Curriculum design: lessons learned while adapting UBC courses for a new BSc degree at the University of Central Asia

Francis Jones and UBC / UCA partnership team

Goals

• Brainstorm “fresh slate” curriculum design
• Discuss implications for curriculum review
• Introduce the UBC / UCA curriculum development partnership
• Summarize some lessons learned about curriculum development

Outline

• Introduce the scenario
• Worksheet – solo, groups (tables)
• Share & discuss
• UBC / UCA partnership:
  setting - progress - highlights - experiences

UBC team (EOAS and Geography)

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
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How many are currently (or were recently) thinking about program curricula, or at least “course sequencing”?
Can thinking about “starting curriculum design from scratch” inform reviews of existing curricula?

- Considering “ideal” situations often informs “real” situations.
- Helps us step aside from the familiar - i.e. enables a fresh view onto curriculum.
- Can help establish a “baseline” against which to measure reality.
- Enables exploration of options for mapping curriculum along various dimensions.

Some key characteristics of curriculum:
- S.M.A.R.T. curriculum or course goals = specific, measurable, active, relevant, time-sensitive.
- appropriate conceptual or academic foundations.
- appropriate balance of repetition with “new”.
- balance between depth and breadth.
- balancing development of skills, knowledge, attitudes.
- balance between “content” and “practice”.
Think about:
Curriculum design and course development

List 2-3 ideas from the point of view of a curriculum / course developer.

1. What unique opportunities might arise due to “starting from scratch”?  

2. Key considerations for successful development of a new program and courses?  

3. What first steps might you take if you are a course developer on this team?  

Questions or comments:  

Context on next page.
Context: parameters for this new degree

• **Context:** English-language; developing / emerging nation; newly constructed, modern residential campus.

• **Goals:** Well-articulated institution- & program-level outcomes; preliminary, recommended course list.

• **Funding:** good, but not unlimited.

• **Faculty:** still hiring; well qualified from major western institutions.

• **Students:** 80% from the region, “blind, needs-neutral, merit-based” recruitment, (aiming for gender-balanced).

• **Academic program:** 1st yr “transition”, 2nd yr “liberal arts”, 3rd yr “BSc prerequisites”, 4th & 5th yrs for specialist program courses.
1. Unique opportunities
2. Key considerations
3. Possible first steps

•
Summarize some lessons learned by team members
Samples of responses to similar questions

Results from:

- Seven course developers.
- Questions posed in a “reflective” rather than “predictive” mode.
- Responses were articulate and thoughtful.
- Total of 114 comments.
- Results summarized using 6-7 “codes” for each question.
1. Unique opportunities to have arisen due to “starting from scratch”

Examples paraphrased from 36 thoughtful comments:

• chance to think about ‘flow’, and how courses fit together.

• develop a course you felt would serve the students rather than put students into a course that already exists.

• a ton of potential for research collaboration if I and others in the group choose to pursue them.

• enables many new examples and ideas to be incorporated & hopefully spun back to UBC courses.

• opportunity to collaborate with professors and TAs who bring their input to courses I am developing.

• the new institution is keen to see “best practices” throughout.

<table>
<thead>
<tr>
<th>OPPORTUNITIES</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>fresh start for a course</td>
<td>28%</td>
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<tr>
<td>engage in curriculum design</td>
<td>25%</td>
</tr>
<tr>
<td>team - collaboration (UBC &amp; UCA)</td>
<td>17%</td>
</tr>
<tr>
<td>other</td>
<td>14%</td>
</tr>
<tr>
<td>context &amp; local setting</td>
<td>11%</td>
</tr>
<tr>
<td>visit / travel</td>
<td>6%</td>
</tr>
<tr>
<td>N = 36</td>
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2. Key considerations for success

Examples paraphrased from 29 thoughtful comments:

• Balancing "big picture" against all the minor details.
• Scope of the course must be based on consideration of the program as a whole.
• Understanding the targeted goals, especially if different from our experiences.
• How to orient and support diverse, new faculty during first term & subsequently.
• How content, skills and habits of mind come together across curriculum, and within courses.
• Practical hands on aspects of learning (eg specimens, rocks, field experiences, etc).
• Does the material relate to the region?
• Documentation and templates to support consistent deliverables.
• External review: meeting in person with an interested expert.
• Good communication / working relationship within the UBC team and with partners.

<table>
<thead>
<tr>
<th>KEY CONSIDERATIONS</th>
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<tr>
<td>aspects of &quot;curriculum&quot;</td>
<td>27%</td>
</tr>
<tr>
<td>aspects of &quot;learning&quot;</td>
<td>14%</td>
</tr>
<tr>
<td>faculty and transfer</td>
<td>11%</td>
</tr>
<tr>
<td>team work</td>
<td>11%</td>
</tr>
<tr>
<td>other</td>
<td>8%</td>
</tr>
<tr>
<td>reviewers</td>
<td>5%</td>
</tr>
<tr>
<td>personal or project</td>
<td>3%</td>
</tr>
<tr>
<td>N =</td>
<td>29</td>
</tr>
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</table>
3. What first steps did you take?

*Examples paraphrased from 25 thoughtful comments:*

- investigate Central Asian science programs & look for case histories
- explore available local resources, culture of learning, details of the region, countries, university, campuses.
- meet students and current/potential faculty to learn about concerns & teaching approaches.
- put *me* & *my interests* aside in favor of EES, UCA and students (content, priorities & pedagogy).
- meet (weekly initially) & build working relations with team colleagues; connect and stay connected.
- survey colleagues for needed prerequisite skills; discuss results; brainstorm relevant program-themed problems.
- considered potential source courses in EOAS and GEOG (also UBC-O & SFU) for ideas about content, activities, assignments, etc.
- meet UBC faculty to discuss courses and any recent changes.

<table>
<thead>
<tr>
<th>FIRST STEPS</th>
<th>N = 25</th>
</tr>
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<tbody>
<tr>
<td>central asia (visit, cases, etc)</td>
<td>22%</td>
</tr>
<tr>
<td>team disc'n (curricular)</td>
<td>16%</td>
</tr>
<tr>
<td>consider UBC courses &amp; others</td>
<td>14%</td>
</tr>
<tr>
<td>course or topics issues</td>
<td>8%</td>
</tr>
<tr>
<td>student issues</td>
<td>5%</td>
</tr>
<tr>
<td>other</td>
<td>3%</td>
</tr>
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4. Team was also asked about: *What challenges or constraints have you encountered?*

*Examples from 32 thoughtful comments:*

- balancing overlap between courses, especially when not being developed at the same time.
- finding resources / materials / specimens locally or to bring in.
- building without knowing who will teach. This may be the biggest.
- uncertainties about students: who are they? what will they know or be capable of?
- logistics: long timeframe, team members work asynchronously, finding time to focus.
- building for both flexibility (unknown faculty) and rigor/reliability

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<thead>
<tr>
<th>CHALLENGES &amp; CONSTRAINTS</th>
<th>%</th>
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<tbody>
<tr>
<td>student uncertainties</td>
<td>19%</td>
</tr>
<tr>
<td>course or content issues</td>
<td>14%</td>
</tr>
<tr>
<td>data / samples - local etc.</td>
<td>14%</td>
</tr>
<tr>
<td>personal / project issues</td>
<td>14%</td>
</tr>
<tr>
<td>instructor issues (eg unknown)</td>
<td>11%</td>
</tr>
<tr>
<td>other</td>
<td>8%</td>
</tr>
<tr>
<td>timing of course sched.</td>
<td>8%</td>
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<tr>
<td>N = 32</td>
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(Some) lessons learned – and being learned:

Courses and content
1. Objectives & aspirations; institutional & program-levels: know these well
2. Guided curriculum workshop early. (We will follow up – e.g. “mapping”).
3. Contextualizing: f2f visits & meetings are valuable. Also “research” support.
4. Backward design: objectives & capabilities, assessments, activities, content.

Logistics and communication. (Note: more of these than actual curricular details.)
2. Instructor-developer relations: flexibility needed if none.
3. Students: anticipating capabilities not always feasible
4. External reviewers: contributions can be very effective.
5. Cohesive team: team-build early; interact together on related courses.
6. Timing: challenging to work “part time” (although common in “consulting”).
7. Documentation: comprehensive and consistent syllabi and lesson plans.
8. Undergraduate student support: can make significant contributions.
How does curriculum development contribute towards “Strengthening sustainable mountain communities”?

- EES curriculum is fundamentally driven by UCA’s core literacies
- Courses derived from UBC courses and adapted for Central Asian contexts
- Other student experiences: eg. Co-op summer placements (U-Vic. supported).
- Collaborate with UCA faculty (4 so far – more to come)
- External support: e.g. curriculum reviewers (6)
- Visits: students, campus, local professionals, communities, landscapes
- Background research for course contextualization supported by UBC undergrad. assistants
- New faculty will be researchers in mountain matters
Nine were questions asked of course developers:

*Which responses reflect curriculum thinking?*

Nine questions; four responses given here ....

1. What is a challenge associated with developing your courses?
2. I am making efforts to help students engage with the community. (Agree -> Disagree)
3. What’s the most awesome teaching, learning or course development strategies you are incorporating into the courses you are developing?
4. Any further comments?
5. What personal and professional characteristics are helping you carry out your as a course developer?
6. My role as a course developer promotes resilience building and increases the capacities of mountain communities to explore new sustainable livelihood options (Agree -> Disagree)
7. The students taking my courses are encouraged to maintain traditional knowledge. (Agree -> Disagree)
8. My courses build students’ abilities to recognize ethical issues and discuss the complexities or interrelationships between the issues. (Agree -> Disagree)
9. My courses encourage the engagement with intercultural knowledge and abilities to hold a global perspective. (Agree -> Disagree)
Selected responses with a “curricular” aspect:

**What is a challenge associated with developing a course for students that come from different life-styles to your own?**

1. Accounting for different academic and cultural "prior knowledge".
2. Deciding the level at which to pitch the course as I don't know what their background knowledge is like.
3. Providing examples that are not western-centric.

Do any of these resonate as considerations for “normal” in-place curriculum review?
Selected responses with a “curricular” aspect:

I am making efforts to help students engage with the community?

1. Active learning assignments and projects encourage instructors to have students engage with the subject matter in local geographical or cultural settings.

2. Students will apply new knowledge towards the environmental sectors such as mining, exploration, consulting, and environmental firms.

3. Yes for some, not for others, notably “fundamentals” courses.

4. Students should be visiting several community based conservancies during the course.

5. I aim to have students connecting on research projects with community organizations.

Same point: what implications “normal” in-place curriculum review?
Selected responses with a “curricular” aspect:

What’s the most awesome teaching, learning or course development strategies you are incorporating into the courses you are developing?

1. Sound "active learning“, hopefully help to set precedent for evidence-based teaching in Central Asia.

2. I am building a lot of student-generated content into my courses. This encourages them to be creators of their own knowledge, while the instructor acts as a facilitator of this process.

3. Problem based learning

Further comments?

4. Lessons learned while partnering with the AKDN are continually informing our work as professional educational developers. This cross-coupling of benefits may be one of the coolest aspect of the project.

Again: what implications “normal” in-place curriculum review?
UBC / UCA curriculum development partnership and the University of Central Asia, Khorog campus, Tajikistan

If time – and interest – permit.

• Setting
• UBC’s involvement
• Curriculum development model
• Course list
• Photos
1 University, 3 countries, 3 campuses, 6 undergrad degree programs

- Founded 2000
- Private, not for profit, secular university
- International Treaty;
  - Kyrgyz Republic / Tajikistan / Kazakhstan
  - His Highness the Aga Khan
- Focus on mountain societies
- School of Professional & Continuing Development
- 3 undergrad campuses / 6 prgms
- Research:
  - Inst. of Public Policy & Admin
  - Cultural Heritage & Humanities
- http://www.ucentralasia.org

https://www.youtube.com/watch?v=nDyCSWkz3qk
EOAS & Geography Involvement:
Build 22 courses for the B.Sc. in *Earth & Environmental Sciences*.

- **2014**: Original EES degree concept note developed at Cornell U. (including 12 contributors).
- **Dec 2015**: UCA visits UBC; research & educational excellence.
- **2016**: Project, budget, contract developed at EOAS / Geog;
- **Jan 2017**: contract signed: President Ono & S. Kassim-Lakha, Chairman, Board of Trustees, UCA
- **Funded** by UCA / AKDN, with some “in kind” by UBC, EOAS, Geog.
- **UBC team**: 11 SESs*, 1 coordinator, 6 departments (Van. & Okanagan)
- **October 2017, May 2018, October 2018**:
  - Three visits,
  - Nine UBC team-members
  - **Tajikistan**: Khorog & environs, Dushanbe. **Kyrgyzstan**: Bishkek, Naryn.
- **Sept 2018**: Prerequisites being taught.
- **Jan 2019**: Two EES courses to be taught (Geol 1 & GIS)
- **Sept 2019**: Remaining EES courses begin.

*SES: Science Education Specialists, as per FoS's new SES staff positions.*
UBC visits to Central Asia

• Oct 2017 (4 team members):
  • Dushanbe and Khorog, Tajikistan
  • Mostly meet-and-greet ... students, faculty & contributors & colleagues

• May 2018 (4 team members):
  • Khorog (and Dushanbe a little)
  • Road trips
  • Also, “shadow” an MSRI-sponsored community-based conservation study.

• Oct 2018 (3 team members):
  • Khorog – mostly geoscience, including some road trips
  • Bishkek
    • World Mountain Forum 2018 – poster, see https://goo.gl/NKDj4q
    • Poster, and meet students, other Mountain Studies academics and practitioners.
    • Meet MSRI, special focus on GIS courses.
Khorog Campus


UCA’s Khorog campus May 2018.

UBC course developers meet students & faculty, Khorog Campus Library, Oct 2017.

UCA Khorog campus interiors
Exploring geographical & cultural context

UBC course developers visit the Barsam Debris Flow, a large landslide in 2015, near Khorog.

Home-stay accommodation in the Pamir mts, during field trip exploring conservation research and mountain society life (May 2018).
Pamir Mountains: Afghanistan from Tajikistan.

The Tajik–Afghan Friendship Bridge

https://en.wikipedia.org/wiki/Tajik%E2%80%93Afghan_Friendship_Bridge
UCA campus at Khorog, Tajikistan

http://www.ucentralasia.org/
https://blogs.ubc.ca/eescourses/
EES program structure

Approx:
Year 3
PreReq1 PreReq2 PreReq3

Year 4
Required
RG1 RG2 RG3 RG4 RB1 RB2
4 req’d geosci

Elective - Geosci
G1 G2 G3 G4

Elective - ENVR
E4 E3 E2 E1 RE4 RE3 RE2 RE1
5 req’d geog/environ
Project courses and UBC team

Innovative combination of hard science and human social and environmental subjects

<table>
<thead>
<tr>
<th>Term</th>
<th>EES course schedule proposed, September 2018</th>
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<tbody>
<tr>
<td>Sep-18</td>
<td>Physics</td>
</tr>
<tr>
<td></td>
<td>Ecology I - Evolutionary Ecology</td>
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<tr>
<td></td>
<td>Chemistry I - Physical Chemistry</td>
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<tr>
<td>Jan-19</td>
<td>Introduction to GIS and Remote Sensing</td>
</tr>
<tr>
<td></td>
<td>Introduction to Geology and Earth Processes</td>
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<tr>
<td>Sep-19</td>
<td>Mixed Research Methods</td>
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<tr>
<td></td>
<td>Surface Processes in Mountain Environments</td>
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<td></td>
<td>Science, Impact, and Complexity of Climate Change</td>
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<td></td>
<td>Applied Ecology (field work)</td>
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<td></td>
<td>Introduction to Geological Materials and Resources</td>
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<tr>
<td>Jan-20</td>
<td>Ways of Knowing: Mountain Environments in Thought and Practice</td>
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<tr>
<td></td>
<td>Advanced GIS and Remote Sensing</td>
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<tr>
<td></td>
<td>Sediments, Stratigraphy and Hydrocarbon Resources</td>
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<tr>
<td></td>
<td>Minerals, Petrology and Mined Resources</td>
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<tr>
<td>Sep-20</td>
<td>Hydrology &amp; Hydrogeology</td>
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<tr>
<td></td>
<td>Natural Hazards and Risk Management in Mountain Regions</td>
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<tr>
<td></td>
<td>Environment and Development in Mountain Regions</td>
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<tr>
<td>Jan-21</td>
<td>Conservation Science - move to a fall term? (field work)</td>
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<tr>
<td></td>
<td>Environmental Impact and Risk Assessment</td>
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<td></td>
<td>Environmental Governance: Water, Air, Land, and Biosphere</td>
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<tr>
<td></td>
<td>Geochemistry</td>
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<td>Geodynamics and Structural Geology</td>
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Project structure

Preparation
- UBC faculty, TAs
- UCA faculty
- SES’s at UBC
- Visits to UCA
- Undergrad Assist’s
- UCA advisors

Coordination at UBC

Oversite at UCA

Teaching & Learning at UCA, Khorog
- Course syllabi & materials
- UCA & external review committee
- Course packages
- Iterate after first teaching term

Iteration
- SES’s at UBC
- UCA faculty
- UCA faculty
- SES’s at UBC