Guidelines for student-led seminars

Besides your course project, a second problem-based learning activity will be for you to figure out a quantitative method, software, or r-package of any kind yourself and communicate it to your peers. This can be an individual or group effort, with a 5-15 minute recorded video and brief 1-4 page lab that you share with the class. To give you some idea what topics may be included, I am listing some examples of seminar titles that past students of this class have chosen, and that were well appreciated:

- ArcGIS mini tutorial
- QGIS mini tutorial
- Adobe Illustrator mini tutorial
- Inkscape mini tutorial
- Gggplot2 mini tutorial
- Distance-based redundancy analysis
- Heat maps for correlation tables
- Species distribution models
- Validation methods
- Spatial analysis of ecological data
- Geostatistics and kriging
- Data mining with RandomForest
- Introduction to machine learning
- Generalized Additive Models (GAMs)
- Repeated measures analysis
- Habitat modeling with neural networks
- Spline interpolation methods
- Interpolation with kriging
- Generalized linear models
- Resource selection functions
- Path analysis & structural equation modeling
- Network Analysis
- PAM clustering
- t-SNE clustering
- Spatial and temporal autocorrelations
- Signal and noise decomposition in time series analysis

Seminar topics can cover any method, R package or software that you are interested in, or any technical skill you already have and that may be useful for others when working on their projects (e.g., mini software tutorials). Or it may be any advanced or interesting quantitative or statistical technique that you have worked out or intend to work out for use in your course project or in your thesis researh. The course evolves in part through students discovering and working out new techniques. Thus, I especially appreciate any seminar topic that is not on the list above! That said, any improvements to the student-led labs and tutorials that are already posted are also highly appreciated.

Seminar format and grading scheme

This part of the course has always been voluntary. Students who feel up to it, take over as instructors for the last two to three weeks of this course. After all, this is the most senior graduate class in our department and you may as well start getting used to teaching rather than being taught. Historically, only about a third of students participated in this activity. Skip it, if you are pressed for time or don't have any topic that you are keen to explore or present. You can certainly receive an A grade in this course without giving a seminar. That said, if you are aiming for a top grade in this course, giving an excellent seminar certainly does not hurt!

The default seminar format: Student-led seminars are brief videos and associated labs or tutorials. In addition, you would be welcome to hold an in-person presentation during the last three weeks of the class, but it is not required. Thus, even if you take this class on-line, you can participate in this activity.

Length of the seminar and lab: You should aim for a 5-15 minute recorded video (and optional in-person presentation) and brief 1-4 page lab. Don't make it longer. Recall that I will give a 30-45 minute lecture and a 6-8 page lab to fill a 2½ hour time slot. Your seminars should not exceed a third of that.

Grading of student-led seminars: Your seminar contribution will not receive a separate evaluation or grade. Instead, I will acknowledge seminar and lab contributions through the "Participation" score. I will give you some qualitative feedback on any contribution, and in some cases I may request your permission to use your examples and labs to be incorporated in the regular REN R 690 curriculum.

How to get started

To get started, let me know your intentions regarding participating in student-led seminars by the deadline posted on eClass. Send an email to ahamann@ualberta.ca with the following information:

1) Let me know if you want to participate in this voluntary activity. If you want to skip this activity, just let me know that in a brief email. I just want to be sure that there are no miscommunications.

2a) Would you like to work alone, with a partner, or in a group of three? (I don't think larger groups work too well for this activity). If you already have a good topic in mind, for which you have some expertise through your thesis work, don't hesitate to go it alone. These are often the best seminars.

2b) If you have already arranged a group, let me know who you are working with. It is enough if one person per group sends this email and CCs the other group members.

3) Do you have a seminar idea? Tell me what it is.

I will use this information to match you up with a partner if you wish, or if there are duplicate seminar ideas, we may divvy up the topic area to reduce duplications and get the most out of your work.

Timelines for seminar development

After we have organized topics and groups will have planning meetings for student-led seminars, where run ideas by me. I would like to briefly discuss and approve your seminar ideas, give you some general guidance, and provide you with materials (PPTs and labs) that previous student cohorts have developed. You are welcome to build on these previous seminar and labs and make them better.

Just like for the project meetings, you can schedule he planning meetings at: http://tinyurl.com/schedule-andreas, and then connect via Zoom at your scheduled time at http://tinyurl.com/zoom-andreas. You can find the date for these meetings under the "Student-led seminars" section on eClass.

I recommend that you work in on your seminars during the down-time you have after submitting your draft projects, and receiving feedback from me and your peers approximately 3 weeks later. Then, you are free to shift back to primarily work on revisions of your individual projects.

The student-led seminars and labs will be scheduled during the last three weeks of the class. During the lab times on these days, we will organize in-person and on-line Q&A sessions for your seminars. Ideally, we want to create a cohesive series of seminars for each of these days.