2019 ABE Mathematics Working Committee Meeting

Minutes from Annual Meeting

BRITISH COLUMBIA COUNCIL on ADMISSIONS AND TRANSFER (BCCAT)

Thursday/Friday, March 7-8, 2019

Douglas College, Coquitlam Campus

1250 Pinetree Way, Coquitlam, B.C.

Room B2190

Co-Chairs: Robert Ferro, Yukon College
Costa Karavas, Vancouver Community College
Vice-Chair: Michael Nelligan, Coast Mountain College

Thursday, March 7, 2019

British Columbia Institute of Technology	BCIT	Winona Cordua-von Specht
Camosun College	CC	Patrick Montgomery
Capilano University	CU	Richard Brand
College of New Caledonia	CNC	Dino Gigliotti
College of the Rockies	COTR	Deb Heal
Douglas College	DC	Florica Alexandru
Kwantlen Polytechnic University	KPU	Alina Rapa
Native Education College	NEC	Marion Gariepy (by telephone only to articulate one course)
Nicola Valley Institute of Technology	NVIT	Stefan Zabek (by video only to articulate two courses)
North Island College	NIC	Tony Trudel
Northern Lights College	NLC	Marcie Lundin
Coast Mountain College	CMTN	Michael Nelligan
Okanagan College	OC	Mike Rutten
Selkirk College	SC	Kate Tait
Thompson Rivers University	TRU TRU-OL	Izabela Mazur Bruce Irving
University of the Fraser Valley	UFV	Greg St-Hilaire
Vancouver Community College	VCC	Costa Karavas Alison Woods (part of Thursday only)
Vancouver Island University	VIU	Lisa Lewis
Yukon College	YC	Robert Ferro

Note: M/S/C = Moved / Seconded / Carried

1 9:00 - Opening remarks and introductions

2 **Motion to approve the 2019 agenda – M/S/C**

3 Review Purpose of Meeting
- a Review 20+ course outlines
- b Review learning outcomes from Provincial Math – Algebra and Trigonometry
- c Super-meeting to network with other articulation groups
- d Ministry presentation
- e K-12 curriculum comparison with ABE
- f Presentation on math and technology
- g Review of KPU online ABE website where all articulation files are kept-clarification of method to access

4 **Motion to approve the 2018 minutes – M/S/C**

5 Action items resulting from minutes of 2018 meeting
- a Robert to add schedule of articulation to 2018 minutes - complete

6 Updating members list and transfer guide
- a Forms passed around for updating
- b Attendance list completed

7 Textbook list—updating list from 2015
- a All attendees input their text book adoption information into specific file introduced by Costa Karavas (VCC)

8 Reports/Updates
- a BCCUPMS Meeting Report—Costa Karavas (VCC)
  - i Summary of topics
    - Transition from high school to university
    - Indigenization
    - Presentation by Richard Hoshino on Problem-Solving strategies
    - Placement into calculus – what grade in pre-calculus is required? Large range between institutions. Some use in-house assessments.
    - Presentation by Kseniya Garaschuk on two-stage exams – individual written test then group problem-solving exercise
    - 1st year core engineering – idea to have common core curriculum for 1st year engineering requirements for ease of transferability – some challenges and concerns with this raised
    - New course – Statistics 12 – recognize that high school teachers would benefit from extra support to succeed with this course
    - Themes for next meeting – new high school math – numeracy assessment – pre-calculus courses – textbooks – Math for Teachers course - open-resources – indigenization of curriculum

b Adult Literacy Fundamental Committee Report—from Faith Shields (CC) – Summarized by Costa Karavas (VCC)
   i Summary of topics
      - K-12 learning outcomes
      - Indigenization

c Joint Annual Meeting of Institutional Contact Persons (ICPs), Chairs, and System Liaison Persons (SLPs) Report—Robert Ferro (YC)
   i Summary of topics
      - Supporting ESL students
        (a) Moving away from the label of ESL
      - BC transfer credit system evaluation
      - Challenges with international credits and transferability
      - Indigenous student pathways
        (a) More support from high school system
      - BCCAT awards ceremony
      - Workshop for articulation committee chairs
      - BC transfer system quiz

9 Joint "super meeting" with Mathematics, English, IABE, and Computers articulation committees.
   a BCCAT Update—Ruth Erskine, Committee Coordinator, BCCAT
      i 30th anniversary of BCCAT
      ii Ruth will not be retiring
      iii Meeting in November
         - Presentations available on the BCCAT website
      iv Secondary to post-secondary transitions – project to align learning outcomes with new curriculum
      v Articulation season
         - 66 committees
         - Review the currency of courses and programs
      vi Transfer innovations projects
         - Tourism/hospitality common core
         - Modern languages learning outcomes
         - ABE
         - Funding for transfer innovations suspended for the next year while the program is reviewed
      vii New publications
         - International Transfer Credit report available on the website
         - Issues and Challenges in Interdisciplinary Course and Program Transfer in BC report is complete and available on the website
         - Understanding AP Grading in BC report also available on the website
      viii Ongoing projects
         - Survey of mobile students
         - Transfer student profile and performance
         - Credits to graduation
         - English language proficiency project
         - Indigenous educational pathways report completed

(a) 2nd phase on the way
(b) Indigenous persistence from the student perspective

ix BCCAT website review underway
x BC Transfer Guide website
xi Education planner has been taken over by the Ministry
- Valuable resource for students

b K-12/ABE Comparison Report - Kyle Beres (Selkirk)
i BCCAT funded project
ii Ministry began process of changing secondary curriculum in 2011
iii Emphasis on deeper learning and foundational skills in numeracy and literacy
iv More ability to cater learning to student interest
v Increase indigenous perspectives
vi Core competencies
- Communication
  (a) Set of abilities to impart and exchange information and explore world around them
- Thinking
  (a) Creative and critical thinking
- Personal/social
  (a) Set of abilities to relate to student's relationship with the world
    (i) Positive personal and cultural identity
    (ii) Personal awareness and responsibility
    (iii)Social responsibility

vii Curriculum structure
- Big ideas
- Content
- Curricular competencies
- Elaborations within each area

viii Many new courses
- 9 new grade 10 in English
- 8 new grade 11
- 3 new grade 12

ix Math
- 2 new 11 level
- 3 new 12 level
- A and W now Workplace Math
- Grade 12 Apprenticeship Math
- Need grade 11 math to graduate

x Science
- Some new courses
- Amalgamation
- Specialized science 12
  (a) Wide open to tailor for students

xi Socials
- Many courses – too many to offer all at once at small schools

xii Computer science
- Expanded, changed, and new

xiii Presentation by Kyle Beres will be up on KPU Moodle
xiv How does ABE fit in?
- Compare learning outcomes – need to have 80% similarity
- Compared 9 courses
  (a) Wide variety in relationship
  (b) Overall not a huge change within content
  (c) Average similarity 69%
  (d) Big difference was language and specificity
    (i) K-12 reduced learning outcomes and flexible
    (ii) ABE more rigid
    (iii)Indigenization more prevalent in K-12

xv Recommendations
- Maintain 80% similarity where possible
- Compare all courses
- Implement indigenization improvements
- Overall goals
  (a) Include in handbook (overall, subject, course specific)
- Increase consistency within handbook
- University Transfer articulations
- Future studies to monitor success

xvi Grades 10, 11, 12 will be letter grades
xvii K-9 will be letter grades or the proficiency scale
xviii K-12 has switched to "learning standards" terminology in place of "learning outcomes". Exact difference is unclear.
xix Path forward to be determined
xx Recommendations up for review with steering committee at end of April.

c ABE Steering Committee Report—Colin Gilker, Chair, ABE Steering Committee
i Bryan Dreilich presented from Ministry
ii New government
iii Tuition-free implementation requires new policy framework – should be complete but have not seen updates
iv Decided that university transfer courses should not be in the ABE articulation grid
v Ministry is revisiting long-term funding model and will look at block-funding
- FTE targets? If don't meet then funding gets reduced. If exceeds then won't get more funding. Not sure if this is what is coming.

vi Ministry will not set limits to number of times a student can repeat courses, but wants institutions to create clear policies on repetition
vii ABE Articulation Guide – need to include link to outcomes or written out verbatim including the year articulated.
viii Question of where to bring forward date changes for working committee meetings. Response was to bring to working committee and then the chair will bring forward to steering committee.

d Ministry Update—Bryan Dreilich, Director, Post-Secondary, Engagement & Partnerships, AEST – **was not available to attend**

10 Discussion of motion at Steering Committee meeting of 2018.

MOTION - The ABE Articulation Steering Committee recommends to the Deans and Directors Meeting in May 25, 2018 that courses coded at a Post-secondary level should be articulated as ABE courses, or should be removed from the Articulation Grid.
DISCUSSION - Articulation Working Committees to contact Institution Reps to identify courses to be removed from the grid as per previous motion. Steering Committee to follow up with Institution Reps.

a Motion to remove all courses that are listed at the post-secondary level from the ABE articulation grid. M/S/Carried. [clarification: "all courses" refers to all ABE math courses**]**

11 Comprehensive review of learning outcomes for Provincial (Algebra and Trigonometry)

a Learning Outcome 1 Point O was questioned since solving equations with three variables is not a requirement in Intermediate Math; therefore, students should not be expected to know that topic in advance of Provincial math.

b Learning Outcome 1 Point J has the same concern.

c Discussion occurred as to whether students should be required to memorize formulas or not. In general, it was agreed that it's up to each institution to decide the depth of content and the articulation guide should only focus on topics and leave the details to each institution or instructor.

d Learning Outcome 1. Algebra Review was questioned as to whether those topics are required to be known at the end of Provincial Math or whether they are required as prior learning. The word "review" implies prior learning and yet some topics are not required at the Advanced level.

e Motion to make the following changes to the Provincial Math – Algebra and Trigonometry learning outcomes:

- **remove the words "Review" from the title of Learning Outcome 1 and "A Review of" from the subtitle and change "is" to "are"**
- **add an optional Learning Outcome 3. p) that reads "determine and analyze complex roots of a polynomial".**
- **change Learning Outcome 4. l) from "functions" to "equations".**
- **change Learning Outcome 7. A j) from non linear to nonlinear**
- **change Learning Outcome 6. f) from nth to n^{th}**
- **M/S/Carried**

12 Articulation/re-articulation of math courses and considerations of any possible revisions

a Intermediate-developmental

- None submitted

b Intermediate-algebraic

- None submitted

c Advanced-algebraic

i MATH 077—Camosun (renaming of current MATH 137)

- Renaming of Math 137 to Math 077

- No other changes made
- This course was re-articulated in 2018
- **Motion to recommend approval of the name change by CC from Math 137 to Math 077- M/S/Carried**

d Advanced-business / technical

i MATH 075—Camosun
- New course
- **Motion to recommend articulation of CC's Math 075 - M/S/Carried**

ii MATH 046—CMTN
- **Motion to recommend re-articulation of CMTN's Math 046 subject to a change of reference to the articulation guide date from 2017/2018 to 2018/2019 - M/S/Carried**

iii MATH 081—COTR
- **Motion to recommend re-articulation of COTR's Math 081 subject to a change of reference to the articulation guide from current to 2018/2019 and removal of the link entirely- M/S/Carried**

iv MATH 084/086—OC
- **Motion to recommend re-articulation of OC's Math 084/086 - M/S/Carried**

v MATH 54—Selkirk
- **Motion to recommend re-articulation of SC's Math 54 - M/S/Carried**

vi MATH 0550—TRU
- **Motion to recommend re-articulation of TRU's Math 0550 subject to the addition of the year 2018/2019 to the articulation guide reference - M/S/Carried**

vii MATH 0863/0873—VCC
- These two courses will replace the current Math 0862/0863 (old version) which are currently on the articulation grid.
- **Motion to recommend the articulation of VCC's Math 0863/0873 subject to a change of reference to the articulation guide date from 2017/2018 to 2018/2019 and the correct link of** https://www.bctransferguide.ca/search/abe **- M/S/Carried**

viii MATH 044—VIU
- **Motion to recommend re-articulation of VIU's Math 044 - M/S/Carried**

e Advanced-developmental

i MATH 044—CNC
- **Motion to recommend re-articulation of CNC's Math 044 - M/S/Carried**

ii MATH 056—Yukon
- New course
- Not yet through Yukon College's Academic Council
- **Motion to recommend articulation of YC's Math 056 subject to approval by Yukon College's Academic Council - M/S/Carried**

iii MATH 61/71—NEC
- Marion Gariepy (by telephone)

(a) Course number was missing
(b) Need to change lecture hours from 245 to 105
(c) Need to change the link from the 2016-2017 articulation guide to https://www.bctransferguide.ca/search/abe with a reference to the 2017-2018 articulation guide
(d) Unsure if learning outcomes directly match the latest articulation guide
(e) Decided to make changes and bring for re-articulation next year

iv MATH 057—NVIT
- Stefan Zabek (by video)
- **Motion to recommend re-articulation of NVIT's Math 057 - M/S/Carried**

f Advanced-foundations

i MATH 055—NVIT
- Stefan Zabek (by video)
- **Motion to recommend re-articulation of NVIT's Math 055 - M/S/Carried**

ii BMTH 047/048—Capilano
- Header states "BBIO 053" – needs editing
- Discussion around whether approval through an institution's EDCO (or equivalent) is required prior to being articulated.
- ABE Policy and Procedure Manual Fall 2018 (page 6) states that "Courses brought to articulation must be brought to an institution's academic governance body (eg. Education Council)".
- **Motion to recommend re-articulation of CU's Math 047/048 - M/S/Carried**

Action Item – Co-chairs will clarify with the Steering Committee the requirements for approval of an institution's governance body prior to re-articulation and the associated timelines.

iii MATH 56—Selkirk
- **Motion to recommend re-articulation of SC's Math 56 - M/S/Carried**

g Provincial-algebra and trigonometry

i MATH 097—Camosun
- New course
- Reference to Advanced Business Technical needs to be changed to Provincial – Algebra and Trigonometry
- **Motion to recommend articulation of CC's Math 097 subject to a change of reference from Advanced Business Technical to Provincial Algebra and Trigonometry - M/S/Carried**

h Provincial-calculus
- None submitted

16:23 – adjourned for the day

Friday, March 8, 2019

9:05 – call to order

13 K-12/ABE Comparison Report - Kyle Beres (Selkirk)
- a Math curriculum discussion
- b ABE is 68% similar between Advanced Algebraic and Pre-Calc 11.
  - i However this can be misleading because the elaborations are very similar with different wording in the curricular competencies
- c ABE is missing financial literacy as one main area
- d K-12 Curricular competencies (the do's) missing from ABE
- e ABE uses the "know's"
- f Question of how the flexibility will be transferable to post-secondary
- g University grappling with the differences with students coming in with varying backgrounds due to flexibility in curriculum.
- h Question of the difference between content and competencies. Content is very similar. Do we articulate for skills or just content? Shall we add a section to the articulation guide that just states the skills that get developed (critical thinking, etc…)?
- i Is change within ABE necessary?
- j This will be a fluid process. K-12 will continue to evaluate and modify as required.
- k Will there be capacity to make changes to learning outcomes within the committee? The feeling is that it would require the funding of a separate position.

14 Discuss request from Kwantlen for possible new category of course. They are thinking Intermediate Level - Developmental but want to use option B even though they want it for non-vocational students. (see KPU MATQ 1079 outline)
- a Discussion to clarify what the purpose of the course would be.
- b Decided that it is not necessary to create a new category and just needs to be articulated as Intermediate Developmental
- c Rumours of plans to eliminate fundamental level; therefore, KPU wants this course to be articulated at Intermediate Developmental to act as a pre-requisite for Intermediate Algebraic
- d Agreed that this outline can be brought forward at next year's meeting to be articulated as Intermediate Developmental.

15 Discuss if there is a need to develop learning outcomes for a provincial level equivalent of Foundations of Mathematics 12. If so, may need to form a subcommittee to carry this forward.
- a TRU offers competitive nursing program. Used to be Advanced-level Math as pre-requisite but now it's Provincial that is required. Now offer Pre-Calculus Foundations of Math 12 internally to fill this need. Some computer and business students also take this course. This course is not articulated.
- b No other institutions have a similar need at this time.
- c Provincial Algebra and Trig is too difficult if students have only done Foundations of Math 11.

d Winona (BCIT) mentioned another program at UBC that accepts Math 12 Foundations in place of Pre-calc 11.

Action Item – Co-chairs will bring forward the idea of creating an ABE equivalent to Foundations of Mathematics 12 to the Steering Committee to inquire about options for funding.

16 Textbooks
- a Zed Cred money towards creating texts for Dogwood certificate
- b Izabella (TRU) was at a meeting to discuss list of subjects
- c Math – two books already accepted to be developed
  - i Intermediate Developmental
  - ii Advanced Algebraic
  - iii Hopefully in 1 to 1.5 years open source options will be available
  - iv Idea that Advanced Business Technical could be added to the list
  - v Supported idea of putting forward Advanced Business Technical to be developed in the future

17 ALM (International Adults Learning Mathematics Conference) in downtown Vancouver early July 2020—Judy Larsen (UFV)
- a Judy presented on an opportunity to present at or attend this conference in 2020.
- b Annual conference
- c Last year in London, UK
- d International organization
- e Policies related to adult numeracy
- f Practice oriented
- g Research
- h July 6-9, 2020 in Vancouver
- i Examples from London conference
  - i Cijferstorm math game
  - ii Bobby Seagull's math games
- j In Sweden this year
- k Another initiative of note
  - i Health numeracy project
    - Healthnumberacyproject.com/gizmo/welcome

18 Presentation: "How Mobile Technologies Impact Resource Accessibility for Students"—Emmanouil (Manos) Daskalakis, Math Instructor, Vancouver Community College
- a Identified problems
  - i Missing classes
  - ii Limited time for study at home
  - iii Language barrier
  - iv Poor note taking
  - v Memory of what happened in class
  - vi Need for extra support outside of class
- b Solutions
  - i Notetaking / notesharing
    - Use projector, iPad, stylus

(a) Noteability iOS app
(b) Lecture notes
(c) Notes Plus
(d) OneNote

- Easier for students to take notes
- Teacher facing students
- Better graphs/sketches
- Less messy
- Notes can be converted to pdf and shared
- Students can focus on discussion, not on note taking if they choose
- Provided demonstration of Noteability for drawing circles and other shapes
- Can also drag other image files into notes on screen
- Mentioned GeoGebra for sketches

ii Class video streaming

- Video archiving
- Students can revisit portions of the class
- Students can watch if missed class due to illness or other
  (a) Chat box to interact
  (b) Can use VR goggles for wide screen
- Concerns with student's privacy
- Will students come if they have a chance to stay home?
  (a) Provide assignments and quizzes that they need to be there for
- Applications
  (a) Chrome browser and Google Hangouts On Air
  (b) Streamlabs
  (c) OBS
- Demonstration of how to stream using Streamlabs
  (a) Log into account
  (b) Start streaming – 1080P with buffer technology
  (c) Can see projector and hear voices
  (d) Remains on private YouTube channel until removed

iii After class assistance

- Discord app
- Provide chat venue for students to discuss assignment questions but not provide answers
- Advanced students benefit from teaching others
- Weaker students benefit from extra support

iv Future plans

- Keep resources inhouse
- Addressing privacy issues
- Continue to hold feedback sessions

19 Next steps for Kyle Beres' report on ABE / K-12 comparison

a keep articulation guide as is but add goals or mission statement in guide
b need consistency across disciplines in how guide is put together
c goal statements are there but perhaps need to use more sentences
d could have one set of goal statements for all math levels

e before acting as a math committee, we need to wait to see what consistency might be imposed by steering committee
f one example might be to see how science does things: goals, generic topics, options
g it was felt that if subtracted the generic statements from the K-12 curriculum outcomes, then ABE would probably be above the 80% fit for learning outcomes
h we are open and willing to new curriculum, and we are for flexibility for students
i we want to keep topics in point form even though province is doing more in broad strokes
j also willing to amend outcomes to make curriculum aligned and at same time align with internal courses
k adapt to any necessary learning outcomes to more clearly state the competencies we have in common
l we value the ministry competencies, and are willing and open to work with them
m many things are already going well for students who go on to receiving institutions
n acknowledge facts that ABE has a unique part to play in helping adults to their unique pathways within our post-secondary institutions
o overall, we feel we have 80% fit, but what is missing is more the big ideas

20 Errors or omissions in current transfer guide to correct
a we have already made some throughout the meeting

21 Long-range plans (two to three years into the future)
a Any items that need to be reviewed
i No further items

b Recap schedule for re-articulation of courses
i next year review Learning Outcomes for Provincial Calculus
ii next year rearticulate Provincial Algebra and Trigonometry
iii rearticulation schedule for full suite of courses:
- 2020 Re-articulation of Provincial (Algebra and Trigonometry) courses
- 2020 Review of Learning Outcomes for Provincial (Calculus)
- 2021 Re-articulation of Provincial (Calculus) courses
- 2021 Review of Learning Outcomes for Intermediate Algebraic
- 2022 Re-articulation of Intermediate Algebraic
- 2022 Review of Learning Outcomes for Intermediate Developmental
- 2023 Re-articulation of Intermediate Developmental courses
- 2023 Review of Learning Outcomes for Advanced Algebraic
- 2024 Re-articulation of Advanced Algebraic courses
- 2024 Review of Learning Outcomes for Advanced Developmental
- 2025 Re-articulation of Advanced Developmental courses
- 2025 Review of Learning Outcomes for Advanced (Bus/Tech) & Foundations
- 2026 Re-articulation of Advanced (Bus/Tech) & Foundations courses
- 2026 Review of Learning Outcomes for Provincial (Algebra and Trigonometry)

c Possible training events or professional development opportunities for future meetings
    i Indigenization put onto next year's agenda for full discussion. Perhaps a speaker specific to indigenization of math.
    ii Let co-chairs know of anyone qualified to present on this topic
    iii Co-chairs can ask at Steering Committee as well
    iv Let co-chairs know of any other possible presentation ideas

22 Elections for co-chairs of ABE Mathematics Working Group
a **Motion to nominate Costa Karavas (VCC) and Robert Ferro (Yukon) for another year as co-chairs – M/S/C**

23 Selection of next meeting location for 2020 (this date may be already decided at joint meeting)
a Suggestion of a location closer than Coquitlam as some have ferries to catch on Thursday morning and the further away from ferries, the harder to get to meeting in time
b leave to steering committee to choose dates and location
c some want to have the meeting later in the year
    i Winter travel issues - NIC would like it in May
    ii Three days needed – 1 day travel and 2 days of meetings
    iii For some, it may mean doing the meeting by video conference
    iv Suggest Kwantlen for 2020 meeting

24 Summary of new business, next year's items, and wrap-up
a 21 new and rearticulated courses
b Reviewed and revised learning outcomes for Provincial Math - Algebra and Trigonometry
c Next year re-articulating courses for Provincial Math - Algebra and Trigonometry
d Next year reviewing learning outcomes for Provincial - Calculus

15:18 - **Motion to adjourn the 2019 Math Working Committee meeting – M/S/C**

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

HELD AT CAPILANO UNIVERSITY, MAY 15 – 16TH, 2018

Presented by Costa Karavas (Vancouver Community College)

1. Keynote speaker Richard Hoshino presented Four Problem-Solving Strategies for Mathematics and For Life. Richard was winner of the 2017 CMS Adrien Pouliot award for his contributions to math education in Canada.

2. Placement into first-semester courses

A straw poll was conducted on what Precalculus grade is required in a typical first-semester Calculus for the science stream. Most institutions require a B or higher in Precalculus 12 while UBC, SFU, and Capilano require an A or higher, and that moreover most institutions accept a lower score in their in-house pre-calculus course than they require from a high school pre- calculus course.

The Committee then took a straw poll on what score is required in the in-house pre-calculus course for admission to a first-semester calculus course for science students. Results: 4 institutions require a B, 2 require a B-, 6 require a C+, 4 require a C, 4 require a C-, and none accepted a D.

3. Two-stage exams by Kseniya Garaschuk, UFV.

Students write an exam individually in stage 1, and then work together in self-selected groups of three or four students to revise and resubmit their work in stage 2. If students did better on the individual portion then that is all that counted, otherwise their score was based 80% on stage 1 and 20% on stage 2. In her experience, students loved the structure – although the instructors did not see concrete gains in course grade outcomes.

Interestingly, some students commented that although they did not benefit directly from the two-stage model they thought that it was so useful for their peers that they would want to have two-stage exams in the future. Students found they had not enough time to discuss with more than just their own group members.

Kseniya Garaschuk has detailed data on this two-stage exam experiment, which she spoke about at the Changing the Culture Conference. Her poster on this study is available at http://www.cwsei.ubc.ca/Files/EOY/EOY2016/Posters/Garaschuk_Math-Group-Exams_ UBC-SciEd-OH2016.pdf.

Some committee members were curious about academic integrity, and whether steps were taken to prevent collaboration between different groups. Kseniya Garaschuk said that no effort was made to prevent discussion between different groups.

4. First Year Core Engineering

The Engineering articulation committee has put out a draft report to BCCAT that makes recommendations for the first year core Engineering curriculum that would ideally be province- wide.

A draft of this report, from the 2017 Engineering articulation committee meeting, is posted on the BCCAT webpage at http://www.bccat.ca/pubs/engineering-final-report-v121. Discussion followed about inconsistencies in Calculus I and II topics, whereby the

topics required in the Common First Year Core Engineering for Calculus I and II are not the same with the topics in the current existing transfer agreements between institutions. Larger discussion on this will be included in the following articulation meeting in May 2019.

5. Statistics 12 course- curriculum and support for teachers, Bruce Dunham, UBC

Bruce gave a brief overview of the background of the new Statistics 12 course will be in the high curriculum as a mathematics elective starting September 2019. Information on the course can be found at the BCAMT website, and details are expected to appear on the Ministry of Education's website. Bruce has worked with the Ministry and representatives of the BCAMT to develop the course. The course is not intended to articulate to any existing courses at university or college level, but should provide an excellent grounding in preparation for a traditional introductory course.

It is evident that teachers in the province require support if they are teach the new course. To that end, Bruce ran both a two-hour workshop in October at the BCAMT annual conference and a one- day workshop in April in Burnaby. In total around 25 teachers attended at least one of these sessions, the responses being very positive.

6. Theme for the 97th BCCUPMS meeting (to be held at COTR in May 14-16, 2019)

Topics were suggested for the 97th meeting: New high school math for admissions purposes, and the Numeracy Assessment for admission purposes; Precalclus courses; Textbooks for Math for Teachers courses; Paperless testing; Open education resources; Indigenization of math and stats curriculum.

Adult Literacy Fundamental (ALF) Ariculation Working Group
Thursday, October 18 and Friday October 19, 2018

Summary for Subject Area: <u>Math</u>

Indigenization Initiatives Round Table: Submissions from each representative on indigenization initiatives underway at their post-secondary institution.

Outcomes: A subcommittee for revision of ALF English outcomes received feedback on their work to date. The current outcomes include skills and strategies as well as measurable outcomes. The subcommittee are working to ensure that only outcomes are listed as such, and that skills and strategies are listed at the appropriate level under "learner profiles."
Many of the skills and strategies for English are equally relevant to math (e.g. time management). The committee may decide to update the math outcomes and learner profiles following the completion of English revisions.

Re-articulation: ABE. Articulation Steering Committee requires re-articulation of all courses every 7 years. Committee members will rearticulate, as needed, once an overhaul of outcomes is complete. The ALF committee moved to include the year of articulation in the articulation guide.

Course Articulation:
1. Math 024 A & B, 025 A & B, 026 A & B articulated--Mercedes de la Nuez, (Coast Mountain College)
2. Math 011, 012, 013, 024, 025, 026—Addie Dawe (Northern Lights College)
3. MSK 01, 02, 03, 04, 05—Summer Crossan (Selkirk College)

K-12 Learning Outcomes: Kyle Beres (Selkirk College) presented. Of note: all courses will include indigenous perspectives and knowledge, literacy and numeracy competencies will be emphasized, more equivalent course offerings and non-streamed options will be available (e.g. math 10, 11 and 12 courses do not need to be taken in consecutive order)

Co-chairs: outgoing-Melinda Worfolk (College of New Caledonia), continuing-Julia Dodge (University of the Fraser Valley), new-Faith Shields (Camosun College)

Guests:
Barbara Binczyk, Ministry of Advanced Education and Training, by phone
Alison Alder (Selkirk) ABE Steering Committee
Kyle Beres (Selkirk) ABE Steering Committee, K-12 Learning Outcomes Project
Magaret Sutherland, Decoda Literacy Solutions

ALF Articulation Meeting 2019: VCC downtown, October 24, 25 2019

Summary of Joint Annual Meeting of Articulation Committee Chairs, System Liaison Persons (SLPs) and Institutional Contact Persons (ICPs)

16 November 2018

Submitted for ABE Math Working Group meeting March 7-8, 2019
Some information gleaned and taken from sessions descriptions and BCCAT website at:
http://www.bccat.bc.ca/articulation/jam/

1. **Keynote Address: Beyond "ESL": Support for Both Multilingual and International Students in BC Higher Education.** Joel Heng Hartse, Simon Fraser University
    - As the number of students for whom English is an additional language continues to grow in BC, a re-examination of the way colleges and universities place, teach, and support all students with regard to academic language and literacy is needed. This includes asking questions about, among other things, language testing (how useful are standardized English proficiency tests for admission or placement decisions?), the way students and languages are conceived of in official or unwritten policy (do institutions "label" certain students, do we recognize non-official languages, and why or why not?) the place of English language and literacy courses in the curriculum (is it time to embrace more credit courses, and if so, in the first year, or across students' degree programs?), and the future trajectories of students (are their careers likely to be trans-national, and what are the implications?).
    - In the presence of a complex ecosystem of many ad hoc and partial responses to the academic language and literacy needs of BC's post-secondary students, from language schools to pathway programs to co-curricular institutional support to private entrepreneurial tutoring companies, this presentation considered current practices and future possibilities in supporting this large and diverse group of students, both to the rise in EAL students (international and domestic) in BC post-secondary classrooms, and to the need to make decisions about how to adapt admissions criteria in light of the K-12 curriculum reform in BC.
    - Dr. Joel Heng Hartse is a Lecturer in the Faculty of Education at Simon Fraser University in British Columbia, Canada where he teaches Foundations of Academic literacy and TEAL-related courses, and is affiliated with the Centre for English Language Learning. Teaching & Research. His research focuses on the teaching of writing and language in the context of the internationalization of higher education and the globalization of English, and has appeared in the Journal of Second Language Writing, Asian Englishes, Composition Studies, Across the

Disciplines, and English Today. He is co-author of Perspectives on Teaching English at Colleges and Universities in China (TESOL Press) and co-editor of the Canadian Journal for Studies in Discourse and Writing/Redactologie.

- The punchline is: embracing multilingualism + integrating language and literacy education in postsecondary education
- Assumptions
  1. Languages share common underlying proficiencies
  2. "remedial" and "deficit" discourses don't help
  3. Real challenges arise relating to language and culture
  4. Institutional change is often necessary but rarely easy
- Assumptions: all students need help with language and literacy throughout their postsecondary careers
- Need to rethink recognition of students and languages, testing, language and literacy in the curriculum, and student futures
- Recognition: "despite the fact that multilingual students bring a high degree of multilingual competence and literacy to the university, as well as a diverse range of multiple identities, they…are ascribed an identity that fails to recognize their many assets: a deficit remedial ESL identity.
- Testing & placement:
  1. IELTS and TOEFL: proficiency, not "academic readiness"
  2. Post-entry language assessments (PELAS) are diagnostic, disciplinary, and can be used to provide targeted support
  3. In Australia use of DELNA (Diagnostic English Language Needs Assessment does not exclude you from the courses one is enrolled in and does not appear of academic record. Helps identify strengths and weaknesses in academic English. It will show Faculty the areas where they may need to help.
- English language and literacy in the curriculum—"…students now focus squarely on the nature of academic language in their degree programmes from day one."
- SFU had CELLTR Model (a developmental model of embedded language and literacy provision and research)—ex, chemistry instructor working hand in hand with English instructors to help out
- Question: how could academic language and literacy be more holistically integrated into postsecondary curricula (rather than marginalized as remedial)?
- www.sfucelltr.ca

2. **The BC Credit Transfer System at Work.** Mike Winsemann, BCCAT
   - An overview of how the BC Transfer System operates in the province, the evolution of the technology involved and what exciting developments we can expect to see in the future for transfer system technology.

- TCES—transfer credit evaluation system, launched in 2005. Since then, 150 000 new course-to-course agreements
- Campus Manitoba took BC's platform, improved it and gave it back to BC for free. BCCAT completed it and went live in 2018

3. **Exploring Opportunities for Changing International Transfer Credit Assessment Policies and Practices.** Joanne Duklas, Duklas Cornerstone Consulting
    - Following the publication of her report on International Credit Transfer Practices, Joanne examined the policies and practices of processing international credit transfer requests in post-secondary institutions. She provided possibilities, advice and lessons learned from the field.
    - Challenges: limited volume of data; relied on registrarial colleagues
    - Lisbon recognition convention (LRC), ratified by Canadian government
    - Growth in int'l students, BC has highest %
    - Top source country is China at 28%
    - CICIC.ca is a Canadian example of free support for credential assessment

4. **Indigenous Student Pathways.** Stephanie McKeowan and Adrienne Vedan, Lincoln Hallgren and Jackson Traplin, UBC-O
    - Following publication of their February 2018 report and ongoing research, Stephanie and the team discussed their preliminary feedback from Indigenous students and academic leaders on current practices and opportunities to support the access and persistence of Indigenous students at public BC Transfer System institutions.
    - Project is student driven—they are the lead researchers
    - Project started in 2014 and have interviewed 28 initiations in BC, including Yukon College and Athabaskan University
    - Results published in "Indigenous Educational Pathways" by BCCAT. Now in phase II. Started focus groups at UBC-O
    - Thematic overview—project summary: access, mobility, persistence
    - Theoretical framework—Indigenous peoples encounter multiple barriers; 4 R's or FN and Higher ed: respect, relevance, reciprocity, responsibility
    - Emerging themes from focus groups: community feel on campus is positive and negative; affordability to find housing and transportation; support from high schools needs to improve drastically
    - Next steps: expand to more institutions, publish review, etc.

5. **BCCAT Transfer Awards Ceremony.**

- Transfer and Articulation Community Leadership Award—Dezene Huber, Professor (Conservation Science and Practice, and Ecosystem Science & Management), University of Northern British Columbia
- Transfer and Articulation Community Leadership Award—Adrian Lipsett, Program Manager, Creative and Applied Arts, Langara College
- Leadership Award—Richard Chester, Faculty Member, Natural Resources and Engineering, BC Institute of Technology
- Leadership Award—Norm Shaw, Association of BC Forest Professionals (ABCFP), and former Instructor at the BC Institute of Technology

6. **Workshop for AC Chairs and SLPs.** Ruth Erskine and Fiona McQuarrie
    - Planning an Articulation Committee Meeting
    - Transfer Innovations Projects – Process
    - Moodle Review—17/66 committees use Moodle, 13 use Google
    - The Role of the SLP
    - Minutes Review Process—handout on website
    - Awards for the Best Minutes
        1. Criminology honour roll mention
        2. Physics and Astronomy honour roll mention
        3. Best minutes: Modern Languages and ABE Mathematics

7. **Who Knew? The Truth Behind Student Mobility.** Robert Adamoski and Anna Tikina
    - Presentation highlighting results from current research projects.
    - Quiz on audience knowledge of transition, mobility, and access
    - Transfer system in BC is working well. It supports students from under-represented groups in BC

8. **Future Directions**
    - An update on BCCAT's engagement with multi-jurisdictional partners, shared challenges and opportunities, and some future directions to consider in facilitating credit transfer, credential recognition, and student mobility provincially and nationally.
    - Meeting focused on indigenization
    - There is increasing diversity in curriculum
    - Must think more holistically
    - Next year, 2019, is BCCAT's 30th anniversary!

It was noted that Ruth Erskine was attending her last JAM as she is retiring soon. After retirement she will be doing her passion—cacti. See photos at cactomania.ca