

Minutes of the BC Environmental Articulation Committee May 3 – 5, 2017

In attendance:

1 Anna Tikina (teleconference)	BCCAT
2 Lorne Sampson	BCIT
3 Mohamed Elhag	Brandenburg Technical University, Germany
4 Steve Gormican	Camosun College
5 Cheryl Schreader	Capilano University
6 David Dick	College of the Rockies
7 Derek Turner	Douglas College
8 Gordon Weary	Northwest Community College
9 Allison MacMillan	Okanagan College
10 Matt Dodd	Royal Roads University
11 Robert Macrae	Selkirk College
12 Marnie Branfireun	Simon Fraser University
13 Tom Pypker	Thompson Rivers University
14 Susan Purdy	Thompson Rivers University
15 Maxwell Ofosuhene	Trinity Western University
16 Michael Rutherford	University of Northern British Columbia
17 Annie Booth	University of Northern British Columbia
18 Michelle Rhodes	University of the Fraser Valley
19 Stefanie Duff	Vancouver Island University
20 Katrine Frese	Yukon College

Location: University of Northern British Columbia, 3333 University Way, Prince George, BC V2N 4Z9 in the Bentley Centre room 7-170/172 on May 3, on a field trip to the Ancient Forest/Chun T'oh Whudujut Park and Protected Area, an inland wet-temperate rainforest approximately 100 km east of PG on Highway 16 with a stop at the Northern Lights Estate Winery on May 4, and at College of New Caledonia, 3330 22 Ave, Prince George, BC V2N 1P8 on May 5 for a joint meeting with the Geography Articulation Committee

Minutes recorded by Robert M. Macrae

There was a pre-meeting UNBC Bioenergy / Sustainability Initiatives tour on the morning of Wednesday May 3 led by Kyrke Gaudreau, B.Eng, M.E.S, PhD, Sustainability Manager for the UNBC Green University Centre. Included on the tour were classrooms, lecture rooms, campus buildings, building wings, a discussion of the architecture, the David Douglas Botanical Gardens, community gardens, student greenhouse, electric vehicle recharging station, art commemorating the 25th anniversary of UNBC, and the biogas from wood chips heating plant.

The meeting began on Wednesday May 3 at 1:00 pm. BC EAC members were welcomed by host Michael Rutherford of the Environmental Science and Engineering program of UNBC. Erik Jensen, Acting Dean of the College of Science and Management and Todd Whitcombe, Chair of the Environmental Science and Engineering Programs also welcomed guests.

There was a call to order. Attendance was recorded, minutes from the previous meeting were discussed (minutes are circulated in advance electronically, approved in advance of the annual general meeting, and posted on the BCCAT web site).

There was a discussion of the agenda, call for new business, and approval of the agenda as amended.

The chair advised:

- Tara Ivanochko sent regrets from UBC-V, a report was submitted by Mark Johnson
- Katrina Erdos sent regrets from Langara and a report
- Georgie Harrison sent regrets from NIC
- Todd Reading sent regrets from Okanagan College, a report was submitted by Stephanie Bunclark
- Val Schaefer sent regrets from UVic and a report
- Linda Kaivanto of the BC Ministry of Advanced Education was unable to attend and the BC EAC was unable to schedule a telephone conference call,
- next year's BC EAC meeting will be hosted by Trinity Western University. Maxwell Ofosuhene requested time to confer with faculty colleagues and TWU administration regarding a date. After the meeting, he advised that TWU would be pleased to host next year's AGM on May 22 - 23, 2018 (Tuesday and Wednesday). One day will be dedicated to a business meeting and the second for field trips including the Blaauw Eco Forest - tract of land endowed to TWU as well as a possible excursion into the USA. Participants are reminded to mark their calendars and to bring their passports for next year's meeting.

Institutional reports were presented as listed below. BC EAC members submitted reports in advance that were posted to the following web site: <http://weather.unbc.ca/articulation> (user name "articulation"; PW: "2017"). In reviewing the reports, several themes emerge including community involvement through a range of credit and non-credit programming on environmental and sustainability topics, sustainability as a topic, sustainability initiatives at colleges and universities and how they are funded, challenges with international students, locations for field schools, and commonalities in environmental and geography offerings.

- Katrina Frese presented a report on behalf of Yukon College. Her report is posted. Yukon is planning to launch a Bachelor of Arts in Indigenous Governance degree. The title is tentative and subject to an external quality assurance process. As proposed, it will be a three year (90 credits) program and Yukon College's first independently offered degree. Yukon College offers a certificate in climate change with four online courses and one field school course. The target is professionals with degrees. Yukon College is planning a transition to become a university although in a hybrid format where it maintains adult basic education and trades training. Enrolment overall is good.
- Annie Booth of the UNBC Environmental Studies program reported. Her report is posted. Of note, there is a new joint major offered by UNBC Environmental Studies and the Business Programs. It looks at integrating sustainability with business operations.
- Matt Dodd reported from RRU. His report is posted. Of note are the major projects completed by the BSc-ES students. The RRU BSc-ES has an outstanding history of securing relevant environmental projects with partners in the public and private sectors. Matt reported how RRU has built its graduate environmental studies, environmental science and environmental management programs to meet the needs of niche markets through innovative programming and methods of delivery.
- Cheryl Schreder of Capilano University presented her report which reviews geography and biology courses and programs at CapU with environmental themes. Her report is posted. CapU does not currently offer separate environmental science or environmental studies programs or majors, but offers environmental courses through its geography and biology programs. Cheryl provided a helpful list of texts and references and Environmental Initiatives and Events including EarthWorks with the mission to "Educate and inspire students as well as members of the campus and local community to understand complex environmental issues from a multi-disciplinary perspective enabling all to take action for positive change. See: <https://www.capilanou.ca/earthworks/>." EarthWorks is more than a speaker series and attempts to engage all CapU stakeholders in understanding the environment.

- Steve Gormican reported from Camosun College. His report is posted. The Camosun Environmental Technology program is going through a program review, an accreditation process with CTAB and is moving towards accreditation with TAC. There is on-going consideration of reducing the number of credits in the Camosun Environmental Technology program from 72 to 60 while preserving articulation agreements and the richness of the program.
- Kyrke Gaudreau of UNBC reported on Green University projects at UNBC. No report was posted. However, Kyrke discussed City Studio; local, humane, fair trade, organic, and health food options; and bus shelters. Ten percent of parking fees goes to the UNBC sustainability fund in addition to a levy on student fees for sustainability projects.
- Stefanie Duff Chair of the Department of Fisheries and Aquaculture at VIU is new to the BC EAC replacing Marilyn Funk and John Morgan. Stefanie reported on her department's post-diploma programs, applied skills, and a focus on careers related to studies.
- Derek Turner of Douglas College presented reports for both the geography and biology programs on courses and initiatives with an environmental theme. Both reports are posted. The geography report, by Mike McPhee mentions a community mapping project which has attempted to locate and map streams now buried under New Westminster which has generated community interest. The biology report, written by Derek, mentions Douglas's Institute of Urban Ecology and its new Building Energy and Resource Management Certificate (BERM) program which trains building operators and managers in the principles of energy efficiency and environmental sustainability.
- Susan Purdy and Tom Pypker of the TRU biology and Natural Resources Sciences programs each presented and posted reports. TRU is offering a new two year diploma in water and wastewater treatment. Students can ladder from the diploma to a TRU Bachelor of Technology: Trades and Technology Leadership, or Bachelor of General Studies. TRU offers a Leadership in Environmental Sustainability certificate, Sustainability Ambassadors program, and a Solar Campus Project. The Natural Resources Sciences MSc program has had a jump in enrolment since it began in 2010 and is presently seeing between 3 – 11 students graduate per year.
- Marnie Branfire reported from SFU. Her report is posted. In her presentation she maintained a communications theme. She listed three notable updates in environmental programs at SFU: The SFU-BCIT Joint M.Sc. in Ecological Restoration will graduate its first cohort in the spring, the new (started in 2016) Bachelor of Environment with its three majors tied to the Department of Geography and the School of Resource and Environmental Management is undergoing minor revision, and the School of Resource and Environmental Management. B.Sc. Environmental Science program has implemented modifications to existing courses and added new courses for the fall of 2017 and a new teaching faculty hire. SFU has a Centre for Sustainable Development (CSD), a research unit affiliated with the Sustainable Development Program, which offers academic programs and courses, and two non-degree programs: the Certificate in Sustainable Community Development, and the Post Baccalaureate Diploma in Sustainable Community Development.
- Allison MacMillan of Okanagan College Kelowna campus reported on the Water Engineering Technology (WET) programs. The WET programs are CTAB accredited and working on switching to the provincial TAC accreditation program. The WET programs have laddering agreement into and out of the programs and have additional laddering agreements in progress. Her report is posted.
- Michael Rutherford reported from UNBC primarily on the Environmental Science program. His report is posted. The UNBC Environmental Science program major has undergone revision and the program will be reviewed in the fall of 2017. A number of courses are offered through distance to reach a larger audience. Enrolment trends are steady and environmental engineering is showing growth. A separate UNBC Environmental Engineering report is posted. It describes how the program collaborates with UBC-V. The UNBC Environmental Engineering program underwent a CTAB review where the focus was graduates' attributes.

- Maxwell Ofosuhene reported on environmental programs at TWU. His report is posted. At TWU, the Departments of Geography and the Environment were combined to create the new Department of Geography and Environment (GENV) with a multidisciplinary focus. There have been workshops and retreats to support this transition. Institutionally, TWU is shifting towards a greater emphasis on inquiry based learning. TWU is launching a new calculation for faculty workload. TWU has opened a new computer lab equipped with GIS capabilities. Student enrolment is steady. One research project of note is exploring uses for *Sapindus saponaria* (soapberry) a Central American tree.
- David Dick reported from College of the Rockies. His report is posted. CotR has three environmental programs and has established pathways for articulation from CotR into specific receiving programs after two years. New courses have been added in microbiology and biochemistry. There is an active sustainability committee, and CotR has received approval for an 1800 m³ trades building designed to meet the LEED Gold standard. In his discussion, David reported that 15% of CotR's total enrolment is international students and 50% of CotR business students are international.
- Robert Macrae reported from Selkirk College. Robert was on paid leave since September, 2016 teaching in the B.Sc in Environmental Resources Management program at Brandenburg Technical University in Cottbus, Germany. Robert reported on his leave, on opportunities for BTU students to attend environmental programs in BC, for BC students to study in Germany, and for faculty to work abroad. Mohamed Elhag, Co-ordinator for the BTU Environmental Resources Management programs and Robert's supervisor while on leave, attended the BC EAC 2017 meeting.
- Gordon Weary reported from NWCC. His report is posted. Gordon emphasized NWCC's applied, outdoor, field-based theme to its environmental programs. NWCC offers five programs in either Environmental Studies or Science: the Applied Coastal Ecology (ACE) Certificate (24 Credits) and Diploma (70 Credits), the Applied Earth and Environmental Studies (EES) Certificate (30 Credits), the Associate of Science Degree - Environmental Geosciences Specialization, the Associate of Arts Degree – Archaeological and Cultural Resource Management, and the Associate of Arts Degree - Sustainable Communities Specialization. Enrolment has averaged 10 - 20 students in the ACE programs - and 10 - 15 in the Environmental Certificate and Geoscience Specialization Programs. Few students have completed the Arts programs, but the Sustainable Communities Specialization program is being revised to act as a flagship program for the Prince Rupert campus. NWCC is actively looking for articulation agreements for its environmental programs.
- Val Schaefer was unable to attend, but submitted a report from the University of Victoria. The report is posted. The report lists minor changes to UVic's well-established suite of environmental programs. Enrolment is steady. UVic will participate in the World Congress in Environmental Education to be held in Vancouver, September 9 - 15, 2017. The UVic RNS program participated in Canada's sesquicentennial Canadian Wildlife Federation BioBlitz in partnership with a community organization, Garry Oak Ecosystem Recovery Team.
- Lorne Sampson reported from BCIT. His report is posted. BCIT has a strong suite of well-established environmental programs such that a graduate from 1999 has been appointed to the BCIT board of governors. Enrolment is steady, budgets are conservative, and there is a normal level of course revision, changes in faculty, visits by guest lecturers, and field trip. BCIT is exploring the use of D2L for online course delivery. There is an impressive list of students' applied research projects reflecting strong links with industry.
- Michelle Rhodes presented a report on behalf of the University of the Fraser Valley. Her report is posted. UFV has proposed a new degree, Bachelor of Environmental Studies with a Bachelor of Environmental Studies with a natural sciences option. Articulation is being sought for these programs. UFV offers a diversified suite of BA and BSc programs with environmental themes including a peace studies program with an emphasis on sustainability. UFV continues to cope with high demands on insufficient financial resources, resulting in a paring back of courses that are not filling sufficiently. Many of the Environmental Studies courses continue to struggle with enrolment, in part because of the absence of a unifying program, and in part because students do not know where to look for these. As was the case in 2015-16, Arts-based courses are struggling more than science programs. Notwithstanding, UFV's Centre for Excellence in Agriculture is doing well, expanding research and business connections.

- Although unable to attend, Stephanie Bunclark (Chair of GEOG/EESC) submitted a report on behalf of the Okanagan College Geography, Earth and Environmental Science Department. The Environmental Science diploma program is distributed over four campuses. Enrolment and retention in this program compares favorably with other programs. Work is being done to improve marketing, develop student projects, and integrated the new GIS lab on the Salmon Arm campus. Work is ongoing to establish articulation agreements.
- Although unable to attend, Anna Tikina reported from BCCAT via teleconference. She reminded the BC EAC that all BCCAT publications are online. She mentioned new reports on topics such as indigenous students, post-secondary support, success and mobility; interdisciplinary courses defined and transfers; and a report on BC high school curriculum changes. She discussed philosophically academic credit, dual admission either in a sequential model (NIC and UVic) or in a concurrent model (Douglas and SFU). She discussed the focus on experiential education, a topic Steven Earle has been studying. The BCCAT Joint Annual Meeting will be held on Friday November 17 at the Well Centre in Richmond. The articulation awards nominations are open.
- Although unable to attend, Mark Johnson of UBC-V posted a report which mentions a Community Projects in Environmental Science course that has involved a number of interesting undertakings.
- Although unable to attend, Katrina Erdos reported from Langara College. Katrina reported further on issues related to international students, a new location for their environmental field school to avoid ferries, and a textbook survey which showed that none of the ENVS core courses utilize textbooks, and instead require students to refer to reading packages. Katrina's report is attached separately.

On Wednesday May 3, after the business meeting, there was a break for dinner followed by an informative presentation by Dr. Ellen L. Petticrew and Dr. Philip N. Owens both of UNBC on the aquatic impacts of the 14-August-2014 breach of the Mount Polley copper mine tailings storage facility.

On Thursday May 5, there was a historic joint meeting between the BE EAC and Geography Articulation Committees held at College of New Caledonia. These are my minutes of the morning portion of that meeting.

In attendance:

Glen Thielmann	BCSSTA High School Rep.
Jozsef Budai	BCSSTA High School Rep.
Mohamed Elhag	Brandenburg Technical University, Germany
Steve Gormican	Camosun College
Tim Elkin	Camosun College
Cheryl Schreader	Capilano University
Jeanne Mikita	Capilano University
Cliff Raphael	College of New Caledonia
Laura Buchi	College of New Caledonia
Mark Cernigoj	Coquitlam College
Kathy Runnalls	Douglas College
Parthiphan Krishnan	Kwantlen Polytechnic University
Colin Wills	Langara College
Gordon Weary	Northwest Community College
Allison Lutz	Selkirk College
Robert Macrae	Selkirk College
Marnie Branfireun	Simon Fraser University
Susan Purdy	Thompson Rivers University
Tom Waldichuk	Thompson Rivers University
Steven Earle	Thompson Rivers University - Open Learning
Maxwell Ofosuhene	Trinity Western University
Bernard Momer	University of British Columbia - Okanagan
Michael Rutherford	University of Northern British Columbia
Michelle Rhodes	University of the Fraser Valley
Shannon Fargey	University of Victoria
Hannah Wilson	Vancouver Island University
Stefanie Duff	Vancouver Island University
Katrine Frese	Yukon College

Cliff Raphael welcomed participants. Chad Thompson, dean at CNC, offered a welcome. Darlene McIntosh, an elder with the Lheidli Ténneh Nation greeted guests and offered wishes for a productive meeting. Robert Macrae introduced Mohamed Elhag from Brandenburg Technical University, Cottbus, Germany. The agenda was discussed and approved.

Steven Earle briefly discussed his work looking at field schools and their value as experiential education. He made the point that material covered during experiential courses was retained better than material from conventional lectures and labs. He discussed residential field schools compared with commuting field schools. He provided a matrix of environmental field school programs currently offered across BC. His criteria for listing field schools required that the field schools be stand alone courses for credit, credit is typically upper level, at least 50% of course time is in the field, and the courses are not for the general public. His study was requested by deans of business and arts and sciences. Steve is interested in obtaining a better count and description of field schools in BC that meet these criteria. He sees synergy if field schools are articulated and credit recognized between institutions although there is presently little evidence of collaboration or articulation of field schools, credit for field schools needs to be clarified so it is more than undefined credit." He described an Ontario University in Field Biology program as a template – two weeks long, pre-reading assignments, research, final report, seats for students from many universities. This program involves fifteen Ontario universities and students from around the world. The

credit is recognized by all partner universities. Students pay their fees at their home institution, credit from their home institution, no paid co-ordinator, no extra funding, has a web site (<http://www.oupfb.ca/>).

Michelle Rhodes facilitated a discussion between geography and environmental articulation committee members – some of whom sit on both committees. These notes do not capture the richness of the discussion, but this was a productive beginning for members of both articulation committees to understand the other discipline and to consider mutually beneficial collaboration.

The groups discussed the movement by students between geography and environmental courses as they progress through their degree programs. This reflects the overlap of the disciplines. Institutional cross-listing of courses is not always supported. There are registration concerns when students must obtain a specific number of either geography or environmental credits as opposed to elective courses. In some instances, geography and / or environmental courses are service or general education electives. There is ambiguity whether a technology is geographic or environmental such as GIS and whether such categorization is relevant. There is a trend to require courses on sustainability or other environmental topics in degree programs while these topics may be covered in geography courses. Similarly, geography content can be covered in environmental courses. Upper level courses may not be offered every semester or every year so equivalent courses are helpful. There are issues around co-op credit, flexibility in terms of recognizing other institutions courses or programs for credit or transfer, and limits on prior learning assessment (PLA). There was discussion regarding employability skills such as GIS, applied skills, certification in envirometrics or ecological restoration, communication skills, and critical thinking.

There is common terrain shared by geography and environmental programs such as sustainability, hydrology, indigenous education, physical geography, climate change (and associated sciences of meteorology, climatology, etc.) biogeography, and as mentioned, GIS.

The discussion seemed to be moving toward creating a list of all geography and environmental courses and their outcomes to identify shared terrain or outcomes between the two disciplines. Questions such as how much overlap is appropriate and different perspectives to common issues in different disciplines were raised. The idea of shared field courses was discussed.

There remains much to be discussed. The members of the geography articulation committee continued the discussion in the afternoon. This was a constructive beginning. It is too early to predict outcomes.

Next Meeting

As discussed, next year's BC EAC meeting will be hosted by Trinity Western University on May 22 - 23, 2018 (Tuesday and Wednesday). One day will be dedicated to a business meeting and the second for field trips including the Blaauw Eco Forest - tract of land endowed to TWU as well as a possible excursion into the USA. Participants are reminded to mark their calendars and to bring their passports for next year's meeting.

Meeting Adjourned

Adjournment: Thursday May 5, 2017 12:30 pm.