

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

MINUTES OF THE 92ND MEETING, MAY 13 – 14TH, 2014

TUESDAY, MAY 13, 2014

1. WELCOME

Betty Worobec, dean of Science and Horticulture, Kwantlen Polytechnic University, welcomed the BCcupms to its 92nd meeting at the Richmond Campus of Kwantlen Polytechnic University.

2. ADOPTION OF THE AGENDA FOR THE 92ND MEETING OF THE BCcupms

The Agenda for the 92nd Meeting was approved by consensus after agreeing to the following changes:

- 17.5 tracking online high school students moved to 8.8.
- 17.6 Observations on the new grade 12 cohort moved to 8.9.
- 17.10 Possible change to meeting schedule (Gary MacGillivray) added.

3. APPROVAL OF THE MINUTES OF THE 91ST MEETING, HELD AT COLLEGE OF NEW CALEDONIA

Motion: (moved by Richard Lockhart and seconded by Wesley Snider)

That the Minutes of the 91st Meeting be approved.

Carried unanimously.

4. ANNOUNCEMENTS

4.1 Introduction of representatives

4.2 Attendance Lists: Nora Franzova circulated the attendance lists.

4.3 Announcements from the hosts: Mike Nyenhuis provided information on internet access and logistics for the meeting.

4.4 Notice of Election: At this meeting, elections for the Chairs of the BCcupms and Statistics Subcommittee will be held. These positions have two-year terms. Jason Loepky, Nora Franzova and Richard Lockhart volunteered to form the nominating committee.

4.5 Conferences: Members of the committee shared information about upcoming conferences that might be of interest to the group. These included: Changing the Culture on Friday May 16 at SFU Harbour Centre and Sharing Math on May 15 at Kwantlen, Richmond campus. Also, UBC is hosting conferences on STEM teaching: “STEM Education and Our Planet: Making Connections Across Contexts”, July 12-15, and “Improving University Teaching”, July 23-25 as well as “Psychology of Math Education”, July 15-20. There will be a Canadian Mathematics Education study group in Edmonton May 30-June 3.

Mathematics and Statistics Subcommittee Sessions (held concurrently)

5 MATHEMATICS SESSION (Chaired by Jim Bailey)

Math 5.1 Report from the Calculus Readiness Test Subcommittee—Justin Gray and David Feldman

Justin reported on the progress of the Calculus Readiness Test Subcommittee. He reminded the group that the subcommittee was struck to come up with a shared calculus readiness test for postsecondary institutions across BC. The BCcupms 1999 Proficiencies Report was used to generate topics and questions for the test. A database of 90 precalculus problems have been coded in LON-CAPA and at this time Justin is looking for volunteers to administer the current draft to groups of students in order to generate feedback. These test students would provide valuable data to the subcommittee about which questions are best to keep, what possible distractors may be used as options in multiple choice questions, common errors etc. Justin also welcomes testers to give feedback that includes additional potential questions. Justin

suggested that the test could be given to students for bonus marks. Problems are currently posed as free response but the goal is to make it multiple choice so that it can be administered to large groups of students using bubble sheets.

Jim Bailey, Susan Milner and Costa Karavas volunteered to give this test to calculus students in September. Anyone else who wishes to participate or has questions can email Justin at jgray@math.sfu.ca. Ron Coleborn asked if the test could be shared with secondary teachers. There was some discussion and questions about whether the test is intended as self-diagnostic or for placement in appropriate postsecondary courses. Jim Bailey asked if the test could be shared outside the province once finalized.

Justin also shared that once the test is finalized it will be able to randomize the questions and graded by Scantron (outside of LON-CAPA). Security will have to be discussed once the test is finalized if it is to be used as a placement tool.

Justin thanked Tim Topper for contributing questions to the test.

Math 5.2 Calculus Challenge Exam – Wayne Nagata

Wayne reported on the latest results from the Calculus Challenge Exam, which offers students who learn differential calculus in high school a way to demonstrate their mastery of the subject and claim credit at a BC university. It is recognized by UBC, SFU, UVic, UNBC. The test costs \$100 and allows the use of a calculator and includes a standard formula sheet. The test is administered alternately at SFU and UBC but students outside of the lower mainland can take the test with an invigilator. The test is similar in content and difficulty to a typical Math 100 exam at UBC and includes many word problems. The last test was administered to 95 students province-wide in June 2013. Of the students who took the test, 43 passed, a 45% pass rate, which is a decrease in pass rate. The percentage earned on the test would become the student's grade in Math 100 if they chose to use it for credit.

The next test is June 5, 2014 at SFU. Wayne reported that the test is publicised by email to administrators and the BCAMT.

STATISTICS SESSION (please see the complete Minutes of the Statistics Session on pages 24-27)

Stats 5.1 Approval of Agenda

Stats 5.2 Approval of Minutes of the Statistics Subcommittee Session at 91st Meeting

Stats 5.3 Matters Arising from the Minutes

Stats 5.4 Institutional Reports

Stats 5.5 Election of Statistics chair

Stats 5.6 Flexible pre-major in statistics

Stats 5.7 Canadian Engineering Accreditation Board accreditation criteria (Bruce Dunham)

Stats 5.8 Any other business

Stats 5.9 Motion to adjourn

Plenary Session

6. Highlights from Mathematics and Statistics Sessions

Mathematics Session

Nora Franzova summarised the discussions of the Mathematics Session.

Statistics Subcommittee Session

Bruce Dunham summarised the discussions of the Statistics Session, particularly on the Flexible Statistics Pre-Major Program which is similar to the Flexible Math Pre-Major program. The Flexible Statistics Pre-Major Program document is available on the BCcupms website.

Motion: (moved by Bruce Dunham and seconded by Richard Lockhart)

That BCCUPMS endorse the Statistics Flexible Premajor report.

Carried unanimously.

7. Report from the Ministry of Education - Melissa Horner

Melissa gave a presentation on the Ministry of Education's current Curriculum Redesign Principles. The entire K-12 curriculum is being examined to ensure core competencies are explicit, to reduce the prescriptive content and to allow for more flexibility and choice in curriculum delivery. Curriculum drafts for grades K-9 are now available on the government website: <https://curriculum.gov.bc.ca/curriculum> as well as information on the Core Competencies which are sets of intellectual, personal, and social and emotional proficiencies that all students need to develop in order to engage in deep learning and life-long learning.

The content in the curriculum redesign is similar to the current content in the K-12 math stream. The focus will remain on problem solving with financial literacy added in grades 1-9 and more consistency in K-9 probability and statistics. There is concern that there is currently too much content in grades 8 and 9. There is a desire to integrate aboriginal content in the new curriculum. In terms of assessment, there will be an increased emphasis on assessment for learning. The Grade 10 exams are being looked at and decisions about Grade 10-12 exams are coming later this year.

Melissa welcomes feedback which can be emailed directly to her at Melissa.Horner@gov.bc.ca or to curriculum@gov.bc.ca.

There was some discussion about how prepared students are when they enter post-secondary and that changes made in K-12 can impact students' future success in mathematics. There was discussion about the value of provincial exams in grade 12 math courses and many instructors felt grades might be more consistent and reflective of students' actual abilities if a common provincial final exam made up part of their grade. Nora Franzova reminded the committee that we sent a letter to the ministry a few years ago asking to reconsider eliminating grade 12 provincial exams in math.

Melissa also spoke on Wednesday May 14 about a teleconference she had with the Ministry of Ontario who is involved with a PanAm group regarding K-12 math education. They want to involve different groups and Melissa invites the committee to share with her what math learned in early years benefits math learning in later years.

Melissa thanked the committee for their time

8. BUSINESS ARISING FROM THE MINUTES OF THE 91st MEETING

8.1 Letters sent to BC colleges and universities about course cancellations – Jim Bailey

A working group was struck to draft a position statement on behalf of the BCcupms at the 91st meeting in Prince George, namely that access to mathematics education be considered in decisions about program and course cancellations. During the past year, a letter was drafted and circulated via the BCcupms listserv, revised accordingly and sent to BC postsecondary institutions. Jim Bailey reported that the letter to Royal Roads was returned (Returned to Sender) unopened. Two institutions, UNBC and TRU, acknowledged receiving the letter and a nice reply was received from UVic outlining their focus on student success in mathematics and consultative process.

8.2 Core Business Calculus Agreement: UBC MATH 105 – Wayne Nagata (Wayne also gave his institutional report at this time)

Wayne reported that Math 105 is UBC's version of Calculus 2 for Business. At UBC, all streams of calculus are equivalent and cover the same calculus topics as each other. Because of this, Math 105 includes sequences and series which is not a required topic in the BCcupms Core Calculus for Social Sciences stream. There has been some discussion involving Wayne and the UBC Math Undergrad Chair about whether institutions that do not include sequences and series should be granted credit for Math 105, particularly in light of the agreement about a core curriculum that involved UBC. At this point, UBC will still grant transfer credit for courses that follow the Core Calculus document, even if they do not cover sequences and series. Students taking a business or social science calculus course should be aware that they would need to learn sequences and series prior to taking a course in Partial Differential Equations. Any institution that

was mistakenly denied credit because of not covering sequences and series in a first year business or social sciences calculus stream should re-submit their course outlines for review.

8.3 Open source textbooks – Jim Bailey

Jim reported that several e-books have been reviewed. The next step is to find pairs of institutions to partner and adopt books. Jim reported that there is money available from BCcampus for funding and anyone interested can contact Jim for information.

8.4 Mathematics for Elementary Education review – Nora Franzova

Nora reminded the group that a subcommittee was formed and in 2010 created a document with suggested content for a one semester Mathematics for Elementary Education course. The document is to be reviewed every five years so Nora wanted to know if we should review and revise the document at this time. Susan Oesterle spoke about the challenges of determining specific content for this type of course and about the fact that delivery methods, teaching methods, etc were also a big part of the discussion the first time the subcommittee was struck. Since the content listed in the 2010 document still stands as good practice, it was determined that the textbooks, prerequisites and content be looked at through via course outlines.

ACTION: Nora Franzova will collect information/course outlines from institutions about textbooks, prerequisites, content and assessment. Nora will also investigate the requirements of universities that offer teacher certification programs and report on this review in 2015.

8.5 Collaborative Offering of Under-enrolled Mathematics and Statistics Courses (Selkirk, NIC, CotR) – Jim Bailey

Collaborative offering of under-enrolled courses:

- North Island College and College of the Rockies offered Engineering Statics and Dynamics collaboratively again this year to teach Engineering Statics and Dynamics:
- Students registered locally; tuition and FTEs went to the local institution.
- NIC offered PHYS 141 (UVic) synchronously; lectures were also recorded and posted on YouTube.
- CotR offered PHYS 170 (UBC). Lectures were NCast and put on MOODLE. There were only two students. They had the option of attending synchronously using Bridgit, but preferred to watch the recorded session.
- Setting of assignments, midterms and exams, and all marking was done locally.
- We had hoped for a similar agreement with Selkirk to salvage some of their second year courses which were cancelled last year. We instructors agreed but I believe that it fell through at the dean level.

8.6 Webmaster Report – Ian Affleck

Ian was not present so Jim Bailey gave the report on Ian's behalf. Jim reported that the BCcupms website moved from UFV to a company in Calgary. The address is the same and is being paid for by SFU.

ACTION (BCcupms members): Send Ian any necessary updates with respect to members or contact information.

8.7 Possible Core Calculus Agreement for Life Sciences Calculus – Michael Nyenhuis

Michael has nothing to report yet but will continue working on this project.

ACTION: Michael will report on this next year.

8.8 (Moved from 17.5) Tracking online high school students—Justin Gray

Justin reported that we don't have any way to track how high school math students are doing in online courses vs. face-to-face courses. Melissa Horner said that she will try to find some data and report back at next year's meeting. Melissa pointed out that some students may have taken the course face-to-face either before or after taking it online and that some students might take the course several times and this could affect results. The concern at postsecondary institutions is that students are placed appropriately and there is concern about whether students taking high school math courses online won't be prepared for university level courses.

ACTION: Melissa will investigate if there is data on students taking online high school courses and will report back to the BCcupms by the next meeting or, if possible, sooner.

8.9 (Moved from 17.6) Observations on the new grade 12 cohort – Glen Pugh

Glen was not present and this topic was part of the general discussion during item 7, the report from the ministry of education. There was no further discussion on this topic.

The Tuesday Session of the BCcupms adjourned at 4:28 p.m.

BCcupms and Secondary School Teachers Session

9. Introductions and Opening Remarks

There were no secondary school teachers present at the meeting. This was probably due to the current job action which includes no work activities outside of the school day that the BCTF has in place due to contract negotiations.

10. Reports

10.1 BC Secondary Schools Math Contest—Clint Lee (see attached report, page 19-20)

Clint reminded the group that he will soon be stepping down from planning the contest. He will prepare the contest for 2015 and Ian Affleck has agreed to take over the provincial aspect. Clint will give the report at next year's meeting.

10.2 BCAMT—Ron Coleborn

Ron shared that he is creating a survey to help communicate with high school teachers what their students should expect when they take a math course at a postsecondary institution. Ron presented a draft of the survey and invites instructors to give feedback. Ron thinks that there are misconceptions among high school teachers regarding what students will experience when they go to college or university. Ron will use some of what he learned at this meeting to add to the draft survey and will share it on the listserv for feedback. Ron also invited instructors to let him know if they are willing to invite high school students and teachers to visit postsecondary classes.

10.3 How the new curriculum is going in highschoools

This question was intended as a discussion item for high school teachers and since none were present, other than Ron Coleborn, this topic would be redundant given the lengthy discussion regarding the report from Melissa Horner.

11. General discussion: further topics to be suggested by the teachers.

No teachers were present to suggest further topics.

Motion to adjourn: (Moved by Al Fukushima and seconded by Richard Lockhart)

The BCcupms and Secondary School Teachers' Session adjourned at 4:58 p.m.

WEDNESDAY, MAY 14, 2014

Plenary Session

12. OPENING REMARKS

12.1 Introduction of representatives

12.2 Attendance lists Nora Franzova circulated the attendance lists.

12.3 Announcements from the host: Mike Nyenhuis announced the time and location for the Greek dinner.

13. REPORTS

13.1 BCCAT— Mike Winsemann

Mike reminded the group that BCCAT is funded by the government as a government agency but is not government. He reported that BCCAT's funding is stable this year. One of the ongoing projects is the review of the associate degree program. Information can be found at the website: <http://bccat.ca/system/associatedegreeereview/>. The goal is to make the associate degree program more flexible and reflective of the current postsecondary landscape. The biggest change is a recommendation for how courses can be applied to an associate degree. Starting in September, a course may be included for credit if it is articulated with at least one other public university in BC, not just at one of the research universities. The new framework is scheduled to come into effect in September 2014 and institutions should look at updating their associate degree programs to reflect this change. There is also a working group looking at a new Associate of Applied Studies Degree. A BCCAT committee has been struck under Robert Campbell to develop a framework for this.

Mike circulated a list of pending articulation requests.

Mike also shared that BCCAT is celebrating its 25th year as a government agency. BC is considered to have best transfer system in country and it is thanks to articulation groups like ours. There are new awards and BCCAT is looking for nominations to start giving out annual awards at this year's annual meeting. Nominations will close Sept 15 and the plan is to give a maximum of two awards per year per category.

13.2 PIMS—David Leeming, PIMS Education Associates Coordinator

David announced that this year's PIMS education prize winner is Susan Milner. There will be a presentation at Changing the Culture Friday, May 16. Nora presented a gift of puzzle books and flowers to Susan on behalf of the BCcupms.

PIMS Education Associate: As of Jan 1, the PIMS associate protocol has changed. Both current and former education associates will be auto-enrolled and there is no longer an annual fee to be a member. Institutions are still eligible to apply for up to \$500 per year for mathematics outreach. Any institutions not currently members can contact David for information. David noted that the funding can be extended to outreach with mathematical content such as science or finance outreach. Langara College, Douglas College, University of the Fraser Valley, Okanagan College and Thompson Rivers University are ongoing current members. Camosun College and Vancouver Island University have returned and Capilano University and College of the Rockies are new members. Selkirk College and North Island College are in discussion as well as some institutions in Alberta.

PIMS Education Outreach: BC Education Coordinator, Melania Alvarez, and David are trying to work with first nations' communities to offer math outreach activities. David shared some of the joys and challenges of the program. They have plans to visit Campbell River next spring and to go back to Port Alberni. David also mentioned that he will be talking about math outreach at the summer CMS meeting in Winnipeg. David shared many interesting pictures from Math Mania events throughout the province.

13.3 ABE—Costa Karavas (see attached report, page 18)

13.4 Math Challengers—Leo Neufeld (see attached report, page 21)

13.5 Changing the Culture—Susan Milner

Susan shared that this year's Changing the Culture conference will be held at SFU's Harbour Centre campus. The theme is "Fostering Curiosity" and Susan Oesterle will be giving a talk about "Mathematical Habits of Mind". Susan reminded us that the conference is free but participants should register so that organizers can plan for logistics such as lunch and coffee.

14. Keynote Speaker: Bevan Ferreira - Motivating Calculus: Credit Derivatives and Counterparty Credit Risk (the Mathematics that Sunk the World in 2008).

Bevan, who recently completed a Master's degree in Mathematical Finance, gave a talk entitled "Motivating Mathematics, Calculus, Correlation and Credit." From a simple interest approach to integration and stochastic models, Bevan presented the current mathematics of risk management.

15. Publishers' Representatives: the latest developments related to Mathematics textbooks

Jen Cawsey from MacMillan reported that they are moving from Statportal to Launchpad as their online platform. Launchpad is a course delivery platform like MOODLE and is well liked by students and instructors. This software encourages students to prepare in advance and learn through practice. Launchpad is currently available for some titles and will be available for all titles in 2015.

Shawn Riley and Ewan French from Pearson shared a product called Learning Catalytics designed by Eric Mazur. Learning Catalytics is a "bring your own device" classroom assessment tool. It can be used for personalized instruction and peer to peer learning, giving the instructor feedback in real time. It can be used in place of clickers and comes as a free add-on with MyMathLab or MyStatLab or can be purchased separately for about \$12.

16. Report from the Nominating Committee

The nominating committee reported that Jim Bailey was willing to continue as Chair and Bruce Dunham was willing to continue for two years as Chair of the Statistics Subcommittee.

Following three calls, no further nominations were heard for Chair.

Jim Bailey was acclaimed as Chair of the BCcupms for another two-year term and Bruce Dunham was acclaimed as Chair of the Stat subcommittee of the BCcupms for another two-year term.

MOTION: Leo Neufeld moved to thank Kwantlen for hosting the lunch for the committee.

17. NEW BUSINESS

17.1 MOOCs – Justin Gray

There was nothing new to report.

17.2 Completion Rates for first year Calculus, Statistics – Kevin Craib

Kevin and Nora Franzova presented data and graphs on completion rates, defined as C- and above, for introductory statistics courses and first year calculus at Langara. Kevin discussed factors involved in students who chose to withdraw and are, therefore, counted as unsuccessful. Kevin hopes there will be further interest and discussion among educators on the topic of success rates. Institutional representatives are invited to send their data to Kevin to be tabulated for future discussion.

17.3 Online/web based assignments, Stewart, Webassign – Wayne Broughton

Wayne reported that he had been using Enhanced Webassign for students to do homework. Overall, he and his colleagues found there were logistical issues and have gone back to a traditional approach to homework. Discussion ensued and several institutions reported on different online homework systems they are using such as Webassign, MyMath Lab and Lyric. Bruce Dunham reported that Webwork is a good option and he has funding that he could potentially extend to people who wish to try it. More information can be found at webwork.maa.org.

17.4 Mathnasium (private centres that teach math) – Kevin Craib

Kevin reported that he recently looked into Mathnasium and found out that it is a fast growing franchise opportunity with approximately 300 centres in the US and 450 worldwide. There are 3 centres in BC and, 8 in Ontario. Kevin suggests taking a look on youtube for a video about Mathnasium.

17.5 Tracking online high school students – Justin Gray (moved to Tues)

17.6 Observations on the new grade 12 cohort – Glen Pugh (moved to Tues)

17.7 Blended/mixed outcomes – Kevin Craib

Kevin wanted to know how institutions are offering courses where there is an online component such as blended courses, where lectures are all face-to-face and some material is online and hybrid courses, where some lectures are face to face and some are online. Attendance has been an issue for some who tried this and students did not seem as successful learning mathematics online. Costa reported that VCC is thinking of a hybrid model for introductory statistics. Tim Topper reported that Yukon College offers calculus online for highschool students using pencasts.

17.8 Calculus I and II Equivalencies: is it time to formalize this agreement? – Jim Bailey

This was an agreement among sending institutions but now that every institution is classified as both sending and receiving there is a question about whether this agreement is still of use. Mike Winsemann suggested that not formalizing the agreement could cause difficulty because there would be two, potentially conflicting, sources of information about articulation of the same courses on BCCAT. Institutions which are part of this agreement should ask their Transfer Credit Contact (TCC) to put these courses through the Transfer Credit Evaluation System (TCES).

ACTION: Jim will send a message to the listserv to ask institutions to articulate courses that are in the Calculus I and II agreement and Jim will report the results to Mike.

17.9 ACAT – BCCAT initiative: meeting of chairs and vice chairs of AB-BC Mathematics and Statistics Articulation Committees April 30 – Jim Bailey

Jim met online with the ACAT group. They discussed the Sharing Math conference, what we do on Wednesday, Thursday, our projects such as core calculus, flexible premajors and the stat flexible premajor, the calculus readiness test, MFEE, and the math proficiency report. ACAT wanted to know how our provincial system supports student mobility. It was discussed how we can align transfer with Alberta. Jim suggested that we could start with Calculus I, II and Introductory Statistics. Since there may be institutional agreements in place, Jim will ask institutional representatives to ask their registrar's offices for a list of what courses from Alberta institutions currently have transfer status.

Jim also shared that it would be beneficial for the two groups, ACAT and BCCupms to have a joint conference which could be held at BIRS in May if it is booked early enough. The meeting planned for May 16-17 in 2017 would be appropriate and is also the 50th anniversary of BCcupms. Jim will meet with ACAT at the end of August and suggest the joint meeting.

ACTION: Jim will send a message to the listserv to ask institutions to have their registrar's office summarize transfer decisions with Alberta for Calculus I, II and Introductory Statistics.

Motion: (Moved by Leo Neufeld and seconded by Wayne Broughton) That the leadership of Bcupms explore a joint meeting with ACAT May 16-18, 2017 in BIRS.

Carried unanimously.

17.10 Possible changes to our meeting schedule - Gary MacGillivray:

Gary has been attending BCcupms meetings since 2003 and posed the possibility of conducting our business in one day. The merits of a one day meeting and a two day meeting were discussed. While it's not possible to cover all items currently in the agenda on one day, some of the items on the agenda might not be directly related to articulation. Jim will try to re-arrange the agenda so that items directly related to articulation are covered on one day.

ACTION: Jim will try to move articulation related items to one day and circulate a draft by the end of the month.

18. INSTITUTIONAL REPORTS

Regrets were received by Northern Lights College.

ALEXANDER COLLEGE – Krishna Subedi

We have stopped offering Math 99, which was a non-credit version of BC Math 11 and , instead are offering mandatory workshops focused on particular topics for those who need preparation to take our pre-calculus course, Math 100.

The college has developed a pre-engineering option (transferrable to UBC, SFU, and UVic) which should boost our enrolment in science stream calculus. In light of this, we have begun offering Calc III (with good number of students) and will be looking to add Differential Equations in the next year. We will, of course, be sending the syllabus to colleges and universities around the province for articulation.

We are also planning to offer introductory stats course next year that is undergoing articulation right now.

ASCENDA SCHOOL OF MANAGEMENT (Formerly SPROTT-SHAW DEGREE COLLEGE) – Josiah Akinsanmi

No report received

BC INSTITUTE OF TECHNOLOGY – Paul Rozman

There have been no significant changes to BCIT mathematics and statistics courses in the past year. The institute hired new president Kathy Kinloch.

CAMOSUN COLLEGE – George Ballinger

1. We are in the process of changing the name of our department from “Mathematics” to “Mathematics and Statistics”.
2. We are in the process of changing the course abbreviations of our statistics courses from MATH to STAT. In particular our statistics courses MATH 116, MATH 216, MATH 218, MATH 219 and MATH 254 will be renamed STAT 116, STAT 216, STAT 218, STAT 219 and STAT 254, respectively. These courses will otherwise remain unchanged.
3. Starting January 2014 the number of hours in MATH 109 (Finite Mathematics) has been reduced from 5 to 4 per week after cutting a 1 hour online component. This results in a reduction from 4 to 3 credits.
4. Our department is responsible for a new Engineering Transfer Certificate Program (ENGTRC). It’s a 10 month program whereby students take 12 courses, including 3 math courses as well as courses in physics, chemistry, computer science, English and engineering. They then transfer into second year engineering at UVic. Susan Chen has been the program leader over the past year but George Ballinger will be chair of the program starting June 1, 2014. The first cohort of students will be completing the program at the end of June, 2014.
5. Camosun recently adopted the Infosilem scheduling software. It is being used for the first time to schedule classes for Fall 2014.
6. The Board of Governors recently approved a new budget, which calls for cuts to under subscribed University Transfer (UT) courses, among other things. While specific details of cuts have yet to be shared, we are fearful of the impact cuts to UT sections may have on our second year courses since they are, almost by definition, under subscribed.
7. Susan Kinniburgh was hired as a fulltime, continuing statistics instructor.

CAPILANO UNIVERSITY – Deanna Baxter

Ken Towson is retiring after 41 years at Capilano. We will be hiring for a regular full time math faculty member as a result. Overall enrolments are somewhat down and we cancelled some of our Math 108 (Calculus I for Business and Social Sciences) sections due to cuts in the Commerce program. We also cancelled the one section of Math 124 (Discrete Math) that was required for students going into Computing Science due to cuts in the Computing Science program. We were able to replace these sections with Math 101 (Introductory Statistics) because of increased demand for that course. Due to budget issues, we are cutting a small number of sections for the upcoming year in multi-sectional courses.

Our first year calculus I and II for social sciences and business students were renamed Calculus I and II for Business, Social Sciences and Life Sciences and will incorporate mathematical models in those areas.

Math 300 (Math and the Creative Arts) was offered for the first time in Fall 2013. It is intended for students with academic maturity who are pursuing a degree in an area such as Liberal Studies or Fine Arts. It was very successful and is of interest to a wide variety of students in bachelor degree programs at Capilano and is going to be offered in both the Fall 2014 and Spring 2015 terms.

COLLEGE OF NEW CALEDONIA – Tracy Wall

There are no new courses or course changes which would affect any articulation agreements at this time.

We are very pleased to have recently added a full time sessional position to our Mathematics Department. We have hired Alex Lasnier, who completed his PhD at Sherbrooke University. He will be teaching full time during Intersession and the Fall semester. We are hopeful that this sessional position will turn into a full time probationary position.

Since last year's report we have had a change in Deans. Mitch Verde resigned and John Neumann is our Acting Associate Dean.

CNC has a new president. Henry Reiser, who was Dean of Trades and Technology at Kwantlen Polytechnic University, has been hired as President of the College of New Caledonia.

COLLEGE OF THE ROCKIES – Jim Bailey

- We have a new faculty member, Rana Ahmed, who has a PhD in Electrical Engineering. He is teaching some engineering courses, linear algebra, and computer programming.
- North Island College and College of the Rockies again offered Engineering Statics and Dynamics collaboratively in the same format as last year.
- We have not lost any courses and I have worked out an agreement with my dean whereby I will be allowed to teach MATH 203 (Differential Equations), MATH 205 (Multivariable and Vector Calculus), PHYS 201 (Classical Mechanics), and STAT 206 (Calculus Based Statistics) next year at the expense of giving up something (to be determined) in the future.

COLUMBIA COLLEGE – Hayri Ardal

- Columbia College has been awarding Associate Degree in Arts and Science since September 2005.

We have proposed Associate Degree in Arts and Science with different concentrations, namely

- i. Associate Degree in Arts with Mass Communication Concentration
- ii. Associate Degree in Arts with Economics Concentration
- iii. Associate Degree in Science with Computer Science Concentration
- iv. Associate Degree in Science with Mathematics Concentration

- In Mathematics, we are offering at least one second year course every semester to facilitate students accumulate more credits to qualify for an Associate Degree in Science at Columbia College.

In Fall 2013 and Winter 2014 semesters, we have offered four second year courses, Math 206 - Mathematical Statistics with Applications, Math 213 – Calculus 3, Math 225 – Introduction to Mathematical Analysis, and Math 252 – Linear Algebra and Differential Equations.

In Summer 2014, we are offering Math 206, Math 252, and Math 230 – Introduction to Ordinary Differential Equations. Math 230 is offered for the first time and currently 18 students are enrolled.

- Since Fall 2013, we are offering a new non-credit course, Math 090 – Developmental Mathematics, for those students who are very weak in Math. Students who score less than 8 out of 44 have to take this course.

For the first two semesters, it was two hrs/wk. This semester, it is four hrs/wk.

- We will be hosting the Articulation meeting in 2016.

COQUITLAM COLLEGE – Gera Belchev

Nothing to report.

DOUGLAS COLLEGE – Wesley Snider

Enrolments are healthy. This allowed us to offer three additional sections over the past year, including our first offering of Vector Calculus as a lecture course, in winter 2014 with an enrolment of 17, and Discrete Mathematics II this summer. We also offered Introduction to Analysis (as a guided study course) for the first time. We will likely be posting for a part-time probationary position for the next academic year.

We had our second intake of students in our Graduate Diploma in Mathematics and Science Teaching in fall 2013. 18 students are registered, up from 11 students for our first intake.

Our new Dean of Science and Technology is Brian Chapell. Brian was the Associate Dean so we now have an Interim Associate Dean: Susan Oesterle.

KWANTLEN POLYTECHNIC UNIVERSITY – Michael Nyenhuis

We have redesigned our pre-calculus offerings and are teaching the new courses starting in September. MATH 1112 Precalculus will keep the same name and number, and have the same exit criteria. Material from the beginning of our old MATH 1112 has been moved to MATH 1012 so that more time can be spent on exponentials, trig, and problem solving. MATH 1012 will replace MATQ 1093. It will have higher entrance requirements.

We finally launch the B.Sc. in Applications of Math this Fall!

We have redesigned MATH 1117, Environmental Protection Math, so that it better serves the needs of Kwantlen's Environmental Protection Technology Program.

LANGARA – Nora Franzova

College and department news:

Registration was strong all 3 terms. There were courses where the waitlists were not taking any more students. The only new sections added, were in Statistics, to support the growing Nursing Program at Langara.

We lost students in Math for Elem. Ed. We used to offer 4 sections per year, but now it is only 2.

Langara has new president and CEO, Dr. Lane Trotter, who started in February 2014. Even though he is taking over the college in a year marked with budget cuts, he seems to be honest about it and in full support of the students and faculty. Peter Danenhowter retired in August 2013. Math and Stats department hired 3 new faculty members: Robert Miller for math (started in January), Maja Grubisic for stats (started in September 2013), and Dr. Chien-Hsun Chang. We are expecting to hire another math faculty for the Fall of 2014.

New/ Old

Math1252 – Linear Systems with Applications has been offered first time during the spring term. This course was designed as the engineering version of Linear Algebra – to be transferred to UBC Math152. Engineering program at Langara has been now officially offered at Langara.

Mixed mode instruction has been tried for some sections of business math (non-calculus) and statistics.

Transfer Agreements:

Math1252 - Linear Systems with Applications received transfer credit from VIU and UVIC and UBC. Credit with SFU is being renegotiated.

NICOLA VALLEY INSTITUTE OF TECHNOLOGY – Al Fukushima

NVIT has changes in their math course delivery.

- Delivery of Math 040, 041 050, 051, 060 at the College Readiness level (New name changes to reflect common ABE nomenclature.
- Business Math, BUSM 200 (Finite) and Intro Statistics (BUSM 207) and STAT 203 currently offered
- Math 100 (PreCalculus), Math 110 (Finite), and Math 120 (Intro Statistics) are not subscribed to.
- Business Administration Program suspended for Fall 2014
(no BUSM 200 nor BUSM 207 offered fall 2014 Merritt Campus)

Two new deans replacing one who left for VIU.

NVIT is using Accuplacer for entrance math diagnostics

NVIT has a satellite campus in Burnaby

NORTHERN LIGHTS COLLEGE – Hongbin Cui

Enrollment: We have experienced extremely low enrollment in UT science/engineering related courses. Math 152 Introduction to Linear Algebra and Math 102 Calculus II were canceled due to low enrolment. The enrollment in Math104/MGMT290 Introduction to Statistics has been strong because this is a required course for our Business Management Diploma and Criminology Diploma programs. Other UT math courses, including Math190 Principles of Mathematics for Elementary Teachers, have had steady enrollment.

Faculty: Mahmoud Ziaei, UT Physics Instructor who also taught UT math courses, retired last year.

Course Changes: There have been no changes.

NORTHWEST COMMUNITY COLLEGE – Mona Izumi
 Enrollment 2013-2014

Fall 2013	Math 101 Calculus I	Math 190 Math for Elem Teacher	Math 131 Stat
Terrace Campus	23		18
Prince Rupert	4		
Smithers			
Online		14	

Spring 2014	Math 102 Calculus II	ICT 202 Finite Math	Math 131 Stat
Terrace Campus	12		2 Sections: 31 and 8
Prince Rupert	4		
Smithers			2
Online		8	

Course offerings 2014-2015: Math 101, 102, 115, 131 and 190.

Math 115 – Precalculus will be taught via video conference from Terrace to Rupert and Smithers campuses.

Faculty: 2 fulltime, 3 part-time.

Textbook: Stewart, Calculus: Early Transcendental

Software: Maple 17

Submitted by Erfan Zahrai Mathematics, Physics and Computer Science Instructor Prince Rupert Campus

OKANAGAN COLLEGE – Clint Lee

Some notable events and information about the Okanagan College department of Mathematics and Statistics are:

- The Sustainable Construction Management Technology at the Penticton campus, scheduled to start in September 2013, was delayed by one year. It will start this September, and it includes a one semester technology mathematics course.
- Enrolment in Mathematics and Statistics was stable over the last year, with a slight increase in UT Math/Stats and a slight decrease in business. There was a small increase in second year enrollments, especially Calculus III.
- The number of sections of Calculus I was increased from two to three on the Kelowna campus. The additional section filled, but there was a corresponding decrease in the enrollment in the Winter Calculus I section, as expected.
- We ran SNAP Math Fairs at the Kelowna, Vernon and Penticton campuses this year. The events have been successful and will be continued. At all three campuses, students from OC MATH 160 – Math for Elementary School Teachers – are involved.
- We continue to host the Math Challengers event for the Okanagan Region. Satoshi Tomoda is the principle organizer.
- We hired one new full-time faculty member to replace Dave Murray, who retired as of January 2014. His replacement is Shaun Strohm, a recent Ph.D. graduate from UBC Okanagan and a former OUC student. He was initially hired for the Penticton campus, but has since transferred to the Kelowna campus.
- Shawn Desaulniers resigned from the department last fall to take a position at UBC Vancouver. This created a full-time continuing position in Penticton, which is being filled through conversion by Jennifer Hobart. Jennifer received her MSc in computer science and mathematics from UBC Okanagan and came to us from her position with Interior Health. She is also a former OUC student.

SELKIRK COLLEGE – John Josafatow

Enrolments :

As with other rural colleges we have seen a steady decline in FTE over the past several years. But, this last fall, F13, saw a slight bulge in student numbers – an increase over 3 % from domestic students and an increase over 20 % from international students . As a result we needed to open a few more lab sections in some courses. Early registration numbers indicate we should have another increase in FTE for F14.

Courses / Programs :

Starting September 2013 our *One-Year Engineering Program* was re-introduced, since 15 engineering students signed up. With a bit of a scramble in F13 we managed to re-introduce courses such as Apsc 120 and Phys 200. In W14 we re-introduced Apsc 100 and Math 221 which, along with other standard courses, made a sufficient engineering program. The college has committed to offering engineering for this coming F14 / W15 .

Starting this fall we offer our new *RPM- Rural Pre-Medicine Program*. This 3 year program prepares students to enter med schools and other health related fields. A few new courses will be developed over the years (many will be re-introduced). In terms of math the only new course projected is Stat 306 – Stats for Health Professionals.

Faculty :

Due to retirements and new course offerings (and that David Feldman is our new UAS Chair) we have had to hire new faculty
Please welcome –

Justin Ryan- Stats and Tutoring
Charles Cuell – Math, Engineering and Tutoring
Jason Nickel- Physics and Math

SIMON FRASER UNIVERSITY – Richard Lockhart (stat) Justin Gray (math)
MATH 125 Introduction to mathematical methods in the physical sciences-I
MATH 126 Introduction to mathematical methods in the physical sciences-II

These are two new enriched courses to be first offered Fall 2014 and Spring 2015 to Physics students who are enrolled in the INSPIRE honors program who have taken AP Calculus. They are to be taken concurrently with PHYS 125 and PHYS 126, respectively.

MATH 125 Introduction to mathematical methods in the physical sciences-I

Description: An introduction to the mathematical concepts which are frequently used in the physical sciences. Review of sequences and series, complex numbers and link to polar coordinates, vectors and parametric curves. Introduction to multivariate integration, solution of first and second order ODE, linear independence, introduction to Fourier Series. Approximation algorithms for simple ODE systems.
Corequisite: PHYS 125 Mechanics and Special Relativity
Prerequisite: MATH 152 Calculus II

MATH 126 Introduction to mathematical methods in the physical sciences-II

Description: An introduction to mathematical concepts which are frequently used in the physical sciences. Method of characteristics for 1-D transport and wave equations. Similarity solutions including plane waves, traveling waves and scaling solutions, with applications in the physical sciences. Introduction to vector calculus, including differentiation, decompositions of potentials. Multivariate integration, including Green's, the Stokes and Divergence theorem. Introduction to abstract vector spaces. Linear independence. Inner products and orthogonality. Some applications of infinite dimensional vector spaces.
Prerequisite: MATH 125 and PHYS 125.
Corequisite: PHYS 126

MACM 203 Computing with Linear Algebra (2) (using Matlab)

MACM 204 Computing with Calculus (2) (using Maple)

The department has reduced the computing pre-requisite for both to be one first programming course instead of two so that (more) students can take these courses and earlier in their program. We've updated the list of topics in the calendar description.

The new (for Fall 2014) calendar descriptions are

Course Title: MACM 203 - 2 Computing with Linear Algebra

Description: Using a mathematical software package for doing calculations in linear algebra. Development of computer models that analyze and illustrate applications of linear algebra. All calculations and experiments will be done in the Matlab software package.

Topics include: large-scale matrix calculations, experiments with cellular automata, indexing, searching and ranking pages on the internet population models, data fitting and optimization, image analysis, and cryptography.

Prerequisite: One of CMPT 102, 120, 126, 128 or 130 and one of MATH 150, 151, 154, or 157 and one of MATH 232 or 240.

MATH 232 or 240 (can be taken as corequisite).

Students in excess of 80 units may not take MACM 203 for further credit.

Course Title: MACM 204 - 2 Computing with Calculus

Description: Using a mathematical software package for doing computations from calculus.

Development of computer models that analyze and illustrate applications of calculus. All calculations and experiments will be done in the Maple software package.

Topics include: graphing functions and data, preparing visual aids for illustrating mathematical concepts, integration, Taylor series, numerical approximation methods, 3D visualization of curves and surfaces, multi-dimensional optimization, differential equations and disease spread models.

Prerequisite: One of CMPT 102, 120, 126, 128 or 130 and MATH 251.

MATH 251 can be taken as a corequisite.

Students in excess of 80 units may not take MACM 204 for further credit.

MATH 232 (3) Applied Linear Algebra

MATH 240 (3) Algebra I: Linear Algebra

Engineering requested that we cover Complex Numbers somewhere in our lower division courses. They use complex numbers in polar form heavily in ENSC 220 (3) Electrical Circuits I.

We decided not to add complex numbers to Calculus I or II but rather cover them in Linear Algebra (at least two lectures) with

- Arithmetic in Cartesian co-ordinates.
- The complex plane, complex conjugate, magnitude and argument (phase).
- Polar form, De Moivre's formula and Euler's formula.
- Roots of quadratic polynomials.
- Complex eigenvalues and complex eigenvectors.

MATH 157 (3) Calculus I for the Social Sciences

We are in the process of putting "functions of more than one variable" back into MATH 157 as a main topic.

This is because Economics majors need the multivariate calculus. Although multivariate calculus is covered in MATH 158 Calculus II for the Social Sciences as a main topic (2.5 weeks), the Economics major at SFU does not require Calculus II.

MATH 152 (3) Calculus II (for the Physical Sciences)

We are in the process of adding Differential Equations as a major topic (1 week). DEs is already covered in MATH 155 and MATH 158 (the other Calculus II streams) at SFU.

THOMPSON RIVERS UNIVERSITY – Paul Ottoway

Vacancies due to retirements continue to be replaced by sessional faculty who represent at least three full-time positions.

- Student enrolment is basically flat year over year in our first year courses.
- There are no new course offerings, but our computer science department is restructuring its program after a review which may result in changes to our first year discrete mathematics course offerings going forward. Changes won't be finalized until at least the 2014-15 year.
- We have decided to re-examine course pre-requisites so that they are more in line with content. For example, Calculus 2 is a listed prerequisite for Linear Algebra 1 despite having little to no continuation of content. The goal is to allow greater flexibility for students interested in a math minor or joint major program. Changes will come into effect during the 2014-15 year.

THOMPSON RIVERS UNIVERSITY (OPEN LEARNING) – Veda Roodal Persad

At TRU-OL, enrollments are stable across our mathematics and statistics courses. We provide open and distance learning but many of our students come from the Lower Mainland. This means that there is a sizable percentage of students who cannot get

their requirements at face-to-face institutions, being separated by time, distance, and situation. Our Principles of Mathematics for Teachers (MATH 1901), after a few hiccups with transfer, now has a healthy enrollment. Overall, there is a constant push to migration from print to online delivery with continuous maintenance and revision of all our courses.

TRINITY WESTERN UNIVERSITY – Stephen Benecke

Trinity Western is a fully accredited privately funded public Christian University offering a variety of graduate and undergraduate programs in the arts, humanities, fine arts, sciences, education, theology, and professional studies. Opened in 1962, it currently has approximately 1,400 domestic and 500 international students enrolled full time, as well as 2,000 part time.

The Mathematical Sciences department resides within the Faculty of Natural and Applied Sciences and encompasses Mathematics, Statistics, Computing Systems and Informatics, Physics, and Engineering. It offers degree programs in Mathematics and Mathematics with Computing Science and is also responsible for computing and ISYS programs, Physics, and an engineering transfer program. A list of current courses offered is available at <https://www.twu.ca/academics/science/mathematics/>. General science students are found to be taking a concentration in Mathematics to go along with a Chemistry or Biology major. In the past there has also been an influx of students into a Math major who also major in HKIN, Nursing, Music, History, and other subjects. The course Mathematics for Business (Math 101) has been revised to not serve as a prerequisite for Precalculus that Business students can take to satisfy their requirement, but to be designed around the specific needs of the School of Business, exclusive to these students. Other changes include the option for students not ready for Math 123 (Calculus) in the Fall to take Math 105 (Precalculus) in the Fall and Math 123 in the Spring. Due to curriculum changes to BC Math 12, the courses Math 105 and 123 have been reviewed and adjusted accordingly.

Average enrollment per year (over the past four years) in first year Mathematics is 16 for Precalculus, 81 for Calculus I, 31 for Calculus II, and 47 for Elementary Education Math. First year Calculus I currently has a 90% success rate. Mathematics for Business has approximately 120 students in the new format. In the last academic years, enrollment in our upper-level mathematics courses have been at record high levels.

The success rates for Calculus I is as follows:

Course	Semester	Enrolled	Passed	Percentage
Calculus I	Fall 2013	74	58	78.4%
Calculus I	Spring 2014	26	21	80.8%
Calculus II	Spring 2014	38	37	97.4%

UNIVERSITY OF BRITISH COLUMBIA-OKANAGAN (Mathematics) – Wayne Broughton

Since becoming a campus of UBC in 2005, UBC Okanagan has now essentially finished its “growth” phase and has a stable population of over 8300 undergraduate and graduate students enrolled. The number who are international students is 9.6% of the total, or just half of that at UBC Vancouver, but it is up 16% from last year, which is a much higher rate of increase than at Vancouver, so the international student population is rapidly becoming a more important component of our campus.

Enrollment numbers in Calculus I and II seem to be down a little from last year. There have been no changes to our mathematics courses that will affect transferability.

However, in September we will have a new external Head for our unit (Mathematics, Statistics, Physics and Computer Science), statistician John Braun from Western Ontario.

UNIVERSITY OF BRITISH COLUMBIA-VANCOUVER (Mathematics) – Wayne Nagata (Given Tues)

There have been no changes in the past year that affect transfer credit or articulation. At the meeting there was some discussion on transfer credit for UBC MATH 105, our business calculus 2 course, and the BCcupms 2013 Revised Core Curriculum for First-Year Social Sciences/Business Calculus.

UBC MATH 105 has 3 weeks of material on infinite series, including Taylor series, and is accepted as a prerequisite for 2nd and 3rd-year courses that depend on knowledge of series (e.g. UBC MATH 257: differential equations 2 for engineers, UBC MATH 300: complex variables). Such courses are typically taken by Science or engineering students, but also by roughly 30% of UBC MATH 105 students (presumably to learn about PDEs, to later be applied to models for estimating credit risk and thereby contributing to a future financial crisis).

In the Core Curriculum, series are listed in Additional Topics, and are not required.

Our department's concern is that students may take a business calculus 2 course that does not include series, transfer to UBC and obtain credit for UBC MATH 105, and then enroll in a course like UBC MATH 257 or 300 where their lack of background could be a serious barrier to successfully completing the course. To me, though, it seems that this scenario would rarely occur (unless word got out that one could enter UBC Engineering by exploiting this "loophole", even if to do so would be self-defeating).

For now, our department will continue to give transfer credit for UBC MATH 105 to any course that satisfies the Core Curriculum. (Mistakes on this have been made in the past year, but they have been or will be corrected, albeit with some delays, for which we apologize.) We ask, however, that institutions do their best to advise any student taking business calculus without infinite series who plans to transfer to UBC Science or engineering, that DE 2 or complex variables courses at UBC will assume knowledge of infinite series, so independent study is strongly advised.

In the coming year we plan to negotiate with our Dean of Science, to resolve our concern. By next May we should have a clearer idea of what we will be doing with transfer credit for UBC MATH 105.

UNIVERSITY OF THE FRASER VALLEY – Susan Milner

- As recommended by our program review, we are working on an honours program. It has been created and is currently going through the approval process.
- We hosted Math Challengers, Fraser Valley Regionals, (www.apeg.bc.ca/mathchallengers) for the first time this past February. We had about 200 students. This is an event aimed at students in grades 8 and 9. We plan to host this event again next year.
- We have held 3 Math Mania events so far this year with one left to go. This outreach activity continues to be very popular.
- As last year, we continue to have higher than usual numbers in 2nd year courses. This has translated into higher numbers in some of our upper level courses, in particular “Introduction to Analysis”.
- We continue to have waitlists on first year service courses: Statistics and Business Calculus.
- The departments have been given a new budget model as of Fall 2013. It provides each department with more control over the number of sections offered with the expectation that each department turns a profit. Thus we can run additional sections provided we generate revenue by doing so.
- Budget cuts are expected next year.
- UFV is implementing a rank and tenure system. Lecture faculty who had successfully completed a single three-year review were grand-parented in, with tenure, at the rank of associate professor. All faculties are currently in the process of defining the process that will govern future promotions from assistant to associate professor and from associate to full professor. The ranks are not linked to salaries.
- The numbers in our DAC (Data Analysis Certificate) continue to hold steady. We are looking to increase these. For our first two intakes, we ran a section of STAT 106 (one of the prereqs for the program) in July-August for good candidates who didn't have a strong enough stats background. As this trend isn't going away we are looking to add STAT 106 to the program and to continue running a section of STAT 106 in July-August.

UNIVERSITY OF VICTORIA – Gary MacGillivray

Changes have been made to our second year Statistics courses implementing a 1-directional mutual exclusion. Students with credit for an intro Stats course which is not calculus based (one of 252 and 255) can now go on to take one that is calculus based (254 or 250) and receive credit for both. Students with credit for a calculus-based intro Stats course cannot take a non-calculus based intro stats course for credit.

Changes are being considered to our Math 102, Calculus for Students in Social and Biological Sciences in an attempt to improve course outcomes. It is too soon to know what form those changes might take. It is not expected that transfer will be affected.

Changes are also being considered to the Science and Engineering calculus sequence so that it becomes a four-course sequence rather than a three-course sequence and a differential equations course. The main changes would occur at the second year level, though the first year courses could be slightly tweaked as a consequence. At this time it is not expected that transfer will be affected in the sense that courses which transfer to Math 100, 101, and 200 should continue to do so. Whether the same is true of 201, Differential Equations, will depend on the extent of the changes made. On the other hand, if a four-course calculus sequence is adopted, there may be consequences for students who wish to transfer to UVic at the end of their second year. These changes, if approved at all levels, would take place for the 2015-2016 academic year.

VANCOUVER COMMUNITY COLLEGE – Costa Karavas

Personnel

Retirement: Jean Macleod, long time member since 1986 of the math department retired in January 2014.

New Hire: Natasha Mandryk joined the math department as a regular instructor in May 2014.

Institution news

VCC has been a leader in providing language training for over 40 years. The funding of English Language programs in BC has changed. The Canada-BC Immigration Agreement has been cancelled and consequently the English Language programs at VCC are undergoing changes in the way they are funded. VCC received one-time transition funding to deliver ESL programs at VCC for 2014/2015.

On March 31, 2014, VCC and CIC signed a \$9.4-million contribution agreement that will see VCC continue to deliver (2014 to 2016) to newcomers eligible under CIC guidelines.

Current courses: Precalculus (MATH 1020), Calculus I (MATH 1100), Calculus II (MATH 1200) and Introduction to Statistics (MATH 1111).

The Statistic course is in demand as it is a prerequisite to Health Science programs and a hybrid delivery is being developed. New course: Applied Linear Algebra (MATH 1221) (under development).

A University Transfer Engineering Certificate is under construction and has the goal to provide qualified students a pathway into the engineering science program at Simon Fraser University. Courses within the certificate can also be taken individually for transfer to other post-secondary universities and colleges. Successful completion of a minimum of 36 credits of university transfer articulated first year courses as per the British Columbia Council on Admission and Transfer Guide (BCCAT) is required for completion of the certificate. The course are:

Calculus 1 and 2 (MATH 1100 and 1200), total 6 credits

Physics 1 and 2 (PHYS 1100 and 1200), total 8 credits

Chemistry 1 (CHEM 1121), 4 credits

Introduction to computer programming 1 (CMPT 1100), 3 credits

Introduction to computer programming 2 (CMPT 1200), 3 credits

Applied Linear Algebra (MATH 1221), 3 credits

Engineering Technology and Society (ENSC 1100), 3 credits

Process, Form, and Convention in Professional Genres (ENSC 1105), 3 credits

Introduction to Engineering Analysis (ENSC 1180), 3 credits

Math equivalencies project. The Registrar is working on creating math equivalencies between high school secondary level math courses (all streams) with VCC upgrading courses and with existing VCC assessment tests (in progress).

VANCOUVER ISLAND UNIVERSITY – David Bigelow

- Math 131 (Mathematics for Elementary Teachers) was offered in the spring semester at the Cowichan campus for the first time in many years. It will also be offered next year and it appears that we may be seeing a return to Math courses being offered at Cowichan on an annual basis.
- There has been no change in faculty although we expect several faculty members to retire in the next 1-5 years.
- Two new upper level Math courses in Real Analysis and Complex Variables have been established.
- An upper level course in Numerical Methods was offered this year for the first time.
- The department continues its push to develop a Math major at VIU.
- An issue of concern is how to deal with students who fail courses, Calculus in particular, multiple times. Too often students retake a course 3 or 4 times without ever finding success.
- The Dean of Science, Greg Crawford, resigned his position and a search for a new Dean is underway.

YUKON COLLEGE – Tim Topper

Two new initiatives at Yukon College this year:

1) A new university-transfer mathematics course: Math 120 Mathematics for the Life Sciences. This course was designed for students in our Environment and Conservation Sciences Degree program offered jointly with the University of Alberta. It is made up of roughly equal parts calculus and finite mathematics with an emphasis on modelling.

2) We made our Math 100 Calculus I course available online for local high school students to take for dual credit (in which they receive both college and high school credit for the course). To supplement the text we provided a set of pencasts to stand in for lectures, and a completely worked set of solutions to the assigned problems from the text.

In addition to these new initiatives we continued to offer a single section of the following UT courses:

Math 100 Single Variable Calculus I

Math 101 Single Variable Calculus II

Math 105 Introductory Statistics

MATY 101 Introductory Finite Math I (for students in the the Yukon Native Teacher Education Program)

19. COMMITTEE BUSINESS

19.1 Theme for our 93rd Meeting

No themes were suggested at this time for the 93rd meeting.

19.2 Date and Location of the 93rd Meeting - May 12-14, 2015 at Vancouver Island University (Nanaimo).

19.3 Proposed dates for future BCcupms meetings

Year	Dates	Host
2015	May 12-14	Vancouver Island University
2016	May 17-19	Columbia College
2017	May 16-18	BIRS
2018	May 15-17	
2019	May 14-16	
2020	May 12-14	

19.4 List Updates: E-mail, Member Contacts & Listservs

Gary MacGillivray collected addresses to add to the listserv. Leo Neufeld reminded the group that Ian Affleck can be contacted for updates.

20. Adjournment of the Wednesday session

Motion to adjourn: (Moved by Wesley Snider and seconded by Nora Franzova)

The Wednesday Session of the 92nd meeting of the BCcupms adjourned at 4:35 p.m.

Many, many thanks to Michael Nyenhuis and the Mathematics Department at Kwantlen Polytechnic University for all their excellent work in hosting us for this meeting.

List of Committee Members Present

Concurrent Math/Stats – Tuesday, May 13, 2014(a.m); Plenary Session – Tuesday, May 13, 2014 (a.m/p.m.); Secondary Teachers Session – Tuesday, May 13, 2014 (p.m); Plenary Session – Wednesday, May 14, 2014 (a.m./p.m.)

Name	Institution	MATH	STAT	TUES	TEACHER	WED
Josiah Akinsanmi	Acsenda School of Management	x				
Hayri Ardal	Columbia College	x		x	x	x (pm)
Jim Bailey (Chair)	College of the Rockies	x		x	x	x
George Ballinger	Camosun College	x		x	x	x
Deanna Baxter (Secretary)	Capilano University	x		x	x	x
Gera Belchev	Coquitlam College	x		x	x	x
Stephen Benecke	Trinity Western University	x		x		x
David Bigelow	Vancouver Island University	x		x	x	x
Wayne Broughton	University of British Columbia (Okanagan)	x		x	x	x (pm)
Ron Coleborn	BC Association of Mathematics Teachers	x		x	x	
Kevin Craib	Langara College		x	x		x
Bruce Dunham (Stat Chair)	University of British Columbia (Vancouver)		x	x	x	x
Nora Franzova (Vice-Chair)	Langara College	x		x	x	x
Al Fukushima	Nicola Valley Institute of Technology		x	x	x	x
Justin Gray	Simon Fraser University	x		x	x	x
Keira Gunn	Alexander College	x		x	x	
Melissa Horner	Ministry of Education	x		x	x	x
Mona Izumi	Northwest Community College	x		x	x	x
John Josafatow	Selkirk College	x		x	x	x
Gabriela Kakushkin	Vancouver Community College		x	x	x	x
Costa Karavas	Vancouver Community College	x		x		x
Lisa Lajeunesse	Capilano University		x	x	x	x
Clint Lee	Okanagan College (Vernon)	x		x	x	x
David Leeming	Pacific Institute for the Mathematical Sciences	x		x	x	x
Peter Liljedahl	Simon Fraser University (Education)	x		x	x	
Richard Lockhart	Simon Fraser University		x	x	x	x
Jason Loepky	University of British Columbia (Okanagan)		x	x	x	x
Gary MacGillivray	University of Victoria	x		x	x	x
Colin Macleod	Kwantlen Polytechnic University		x	x		
Allan Majdanac	Douglas College		x	x	x	
Brian May	Okanagan College	x		x	x	x
John McLoughlin	University of New Brunswick			x (pm)	x	
Susan Milner	University of the Fraser Valley	x		x	x	x
Wayne Nagata	University of British Columbia (Vancouver)	x		x	x	x
Leo Neufeld	Camosun College	x		x	x	x
Michael Nyenhuis	Kwantlen Polytechnic University	x		x	x	x
Susan Oesterle	Douglas College	x		x	x	x
Paul Ottaway	Thompson Rivers University	x		x		x
Shane Rollans	Thompson Rivers University		x	x	x	x
VedaRoodal-Persad	Thompson Rivers University - OL/Langara		x	x	x	x
Paul Rozman	British Columbia Institute of Technology		x	x	x	x
Wesley Snider	Douglas College	x		x	x	x
Todd Stuckless	Langara College (Engineering Transfer)					x
Krishna Subedi	Alexander College					x (pm)
Tim Topper	Yukon College	x		x	x	x
Tracy Wall	College of New Caledonia	x		x	x	x
Mike Winsemann	BCCAT					x

*Northern Lights College (regrets sent).

Adult Basic Education Mathematics Working Committee Report to the BCCUPMS at Kwantlen Polytechnic University on May 12-15, 2014.

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

Date of meeting: March 6-7, 2014.

Location: Vancouver Community College (Downtown Campus)

1. Adult Literacy Fundamental Committee - Tanya Boboricken (Kwantlen)

- Comparing differences on how ABESAP is funded across the province and how it is used by the various institutions.
- Barriers to access including introduction of various fees.

2. Open Textbook Project – Mary Burgess, Director, Curriculum Services and Applied Research, BCcampus

Mary gave a summary of the BCcampus' mandate. Most of her presentation focused on the BC Open Textbook Project. There is currently funding for the creation of twenty open textbooks or other online resources. There was considerable interest in applying for funding to develop a textbook and resources for ABE Mathematics.

3. Ron Coleborn, President, BC Association of Mathematics Teachers (BCAMT), presented an overview of changes being considered in the K-12. For most subjects in K-9 courses will be modularized. Instead of a large number of prescribed learning outcomes teachers will have greater flexibility to individualize their instruction. The recently developed and implemented Apprenticeship and Workplace, Foundation and Pre-Calculus for Grades 10-12 streams may also be open to changes. Ron also carried out an exercise that asked us to discuss some of our own beliefs and assumptions regarding mathematics education.

4. Sub-committee Reports

At last year's meeting a sub-committee was formed to examine how the introduction of the new Intermediate Level - Algebraic course related to the Advanced Level – Developmental course. Bob Darling (VIU) reported that there is considerable overlap between the two courses. There consensus to change to change the two courses at the Intermediate Level. The older, Intermediate Level - Developmental course continues to meet the needs of those students entering the trades or other programs where algebra is not required.

5. Articulation of New Math Courses

- Kwantlen's MATQ 1089 Intermediate Level– Algebraic course (Math 10 level)
- Kwantlen's MATQ 1099 Advanced level (Pre-calculus 11 level)
- Selkirk's MATH 046 - Intermediate Level – Development course (Pre-calculus and Foundations 10 level)
- Selkirk's MATH 049 - Intermediate Level – Algebraic course (Pre-calculus and Foundations 10 level)
- Selkirk's MATH 056 & 057 - Advanced Level - Foundations of Mathematics (Foundations 11 level)
- North West Community College's Math 047, Advanced Level – Foundations of Mathematics (Foundations 11 level)

6. Update and Renewal of Courses

The Math Working Group will start the process of course renewal beginning with the Intermediate Level courses at the 2015 articulation meeting.

BC Secondary School Mathematics Contest, 2014 Report to the BCCUPM

On May 2, 2014 the Final Round of the BC Secondary School Mathematics Contest was written at 12 provincial colleges and universities. Students who had performed well on an earlier Preliminary Round held within their own high schools were invited (together with a teacher sponsor) to attend the Final Round and spend a day at the local post-secondary institution with several activities involved.

Participating institutions are:

Capilano University	(CapU)
College of New Caledonia/University of Northern BC	(CNC/UNBC)
College of the Rockies	(CotR)
Langara College	(Lang)
North Island College	(NIC)
Northwest Community College	(NWCC)
Okanagan College/UBC Okanagan	(OC/UBCO)
Thompson Rivers University	(TRU)
Vancouver Island University	(VIU)
University of the Fraser Valley	(UFV)

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 did run the Final Round.

Institution	Final Round		Top Three Scores		Averages	
	Juniors	Seniors	Junior	Senior	Junior	Senior
CapU	26	21	100, 95, 92	99, 95, 89	72.2	61.2
CNC/UNBC	N/R					
CotR	6	5	49, 38, 32	56, 49.5, 45	32.8	44.5
Lang	22	11	100, 100, 93	88, 77, 76	68	57
NIC	20	12	84, 70, 65	67, 60, 54	40.7	44
NWCC	6	6	65, 63, 57	61, 49, 39	48.3	42.3
OC/UBCO	61	26	72, 67, 63	63, 59, 59, 54	41.4	41.4
TRU	29	37	65, 61, 58	61, 59, 59	44.1	35.9
VIU	47	41	61, 60, 59	86, 66, 61	35.3	38
UFV	73	57	100, 98, 92	95, 76, 70	47	41
TOTAL	290	216				

Approximately 1150 Juniors and 650 Seniors throughout the province wrote the Preliminary Round this year. The top reported Junior and Senior Preliminary scores were both 60 and 60, respectively, out of 60. Not all schools report Preliminary Round scores or participation numbers, so these are not necessarily an accurate reflection of the level of participation in the Preliminary Round. A total of 506 students participated in the Final Round this year. This number is down somewhat from last years, and is about average compared to previous years.

The Preliminary Round is handled in essentially the same way at all institutions. The Preliminary Round contest papers are mailed to participating schools. The contest is administered and marked at the schools and the results, including the names of the Final Round participants, are transmitted to the hosting institution. The Final Round does have variations. At all institutions the Final Round contest was administered on the morning of May 2, with some type of activity provided for the sponsor teachers, and, after the contest is completed, lunch is provided for all participants. After lunch the activities vary. Some institutions have talks for the participating students and teachers, others combine talks with other activities, such as a math relay or scavenger hunts. During the time that the afternoon activities are taking place, the contests are marked, and later in the afternoon prizes awarded. The prizes vary among institutions. Some institutions give book prizes to all or selected participants; some institutions give cash prizes and/or scholarships to winners; many give T-shirts to all participants.

Two institutions have instituted the practice of separating junior contestants, specifically grade 8, to allow them to work on certain portions of the contest in teams. Having done this over the last few years at OC has generated a significant level of interest among local middle schools, resulting in a noticeable increase in participation among grade 8 students.

Thanks should go to those who have organized the Contest at their individual institutions and encouraged their local schools to participate in the Contest. First there are the primary organizers at each of the Colleges: Nora Franzova at Langara College; Sherrie Wang at North Island College; Erfan S. Zahra'i at Northwest Community College; Clint Lee, Leslie Corbett and Satoshi Tomoda at Okanagan University College and Wayne Broughton at UBC Okanagan; Shane Rollans at Thompson Rivers University; Ian Affleck at University of the Fraser Valley; and Patrick Ng at Vancouver Island University College. Although these are the primary organizers at each institution, it goes without saying that they do NOT do all the work required to make this contest a success themselves. Indeed, they have indicated that their entire departments are involved with hosting the contest. Special thanks should go to John Grant McLoughlin, who, as a professor in Mathematics Education at the University of New Brunswick, continues his involvement with our contest even though he is at other end of the country, and to Mike Szesztopalow a past contestant from Vernon who is now a PhD student in mathematics at Waterloo University.

Furthermore, the people who submitted problems and met at College of New Caledonia last May to put together the initial drafts of the contest papers and reviewed them as they developed are: Ian Affleck (UFV), Jim Bailey (CotR), Nicholas Buck and Tracey Wall (CNC), Clint Lee and Satoshi Tomoda (OC), Nora Franzova (Lang), Jennifer Hyndman (UNBC). Solutions were prepared and typeset by Jim Bailey (COTR), Satoshi Tomada (OC), and Clint Lee (OC). The final compilation and typesetting of the contest papers and solutions was done by Clint Lee, who is also responsible for distributing the contest materials to all of the participating post-secondary institutions.

Funding of the province wide activities associated with the BCSSMC, in particular travel of speakers from one institution to the other for Final Round activities and by the BCSSMC Provincial Coordinator, currently Clint Lee, to the BCCUPMS meeting for Problem Preparation sessions, has been generously provided by the Pacific Institute for the Mathematical Sciences, PIMS.

This report, together with information on winners from the individual institutions, will be posted on the BCSSMC web site at people.okanagan.bc.ca/clee/BCSSMC/2014/MathContestBCCUPMReport_2014.htm.

My apologies to anyone whose name may have been inadvertently left out.

For those planning for next year, the dates I am suggesting for the 2015 contest are:

Preliminary Round: Wednesday, April 1, 2015

Final Round: Friday, May 1 or May 8, 2015

Respectfully submitted to the BCCUPMS on May 13, 2014 by

Clint Lee
Okanagan College, Vernon

Math Challengers Report to BCcupms – 2014

Math Challengers is a wonderful opportunity for students, in Grade 8 or 9 who love Math, to spend part of a day doing math problems individually and in teams with the prospect of trophies, medals and prizes when it's over. Brief talks or other math-related activities are also part of the experience.

This year over 800 students participated at the Regional level. This represents a 40% increase over 2013. Grade 8 teams came from 43 different schools and Grade 9, from 52 schools. Students are also permitted to register as individual competitors. Top teams and individuals then advance to the Provincial competition, which was held at UBC this year. It's a really fun day for all!

Math Challengers 2014 Regional Competition				
Grade 8	Lower Mainland	Vancouver Island	Okanagan	Fraser Valley
Schools	23	4	5	11
Teams	34	11	11	23
Competitors	167	50	55	110
Grade 9				
Schools	30	5	7	10
Teams	49	8	15	18
Competitors	240	39	73	83

There is a third round for the top Grade 8 students. It's called the Intramurals and consists of two teams each from BC, Washington and Oregon squaring off.

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

Besides the main competition site on the Lower Mainland, we also have competitions on Vancouver Island, in the Okanagan. Satoshi Tomoda coordinates the Okanagan event, and, now, one at UFV with Ian Affleck in charge. Who will be the next to join in this very stimulating initiative? Prince George?? Kamloops??

For information about MC: <http://www.apeg.bc.ca/mathchallengers/index.html>

For previous competition problems: <http://www.math.ubc.ca/~adler/challengers/>

Leo Neufeld
May 14, 2014

**MINUTES OF THE STATISTICS SUBCOMMITTEE
92ND BCCUPMS MEETING, MAY 13 – 14, 2014
KPU Richmond Campus**

TUESDAY, MAY 13TH, 2014

Present: Bruce Dunham (UBC), Richard Lockhart (SFU), Jason Loeppky (UBCO), Colin MacLeod, (Kwantlen Polytechnic University), Ai Fukushima (NVIT), Kevin Craib (Langara College), Lisa Lajeunesse (Capilano University), Gabriela Kakushkin (VCC), Paul Rozman (BCIT), Allan Majdanac (Douglas), Veda Roodal Persad (TRU-OL/ Langara), Shane Rollans (TRU).
Apologies for absence received from Susan Chen (Camosun).

Chair: Bruce Dunham

Acting Secretary: Richard Lockhart

1. Approval of Agenda

Motion to approve agenda: Moved: Ai Fukushima; seconded: Jason Loeppky. **Carried unanimously.**

2. Approval of minutes of the Statistics Subcommittee Session of the 91st meeting.

Motion to approve minutes: Moved: Ai Fukushima; seconded: Veda Roodal Persad. **Carried unanimously.**

3. Matters arising from minutes

The flexible pre-major program is an item on the agenda. A discussion of flexible learning initiatives had been proposed at the end of last year's meeting. The chair proposes that individual's describe any flexible learning initiatives at their institution during their institutional report.

4. Institutional Reports

BCIT

There have been no significant changes to BCIT mathematics and statistics courses in the past year. The institute hired new president Kathy Kinloch.

Camosun College

The enrollments in statistics courses stayed unchanged last year, but there are concerns for calculus-based statistics courses, especially the second year statistics course, because part of Camosun College's budget plan that has just been approved by the Board of Governors is to cut under-enrolled university transfer courses, and all second year Math and Stats courses are under-enrolled by definition.

Software-wise, there is a move to open source statistical software R from Minitab starting this September for our Applied Statistics course and the two calculus-based Statistics courses. The algebra-based statistic course switched from SPSS to Excel and MegaStat two years ago.

The college is in the process of changing Statistics courses' subject code from MATH to STAT, and changing the name of the department from Department of Mathematics to Department of Mathematics and Statistics! The department looks forward to becoming one of the several BC post-secondary institutions that have a Mathematics and Statistics Department and have their statistics courses labeled as STAT for clarity.

Susan Kinniburgh joined last September to take the Camosun statistics group up to three in number.

Capilano University

Offerings of introductory statistics course have increased from five sections in 2012/2013 to eight sections in 2013/2014 to meet increased demand. This increase can be attributed, at least in part, to non-science students having fewer options when choosing a quantitative course to meet degree requirements. Many students formerly chose to take COMP 101, which is no longer an option since the suspension of almost all of the Computing Science offerings within the last year.

Capilano University instructor Ken Towson is retiring in November and there will likely be either a full-time position or a part-time position advertised for next year. This position will be open to both mathematicians and statisticians, although there is strong encouragement to those with a statistics background to apply.

Douglas College

Douglas experienced a big growth about two years ago due to the Nursing program. Roughly 500 students per year in have been enrolled on introductory courses, with 12 or 13 sections. A drop in numbers is anticipated due to shrinkage in the Nursing Foundational Year enrollments. The college offers a second year calculus-based statistics course with one section per year, the enrollment being about twenty people. Computing issues are a consideration, since some instructors use graphing calculators on their courses.

Kwantlen Polytechnic University

The new B.Sc. in Applications of Mathematics will be launched this fall. As a result, a new stats course will be offered in the fall of 2015 (MATH 3315: Inferential Statistics). This course has been approved but the content will likely change to make it non-calculus based.

The business stats course (MATH 2341) has continued to suffer low enrollments despite the removal of the calculus prerequisite. Students are opting to take a BUQU course instead, it seems. Other introductory stats courses have steady enrollments.

Langara College

Langara hired two part time statistics instructors in 2013. The college is experiencing increased student demand particularly in business statistics and in intermediate intro for nursing. Eight courses are offered: three introductory, four intermediate, and one on software. Total enrollments last year were 1954. There has been growth in the BBA program offered by the School of Management. Course MATH 1124 has doubled in terms of number of sections with an increase of more than 50% in students.

Introductory courses contain a compulsory term project. The courses thus require research ethics approval although individual student projects do not. There is an on-line tutorial for the students on research ethics for human subjects.

Nicola Valley Institute of Technology

NVIT has recent changes in their math course delivery. Business Math, BUSM 200 (Finite) and Intro Statistics (BUSM 207) and STAT 203 are currently offered. The Business Administration Program is suspended for Fall 2014, and so no BUSM 200 nor BUSM 207 offered fall 2014 at the Merritt Campus.

Two new deans are replacing one who left for VIU. NVIT now has a satellite campus in Burnaby.

Simon Fraser University

A search is underway to recruit a new faculty member; the department is optimistic about the possibility of making a very strong hire.

Richard Lockhart will end his term as chair at the end of August. Tom Loughin will take over.

The university budget is currently fine but permanently at risk. Enrollments in Statistics courses are fairly stable at historically high levels.

There have been no major revisions to the undergraduate courses. A revision of the Actuarial Science program is in the works. Important points about changes from the previous year include:

1. The new minor program courses have large enrollments but are proving challenging because as students may arrive in the courses by two routes.
2. In particular, students are accepted into upper year minor courses via several routes, one of which has no calculus and no linear algebra requirement.
3. STAT 340: Statistical Computing is now also being offered in two parts: a one credit course in R and a one credit course in SAS.

Thompson Rivers University

The department lost a sessional statistician to Camosun College. There are no prospects of hiring in the near future.

Thompson Rivers University, Open Learning Division

There continues to be stable enrollment in our STAT 1201, Introduction to Probability and Statistics. This course uses the De Veaux, Velleman and Bock textbook and students use a graphing calculator. The division also offers BIOL3001, Biostatistics, which has a small enrollment and which is taught with R.

University of British Columbia, Okanagan

The university successfully recruited a new head (a statistician) of Computer Science, Mathematics, Physics and Statistics. John Braun from University of Western Ontario will become head of department later this year.

Enrollments remain fairly constant in introductory courses. The upper level enrollments are variable depending on who is teaching. Enrollment in the major is very small.

A new course was offered on Modern Statistical methods that focused mainly on statistical learning, and was relatively attractive to students although the level of the course was a problem. The course is mainly about data mining, based on a new book by Hastie and Tibshirani which is an intro level version of their more comprehensive text.

University of British Columbia, Vancouver

The numbers of students on Statistics programs and courses have continued to increase in the last year. Overall 39 students graduated on our programs since June 2013, up slightly from the previous year but nearly doubling the number of two years ago. There has been an overall increase of around 200 students on STAT course offerings compared to two years ago. Our "new" course, STAT 300, a second course in Statistics, was offered for the second time, and numbers rose from 98 in 2012 to 138.

This year the Department of Electrical and Computing Engineers (ECE) withdrew their students from STAT 251, resulting in an annual drop of around 150 in that course. The Department of Statistics will be working with ECE to develop and co-teach a new course, EECE/STAT 357, which will in effect replace STAT 251 for Electrical Engineering students at UBC-V from 2014/15.

The department has instigated a faculty-student liaison committee, consisting of select faculty members and two elected student representatives. There is also a regular newsletter to students on undergraduate Statistics programs.

A third and final year of funding has been secured from UBC's Teaching and Learning Enhancement Fund to develop WeBWorK to facilitate on-line homeworks on statistics courses. Programming on WeBWorKiR, an integration of WeBWorK with R, has been continued by Davor Cubranic (a scientific programmer in SCARL, the department's consulting unit), and new questions have been coded by several graduate students. WeBWorK homeworks have been used on STAT 200, 241/251, 300, 302, and 305 this year. Next year questions will be created for STAT 443 (time series) and an SPPH course. Student and faculty feedback have been very positive. A new feature allowing students to download their customised data is to be added this year. All resources created in this project, including training materials, are freely available to the academic community.

The WeBWorK project will likely form part of a wider initiative, the Flexible Learning project in Statistics. UBC recently made substantial funds available for the development of flexible learning tools across campus. The Statistics Department proposal suggests collaboration between units teaching introductory courses. Working together, coordinated by the Statistics Department, the aim is to create tailored resources that can be used by students across a wide range of courses.

Vancouver Community College

The VCC president departed to BCIT. Jean Macleod retired, and Costa Karavas replaced her in the statistics teaching. The college runs six statistics classes with very healthy enrollments.

5. The Flexible Pre-Major in Statistics

The Chair had liaised with colleagues at UBC-O, SFU, and UVic, leading to a proposed final draft of documentation describing a so-called flexible pre-major in Statistics. The document is similar in style and format to the corresponding document on the flexible pre-major in Mathematics, available on both the BCCAT and BCCUPMS websites. The committee endorsed the Statistics pre-major, and agreed it was acceptable to recommend to BCCUPMS that the document appear on-line wherever there are links to the flexible Mathematics pre-major information.

6. CEAB accreditation criteria. (Bruce Dunham, UBC)

Changes have been made in the Canadian Engineering Accreditation Board (CEAB) requirements for accreditation. These changes are in effect now, and are scheduled to be enforced from next June. In summary, accredited programs must have a minimum of 1950 Accreditation Units (AU), an AU corresponding to approximately one hour of contact time. Depending on their format, about 40 three-credit courses is a minimum program requirement for accreditation. There is a minimum of 195 AU in “mathematics”, or approximately four three-credit courses, and students must learn about calculus, linear algebra, probability and statistics, among other topics. The requirement for some teaching to be done by non-engineers seems to have been eliminated.

Colleagues should be aware that changes to enrollments on probability and statistics courses may follow from the alterations to CEAB accreditation criteria. As noted in the institutional reports, at UBC-V the Electrical Engineers have withdrawn their students from STAT 251, the probability and statistics course for Applied Science students. This has resulted in discussions between the departments and the creation of a new, co-taught course, STAT/EECE 357. Conversely, engineers at UBC-O have expressed some interest in having the statisticians teach statistics to their students.

7. Any other business

The Chair indicated a willingness to continue in the role, although stressed he did encourage others to consider taking the position as chair should they be interested.

Formal articulation agreements may be about to extend to institutions in Alberta. Athabasca is already part of BCCUPMS, and Jim Bailey (BCCUPMS Chair) has been in talks with colleagues in Alberta about strengthening articulation between the two provinces. Apparently Albertans have expressed the view that the range of introductory statistics courses would be too wide to enable articulation with courses at BC. The committee did not share that opinion.

8. Motion to adjourn

Moved by Jason Loeppky, seconded by Veda Roodal Persad and carried unanimously. The meeting adjourned at 11:50.