to Director, Curriculum and Quality Assurance as of October 2022.
- Douglas Thorpe-Dorward was appointed as Director, Faculty Relations as of August 2022.
- Jenny Shickele was appointed as Director, Finance as of May 2022.
- Sparsh Sood was promoted to Associate Director, Facilities and Health and Safety as of February 2023.
- Abrar Ahamed was promoted to Associate Director, Digital Transformation as of October 2022.
- Bradley Fehr was promoted to Associate Director, Communications as of January 2023.
- Madison McLeod was promoted to Associate Director, Marketing as of January 2023.
- Dr. Jill Cummings joined UCW as new Chair of University Access Programs, February 2023.

At the department level, in process of hiring continuing faculty and sessional positions to teach math and statistics courses.

### 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?

- UCW has experienced continued growth mostly from international students. Over 11,000 students from over 110 countries. Student intake is continuing to be strong.
- Please see the student enrollment details in the Table 1 below (enrollment figures include new starters and continuing students).

#### Student Enrollments (for 3 undergraduate programs)

Programs	2019	2020	2021
BCom	115	201	521
BABC	43	76	164
AA	298	732	1522

### 3. Are there any new or significantly revised programs or courses at your institution that



**you'd like to let the BCcupms community know about?**

- We recently revised our MATH 200 Statistics to meet the CPA requirement. Also, we developed 2 new courses: MATH 201 Business Statistics & MATH 202 Quantitative decision making. MATH 201 and 202 combined together will be equivalent to MATH 200. All of these courses are accepted by CPA-Canada for transfer credits.
- Calculus courses MATH 110 (Calculus I) and MATH 120 (Calculus II) will be proposed for curriculum re-development.

**4. Are there any concerns or issues related to articulation that you'd like to share? No**

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

- OER is used for most of our math/stat courses in the previous year. Our OER committee works with course developers, faculty, and Department Chairs to identify options to update our courses where appropriate. Will be revisiting all options for textbooks and homework assessment systems.
- Funding is available to incentivize Faculty to update their courses using OER options.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

- UCW hosted *Truth and Reconciliation in Canada*, which featured Phil Fontaine (former National Chief of the Assembly of First Nations) and Kathleen Mahoney (Professor of Law at the University of Calgary and the primary architect of the Truth and Reconciliation Commission of Canada), joined UCW President Sheldon Levy for a discussion about the treatment of Indigenous peoples in Canada.
- UCW announced its first Elder in Residence - Elder Rose Guerin of x<sup>w</sup>məθk<sup>w</sup>əyəm (Musqueam) First Nation.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report? No**

**8. Do you have any other news that you'd like to share about your department or institution?**

- UCW has completed the annual DQAB Performance Review for its programs: Associate of Arts, Bachelor of Commerce, Bachelor of Arts in Business Communication and Master of Business Administration programs. In the process of receiving recommendations from External reviewers.
- The Arts, Communication, and Social Sciences Department (Bachelor of Commerce, Bachelor of Arts in Business Communication) has been making updates to the core pathway of courses for students to ensure the degree is better aligned with industry requirements for the job

market.

- New courses have been added to the degree pathway, and existing courses have been re-designed or refreshed.
- There are nine Microcredentials offered: Introduction to Supply Management and Logistics, Blockchain Entrepreneurship Certificate, Corporate Social Responsibility (CSR), Certified Digital Marketing Professional, Social Media Marketing, Data and Web Analytics, Online E-Commerce and Blockchain Project Management.
- UCW finished second in British Columbia's 2022 MBA Games competition and fourth in Canada's national 2023 MBA Games.
- Brightspace will be the new Learning Management System starting Fall 2023.

## May 2023 BCcupms Mathematics Report for: UBC Mathematics

**Representative providing this report: Brian Wetton.**

**Email address: wetton@math.ubc.ca**

- 1. Do you have any announcements of new hires or retirements that you'd like to share? Lindsey Daniels, and EL hire with experience in ML of student survey responses, applied math background.**
- 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year? No significant enrollment changes.**
- 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**
  - a. Math 100/101 have undergone significant changes. Math 100 now contains our old courses Math 100/102/104 with the three flavor streams still retained. The format is two hour large lectures by faculty and a small class taught by a graduate student or PDF. I can provide more detail for anyone interested. Similar format for Math 101.**
  - b. MATH 230 (Marvels of Mathematics) will be coming online in 2023W T2. This is a team-taught course aimed at exposing some interesting and sophisticated math to students who would not otherwise take a Math course (so Arts students).**
  - c. Reduced prerequisites for MATH 221 and MATH 223 (linear algebra regular and honours). This is part of an ongoing project to encourage more students to take these courses, especially in their first year.**
- 4. Are there any concerns or issues related to articulation that you'd like to share? Courses that transferred as Math 100/102/104 should now transfer as Math 100, Math 101/103/105 equivalents should transfer as Math 101. Let me know if there are any irregularities.**
- 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**
- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**
- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

**Do you have any other news that you'd like to share about your department or institution?**

## Mathematics Report for:

**Representative providing this report:** Ben Vanderlei **Email address:** ben.vanderlei@ufv.ca

### 1. Do you have any announcements of new hires or retirements that you'd like to share?

We will have two new Assistant Professors joining our department in July. Almaz Butaev will be joining us from the University of Cincinnati and Serhii Myroshnychenko will be joining us from Lakehead University. Both positions are replacing recent retirements.

### 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?

Enrolment totals for the year were up by 9% in first-year MATH courses and down by 8.25% in second-year MATH courses. Enrolment totals for the year in STAT courses were down approximately 5.5% across first and second-year courses. We have seen a larger percentage of international students in generally across both MATH and STAT courses.

### 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?

The UFV School of Business is launching a Post-baccalaureate Diploma in Business Analytics in Fall 2023 and we will be supporting that program with our existing STAT 106 (Statistics I), STAT 271 (Introduction to Data Analysis and Statistical Modelling), STAT 272 (Statistical Graphics and Languages), and 307 (Data Visualization) courses. The UFV Physics Department will resume its offering of an Engineering Physics Diploma in Mechatronics which we will be supporting with our Calculus stream.

### 4. Are there any concerns or issues related to articulation that you'd like to share?

We have no concerns to share at this time.

### 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?

After using Stewart's Calculus for many years, the calculus instructors in our department have all agreed to switch to OER. This year we used the CLP series for Calculus I, II, and IV with mostly positive reports. First-year students report that the text is quite technical and could benefit from more basic computational exercises.

We continue our use of WebWork to support our Calculus courses. In Discrete Math, our WebWork library of questions has been steadily growing and this year, which allowed us to disassociate ourselves from the publisher. We are currently using books available through UFV library, notably electronic version of "Discrete Math with Applications" by T. Koshy and other sources as supplementary materials. While not open source, it is an option that does not require students to

purchase the textbook.

Currently we are using Leah Keshet's "Calculus for Life Sciences" book in our Math 111 section for Life sciences and Math 118, available at <https://collection.bccampus.ca/textbooks/differential-calculus-for-the-life-sciences/>

In our STAT 106 course, some instructors have been making use of the following open education resources:

- Introductory Statistics ([https://saylordotorg.github.io/text\\_introductory-statistics/index.html](https://saylordotorg.github.io/text_introductory-statistics/index.html))
- Introductory Statistics ([https://assets.openstax.org/oscms-prodcms/media/documents/IntroductoryStatistics-OP\\_i6tAI7e.pdf](https://assets.openstax.org/oscms-prodcms/media/documents/IntroductoryStatistics-OP_i6tAI7e.pdf))
- OpenIntro Statistics (<https://www.openintro.org/book/os/>)

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

We continue to have frequent discussions at the department and faculty level on the Indigenization of our courses. We have introduced more holistic methods of assessments into several courses (Math 105, 111, 118, 123, 125, 410 and others), these include learning journals, term and final projects, presentations. Many of our courses employ group work and peer instruction to build community of learners in the class.

Several instructors are introducing a story-telling approach to the material, which has proven particularly effective in courses for non-majors. Faculty are using local data and introduce various Indigenous context to their courses, such as exploring local number systems (see Halq'emeylem number booklet at <https://www.ufv.ca/media/assets/mathematics/halg-booklet-j.pdf>), bentwood boxes, beading. Several faculty members have participated in UBC Indigenous Symposium.

UFV Faculty of Science has had Science Curriculum Indigenization working group regularly meet over the past year with several math and stats members participating. The Faculty of Science is currently formalizing the membership and mandate of Science Curriculum Indigenization Committee in order to enact change on the university level.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

We hosted our traditional BCSSMC event on May 5, hosting 12 local schools and 79 students. This year's event followed the format of previous pre-COVID years and included welcoming/closing, PD meeting for teachers, and enrichment activities for students.

This year (as in other years) we (Faculty of Science) are running 6 week-long Science Rocks! Summer Camps, 3 on our Abbotsford campus (July 4-21), and 3 on our Chilliwack campus (Aug 1-18). Enrolment is great, two camps are already at capacity waitlisted and the other 4 are 90% full. We have funding from the CMS for our 2 math camps (one week on each campus is math-focussed). For more info see <https://ufv.ca/science-rocks/>

Two of our faculty members (Vanessa Radzimski and Robin Endelman) have joined a newly formed Centre for the Philosophy of Children (CP4C). An initial meeting included discussion to plan for a spring “family festival” on campus, where we will have booths/activities promoting critical thinking and exploration for young minds (and children of all ages 😊).

**8. Do you have any other news that you'd like to share about your department or institution?**

We have nothing else significant to report at this time.

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## May 2023 BCcupms Mathematics Report for: University of Victoria, Math & Stats

**Representative providing this report:** [Gary MacGillivray](#)

**Email address:** [gmacgill@uvic.ca](mailto:gmacgill@uvic.ca)

In this report I would like to only comment on matters directly related to articulation, and so have only answered the two relevant questions below.

### **4. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

We now have an approved program option in Applied Math (which carries a designation on the transcript), and a BSc program in Data Science.

### **5. Are there any concerns or issues related to articulation that you'd like to share?**

In the past year we have deleted Math 208, Mathematics for Economics and Econometrics, and Math 242, Mathematics of Finance, after consultation with the Department of Economics. Courses that transfer to these will now likely transfer as Math 200-level.

We have altered the course description for Math 222, Discrete and Combinatorial Mathematics. Gone from the description are equivalence relations, which are in the prerequisite course, and partial orders, which were only ever treated lightly and are in the successor course. Now in the description is coding theory. Any other changes are only to make the calendar entry more descriptive. There are no changes in content.

We have also altered the course description for Math 248, Computer Assisted Mathematics, to reflect a slight change in focus (towards applications to mathematics) following its separation from Physics 248; these were formerly the same course. The topics covered remain the same. The applications differ.



## May 2023 BCcupms Mathematics Report for: **Vancouver Community College**

Representative providing this report: **Costa Karavas**

Email address: [ckaravas@vcc.ca](mailto:ckaravas@vcc.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

Gabriela Kakushkin retired March 2023.

New term instructor hiring.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Year	Domestic	International
2020/21	98%	2%
2021/22	96%	4%
2022/23	91%	9%

The increase in international student enrolment is due to the Associate of Science Degree.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

The first Associate of Science cohort will be starting their second-year math courses in Summer 2023.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

No.

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

MATH 1020: OpenStax Precalculus 2e, by Abramson.

MATH 1111: OpenStax Introductory Statistics by Illowsky et al.

MATH 1100/1200 Calculus I and II: OpenStax Calculus Volume I and II.

MATH 1221: Applied Linear Algebra: A First Course in Linear Algebra by Kuttler,

VCC has WebWork installed on its own server since 2022.

- 6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Jessie Williams will be joining VCC as Dean of Indigenous Initiatives.

- 7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

No.

- 8. Do you have any other news that you'd like to share about your department or institution?**

Work is being undertaken on the action plan emerging from the UT program renewal.

## May 2023 BCcupms Mathematics Report for: Vancouver Island University (VIU)

Representative providing this report: Glen Pugh, Chair of Department of Mathematics

Email address: [glen.pugh@viu.ca](mailto:glen.pugh@viu.ca)

1. Do you have any announcements of new hires or retirements that you'd like to share?
  - New hires: Fall 2023
    - ▶ Dr. Melissa Huggan: fulltime regular appointment. Melissa's field is discrete math, in particular, combinatorial game theory and pursuit-evasion games.
    - ▶ Dr. Evangelia Aleiferi: fulltime temporary appointment and continuing with us for the upcoming year. Evangelia's field is category theory.
  - Retirement or other personnel changes: none.
2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?
  - Enrollments are down this year (2022-2023) by 2% in the Faculty of Science & Technology compared to last year (down 20% since the 2019-2020 pre-pandemic peak). Institutionally, down by 2.5% compared to last year, (down 5% since the 2019-2020 pre-pandemic peak). International student enrollment in both Science and Institutionally down by about 30% since pre-pandemic peak.
  - Early registrations for fall 2023 indicate that enrollments are on a healthy upswing, possibly approaching pre-pandemic levels in Science & Technology.
3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?

New course: MATH 491 - Undergraduate Research Project: two term, guided supervision course with research findings and presentations required.
4. Are there any concerns or issues related to articulation that you'd like to share?

None.
5. Are there any open access resources (texts or homework systems) that your

department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?

For our Logic and Foundations course (MATH 123) we have been using Richard Hammack's *Book of Proof* for the last year. The students like using the textbook and the book is also easy to teach from. Based on our experience from the last year, the book also seems to be teaching the students the basics of proof writing which is one of the goals of the course.

6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?

None departmentally.

7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?

*The first post-pandemic edition of the BC Secondary Schools Math Contest was held recently. It was a successful event and great to have the high school students and teachers back on campus for the day.*

8. Do you have any other news that you'd like to share about your department or institution?

No.

## Statistics Subcommittee Minutes and Institutional Reports

### **101<sup>st</sup> BCcupms Meeting - Statistics Subcommittee Minutes May 17, 2023 – Blended (In-Person & Zoom)**

**Venue:** University of Fraser Valley Continuing Education, CC 135

**Time:** 10:30 am to 11:55 am, 1:00 pm – 2:15 pm

#### **Attendees**

**In-person:** Bruce Dunham (UBC-V), Dan Henschell (Douglas), Dan Ryan (UNBC), Gillian Mimmack (UFV), Emilie Lee (OC), and Susan Chen (Camosun).

**Zoom:** Amir Bazargan (FDU), Ben Tippett (COTR), Colin Macleod (KPU), Harsha Perera (SFU), Iain Pardoe (TRU-O), Mahshid Atapour (Capilano), Maja Grubisic (Langara), Mary Lesperance (UVic), Mateen Shaikh (TRU), Michael Lo (Langara), and Simin Jolfaee (BCIT).

**Chair:** Bruce Dunham

**Acting secretary:** Susan Chen

#### **1. Approval of agenda**

Moved by Dan Ryan and seconded by Dan Henschell. All in favour.

#### **2. Approval of minutes from Statistics subcommittee meeting from the 100<sup>th</sup> meeting in 2022:**

Revision: Susan Chen asked to rephrase the summary of her contribution in item 6: Comparison of Teaching Modes to “Susan shared her observation that more of the students who took the Elementary Statistics course preferred blended learning, and the blended sections that she taught performed 10% better than her F2F sections on their in-person exams including their common final exam. It is worth noting that the blended sections were quickly filled up first and had long waitlists, so it is likely that the more organized students got to register for the blended sections. Registration at Camosun is prioritized by credits, so that students who have higher cumulative credit at Camosun get earlier registration dates.”

Approval of the Minutes was moved by Gillian Mimmack and Seconded by Maja Grubisic. All in favour.

#### **3. Matters arising from minutes**

An update on Statistics 12 interests from high school was requested.

Bruce Dunham reported that the number of High Schools that are teaching Statistics 12 is unknown. It is acknowledged that smaller high schools aren't able to offer Statistics 12 due to limited number of students and limited number of Grade 12 math options. Centennial Secondary had 20 students taking Statistics 12 when Bruce taught it in fall of 2021. The students found the course challenging.

Bruce also reported that around 85 in-class activities for Statistics 12 have been made and are available for public access in StatsSpace at <https://statspace.elearning.ubc.ca/>. Instructors can register to access the solutions.

Gillian reported that UFV offered two classes of STAT 106 to high school students. These classes were conducted on UFV campus and solely consisted of high school students.

#### 4. Election of Secretary

Susan Chen was acclaimed for a 2-year term.

#### 5. Institutional Reports

Appended at the end of this report

#### 6. The impact of ChatGPT - Bruce Dunham

UBC-V is having graduate students studying ChatGPT 4.0 and other AI tools to explore what types of problems that they do well or not so well.

*What types of question that ChatGPT4.0 do well?* ChatGBT is capable of coding in both R and Python.

Some UBC DSCI 100 homework questions were fed to ChatGPT4.0, and it scored very highly on them. Some R lab questions were given to ChatGPT at Camosun, and it did all correctly.

*What types of questions that ChatGPT4.0 can't do well?*

ChatGPT4.0 does not read graphs.

It may give circular definitions to certain prompts.

It can create false or fake citations.

*Tools to detect if ChatGPT4.0 has been used:* **Turnitin** has a feature for detecting ChatGPT4.0.

*What has ChatGPT changed for us?*

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No more take-home exams (since several years ago!) Use only problems to test skills that AI's can't do, include more graphs, replace take-home exams with in-person exams or exams on lockdown computers.

## 7. Any other business

### a) Second Statistics course – Emilie Lee

Emilie: Okanagan College is considering developing a new second statistics course.

Bruce: UBC-V's STAT 300 is a second statistics course, for students who have taken one stat course, STAT 200 or equivalent (which provides a grounding in inferential stats). It serves students who wish to take a second stats course or to enter master degree programs that require two one-term statistics courses. It is for both non-statistics major students and students on statistics specialisations.

Dan R.: UNBC STAT 372 is a second statistics course

Mary: UVic has 4 second statistics courses, STAT 256, 261, 355 (bio stats), and 359 (data analysis)

Mateen: TRU might update STAT2410 into a second statistics course for non-statistics majors.

Susan: Camosun Stat 219 is a second statistics course, but has not been for the last two years due to low enrolment.

Gillian: UFV Stat 271 is a second statistics course for students going to grad school that requires two one-semester statistics courses.

### b) Quality control of articulation – Dan Ryan

Some articulation requests for credit transfer don't provide enough information for assessment.

Bruce: if you send a request, you should be able to find the stats-rep in that institution at [bccupms.ca](http://bccupms.ca) and consult them. BCCAT suggests a 70-80% overlap between courses for credit transfer. Where possible, consider referring non-MATH and non-STAT statistics courses to other disciplines, e.g., psychology or business.

Susan: Used to take the textbook of a course into consideration when assessed for credit transfer, but now with OER and more courses have no formal textbooks, it is harder to identify the depth of a stats course based on the topic list alone.

Gillian: Is the use of statistical software essential for credit transfer?

Bruce: No, I don't look at software use at all.

Dan Ryan: what is calculus-based statistics? The (UNBC) engineering department didn't care about whether or not it is calculus based. They want half theory and half applications.

Bruce: Courses use calculus to compute probabilities and expected values, for instance. About a third of the content of UBC-V's STAT 251 engineering statistics course is probability.

8. Motion to adjourn:  
Moved by Dan Ryan and seconded by Dan Henschell



## **Institutional Reports**

### **BCIT**

Representative: Simin Jolfaee

Email address: simin\_jolfaee@bcit.ca

**17. Do you have any announcements of new hires or retirements that you'd like to share?**

No

**18. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Much lower international particularly in Flexible Learning (PTS).

**19. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

No

**20. Are there any concerns or issues related to articulation that you'd like to share?**

No

**21. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

Webwork run by one of our faculty, Joseph Lo. Has been useful for a variety of courses but particularly for statistics courses where we have been using an R server to create tailored statistical questions with quite complex analysis.

**22. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

None particular to do with Math or Statistics.

**23. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

No

**24. Do you have any other news that you'd like to share about your department or institution?**

None

### Capilano University

Representative: Mahshid Atapour

Email: [mahshidatapour@capilanou.ca](mailto:mahshidatapour@capilanou.ca)

Enrolment for statistics courses has been good. A new third-year statistics course (STAT 310) on Design and Analysis of Experiments was offered in Fall 2022. Another new third-year statistics course (STAT 305 - Introduction to Data Science) will be offered in Fall 2023.

### Camosun College

Representative: Susan Chen,

Email: [chen@camosun.ca](mailto:chen@camosun.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

Cathy Frost (math) retired and her position has not been refilled.

Susan Kinniburgh (stats) has just moved from Camosun to Okanagan College. Her position will not be refilled, for now, unfortunately.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Enrolment in Statistics is slightly higher than last year, but it is still 3-4 sections shorter than pre-pandemic. International enrolments in our stats courses are much lower than in the past, probably due to the source of international students has been largely changed in recent years.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCCupms community know about?**

We have a new Data Science course STAT 123 and we plan to offer it for the first time in January 2024. Our soft launch last fall was unsuccessful.

We revised STAT 218 and STAT 219 this year. In particular, we have added introductions to Linear Regression, one-way ANOVA, and Chi-square test of independence to STAT 218 to match enough with UBC STAT 251 for transfer credit. Please watch for their course outlines coming to your institution from BCCAT for re-articulation.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

no

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that**

**you've found to be particularly effective?**

We have been using the textbook OpenIntro Statistics, 4e, by David Diez et al. (<https://www.openintro.org/book/os/>) for our STAT 116 (Elementary Statistics) and open source online homework system My Open Math (<https://www.myopenmath.com/>) for both STAT 116 and STAT 216 Applied Statistics. They are both user friendly and loved by the students.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

See Institutional report for Math and Stat.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

See Institutional report for Math and Stat.

**8. Do you have any other news that you'd like to share about your department or institution?**

We added an EDI (Equity, Diversity, and Inclusion) assignment in some of our statistics classes last year to provide students with an opportunity to research about Indigenous Mathematics or Engineering, Women in STEM, or any relevant topic of their choice. Students were asked to read an article or watch a video of their choice during the semester, and then write a one-page report about their research findings and their own reflection on some suggested questions including how do they think equity, diversity and inclusion should be included in post-secondary. The assignment was very well received, with only a few students chose not to participate.

## Douglas College

**Representative:** Dan Henschell

**Email:** hensched@douglascollege.ca

### **1. Do you have any announcements of new hires or retirements that you'd like to share?**

See institutional report.

### **2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Enrollments for our stats courses have been stable. The composition of students for our elementary stats seems to be shifting. More sport science and fewer nursing foundation students.

### **3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

No.

### **4. Are there any concerns or issues related to articulation that you'd like to share?**

Changes in program requirements involving SFU's STAT 270/271 have us looking for guidance regarding how our MATH 2260 (Intro Stats) will satisfy new program requirements.

### **5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

We have and will continue to use OpenIntroStats for our elementary stats course.

### **6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

While this is on our radar, nothing substantial has been incorporated.

### **7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

Nothing at this time. One of our faculty has expressed an interest in doing something like what Bruce did a year or two ago – team teach the high school stats course in New West.

### **8. How do your institution's plans for course delivery mode - online vs. face-to-face - for Fall 2022 compare to what they were in Fall 2019 (ie. prior to COVID-19), especially in Math and Stats courses?**

Face-to-face is the primary mode of instruction, with hybrid/online options and as a 'back-up' (instructor illness, public health emergency ...)

**9. Do you have any other news that you'd like to share about your department or institution?**

**Langara College**

**Representatives:** Eugene Belchev (Math) & Maja Grubisic (Stats)

**Email addresses:** [ebelchev@langara.ca](mailto:ebelchev@langara.ca) & [mgrubisic@langara.ca](mailto:mgrubisic@langara.ca)

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

We had four math faculty retire – Ros Shahrokh and Ken Collins on the math side and Kevin Craib and Emmanuel Darkoh on the stat side. All were very well respected and long-serving members of the department.

The stat area had two new hires: Jonathan Agyeman and Helen Fu, and the math area had an emergency hire – Cory Ahn.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

The number of DOM students has slightly decreased, but the number of IE students has increased significantly. In fact, the college is considering ways to make the recruitment of IE students more selective.

Our STAT 1123, which is an introduction to statistics for business students has been experiencing long waitlists so we have typically been adding extra two sections (right now we have anywhere between 9 and 11 sections of this course offered per semester).

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

Math area along with statistics is looking to add an Actuarial post-degree diploma program in the next little while.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

In addition to the resources reported in 2022, we are using open textbooks for Math 1274 this Spring, and starting this fall, we will be using one for Math 1174.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

Langara College hosted the 3rd annual BC Academic Integrity Day on October 14th with over 50 participants attending, with institutional representatives throughout the province and Langara faculty both present. This day included Keeta Gladue as the keynote speaker, who discussed Indigenous Academic Integrity in the post-secondary context, followed by a panelist session and group discussions on hot topics in academic integrity.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

As in previous years, we continued to host the AMC series. This year we hosted the BC Secondary School Math contest in person, the first time post Covid. In addition, a number of our instructors have participated in this year's Science Fair.

**8. Do you have any other news that you'd like to share about your department or institution?**

The college leadership has formally agreed to separate the Math/Stat department into two independent departments – we expect this to happen officially sometime next year.

## Okanagan College

**Representative: Emelie Lee**

**Email address: [elee@okanagan.bc.ca](mailto:elee@okanagan.bc.ca)**

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

(Duplicate from Math report) This year, we have converted 1 faculty member to continuing and hired 2 additional full time continuing faculty. We are also in the process of hiring 2 to 3 term faculty members. We also had one retirement this year as Chris Melin has left after more than 20 years at OC/ OUC.

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

(Duplicate from Math report) Okanagan College enrolments were down slightly in university transfer programs. Our two post-baccalaureate programs (health analytics and marketing and data analytics) are both well subscribed. Most departments around the College are well subscribed.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

(Duplicate from Math report) We are introducing a new program in data analytics and economics this year which is expected to generate some additional enrolments.

**4. Are there any concerns or issues related to articulation that you'd like to share?**

Our department has decided to cancel Stat 240 Applied Statistics II, as it was not transferable to other institutions. What do others have for second stats courses?

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

(Duplicate from Math report) We had some big changes this year regarding open homework systems this year. I presented MyOkanaganMath (<https://imathas.okanagan.bc.ca/>) to the department at the start of summer last year as an alternative to using WebAssign by Cengage. After a pilot of the homework system in the summer, we have fully adopted the homework platform for first- and second-year calculus courses, statistics, and many other courses in the department. MyOkanaganMath runs on IMathAS (similar to WeBWork), which is a very user-friendly platform that integrates with our LMS (Moodle) directly. I built the server using open-source code from David Lippman, who also manages the widely popular MyOpenMath site (<https://www.myopenmath.com/>) in the US. He was happy to provide a majority of the question library from that site.

We now have a question library of approximately 80,000 questions and more than 400 students have used the platform. Feedback from students and faculty has been overwhelmingly positive. Physics, Chemistry, Business, and AACP are all interested in using the platform in their classes.

We have been using open access textbooks in first- and second-year and some of our

data analytics courses. Members of the department have also trialed open access books for second year university transfer courses, including linear algebra and differential equations.

6. **Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

None at this time.

7. **Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

(Duplicate from Math report) We participated in Math Challengers, Kangaroo Math, and most recently the BCSS Math Contest (which is jointly coordinated by UBC Okanagan, who was the hosting institution this year.

The department has participated in the usual suite of recruitment events and open-house type events that the college offers every year.

8. **Do you have any other news that you'd like to share about your department or institution?**

(Duplicate from Math report) Okanagan College has made a few unfortunate headlines this past semester. The first being the recent cyber-attack that occurred on the first day of classes in January. This knocked out nearly every aspect of technology across all campuses. Needless to say, it was a rough start to the semester for the department and the college as a whole. Many systems are still being reestablished, upgraded, or newly designed.

More recently, we made news again with the loss of our Bachelor of Science in Nursing program, which is to be consolidated at UBC Okanagan. This has raised some questions about how quietly and quickly a program can be phased out because it can be offered somewhere else.

Lastly, upper-level administration continues to be going through major changes. We currently have an interim dean and associate dean of science and technology. Hiring is currently underway for those positions. Our new president has also announced high-level changes to the roles of vice presidents and provost. We all await the impacts of new hires and changes to management.



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**Simon Fraser University**

**Representative:** Harsha Perera

**Email address:** gperera@sfu.ca

**1. Do you have any announcements of new hires or retirements that you'd like to share?**

No

**2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**

Demand is always continuing to increase with Department of Statistics and Actuarial Science.

**3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**

No

**4. Are there any concerns or issues related to articulation that you'd like to share?**

No

**5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**

No

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

No

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

Our department organized an EDI Student Training Day associated with the Cascadia Symposium on Statistics in Sports (CASSIS)-2022 sponsored by the University of Toronto Sports Analytics Group through the Connaught Fund.

**8. Do you have any other news that you'd like to share about your department or institution?**

No

### **Thompson River University**

**Representative:** Mateen Shaikh

**Email address:** mshaikh@tru.ca

There are two new hires since last year: Erfanul Hoque joined in January, and one other (not formally announced yet) will join in August. The latter is for the new post-baccalaureate in applied data science whose launch was delayed to September 2023. It anticipates an inaugural cohort of at least 40 students.

Statistics enrolments are generally holding but domestic enrolments are dropping.

The statisticians and statistics instructors in the department are undergoing a routine review to update courses, consult with departments on client courses, and determine if any new courses desired.

Statistics courses have begun using webwork as an institutional server has been launched. Most courses continue to use traditional textbooks but OERs are actively sought to replace them.

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**University of British Columbia - Vancouver**

**Representative providing this report:** Bruce Dunham

**Email address:** b.dunham@stat.ubc.ca

- 1. Do you have any announcements of new hires or retirements that you'd like to share?**  
Joel Ostblom joined the department as Assistant Professor of Teaching and Lucy Gao joined as Assistant Professor.
- 2. Has your institution or department seen significant enrollment changes this year (domestic, international, or overall), or are significant changes expected in the coming year?**  
Numbers overall on STAT and DSCI courses increased somewhat from the previous year, in part due to additional sections of DSCI 100 and STAT 201. The cap on students entering a B.Sc. specialisation in statistics at the start of second year was kept at 159. This is the first year when applicants to our statistics major are required to have either DSCI 100 or a STAT course in order to be qualified to apply at the end of year one.  
The new minor in data science rolled out to full capacity this year, with 99 students now enrolled on the minor. The new minor does not seem to have reduced demand for the statistics minor, as the number on the latter has remained above eighty. Demand from Arts students has increased notably, with the majority of students on the statistics minor being in Arts and there being a growing number of Arts students interested in a double or dual major in statistics.
- 3. Are there any new or significantly revised programs or courses at your institution that you'd like to let the BCcupms community know about?**  
Two new upper level courses were approved this year: DSCI 430 (Responsible Applications of Data Science) and STAT 449 (Honours Project). The former is a course on ethics in data science mainly for students on the data science minor. STAT 449 will provide an undergraduate research experience for students on any honours specialisation involving statistics, and will involve project work that may be undertaken over either one or two terms. STAT/ELEC 321 is to be discontinued.
- 4. Are there any concerns or issues related to articulation that you'd like to share?**  
Institutions offering courses in data science may wish to consider adopting the DSCI code. The STAT 241 course code is likely to be deleted from the UBC-V calendar before long, so any existing articulations to that course code should be converted to transfers to STAT 251.
- 5. Are there any open access resources (texts or homework systems) that your department is using, particularly in first- and second-year transferable courses, that you've found to be particularly effective?**  
The department makes much use of free online resources for its teaching. These include:  
WeBWork(iR): A free online homework system for mathematics and statistics, incorporating R. See [webwork.maa.org](http://webwork.maa.org) and <https://wiki.ubc.ca/Documentation:WeBWork> for more details.  
StatSpace: An online repository for teaching resources in statistical sciences is available at <https://statspace.elearning.ubc.ca>. Colleagues are invited to explore and review existing resources and can also register as an instructor in order to see instructor-only materials and submit their own resources. In addition, the department is developing a repository for RShiny

apps on GitHub.

Free online textbooks used include:

Data Science: A First Introduction, by Tiffany Timbers, Trevor Campbell, and Melissa Lee  
<https://datasciencebook.ca/> (for DSCI 100)

Modern Dive: Statistical Inference via Data Science (at [moderndive.com](http://moderndive.com)) developed by Chester Ismay and Albert Kim (for STAT 201)

OpenIntro Statistics (at [www.openintro.org](http://www.openintro.org))

Introduction to Data Science (at <https://rafalab.github.io>) by Rafael A. Irizarry.

**6. Are there any efforts towards Indigenization that have been made in your department, or at your institution, that you'd like to report?**

There are ongoing efforts via a student diversity initiative in the Faculty of Science (see [skylight.science.ubc.ca/projects/sdi](http://skylight.science.ubc.ca/projects/sdi) for details). Melissa Lee (Assistant Professor of Teaching), Marie Auger-Méthé (Assistant Professor), and Rowenna Gryba (Ph.D student) received funding from UBC's Equity & Inclusion Office to run an Equity, Diversity and Inclusion (EDI) Speaker Series in Statistics this year.

**7. Are there any outreach initiatives that have been made in your department, or at your institution, that you'd like to report?**

Materials developed by Bruce Dunham to support the teaching of Statistics 12 were incorporated into StatSpace (<https://statspace.elearning.ubc.ca/>) with the assistance of a graduate student from Forestry, Melike Karaca. Many of the activities would also be useful for introductory classes in higher education.

**8. Do you have any other news that you'd like to share about your department or institution?**

Prof Jiahua Chen was elected as a fellow of the Royal Society of Canada.

### **University of Fraser Valley**

Representative: Gillian Mimmack

Email: Gillian.Mimmack@ufv.ca

The Department of Mathematics and Statistics was granted a new one-year Limited Term Appointment (LTA) to replace a member of the faculty in statistics who is on leave in the 2022-23 academic year; this was extended to the 2023-24 academic year, again to replace a member of the faculty in statistics who will be on leave.

The post-baccalaureate diploma in business analytics will be offered for the first time in Fall 2023. Students in this program will take four courses offered by the Department of Mathematics and Statistics: Statistics I (STAT 106-- a course in introductory course in statistics) , Introduction to Data Analysis and Statistical Modelling (STAT 271 – a course on modelling and analysis of data using statistical software), Statistical Graphics and Languages (STAT 272—a course on R and SAS), Data Visualization (STAT 307—a course on Tableau).

The Department of Mathematics and Statistics and the School of Computing are preparing a proposal to develop a post-baccalaureate diploma in data science and analytics. It is envisaged that half of this 50-credit program will consist of courses in statistics; the other half will be in computing. The learning outcomes and courses to be included are currently being discussed. It is likely that some courses in statistics will be core courses, and students will be able to choose other courses in statistics (electives) according to their specific areas of interest.

The Faculty of Science has set up an indigenization committee which meets regularly.

Online sections of courses in introductory statistics are continuing to be very popular, with long wait-lists. This may be because these courses generally meet three times each week, and students often drive considerable distances to campus. Meeting online likely saves students time and gas. Final exams for online courses in statistics are held on campus.