Index of 0-L: Introduction to the VHM 802 course

Practical Information

Welcome!!

Let us start by introducing ourselves...

Major news:

- to find latest course information... → web page for VHM 802:

  `stryhnstatistics.ca/vhm802`

- to "connect" yourself to the course (information, discussion...) → log into the Moodle account for VHM 802 (`VHM-8020-02` at `moodle.upei.ca`),
- the first 5 weeks of the course are shared with VHM 812 (Epidemiology II), and for the shared parts you also need to follow the Moodle account for VHM 812.

This video — Introduction to course logistics:

- demonstrations of where to find and do stuff,
- main topics: textbook, software, marks, and choice of course focus,
- also a statement of (and reflection on) the course objectives.

VHM 802 sharing with VHM 812 — What Does it Mean in Practice?

Shared parts of course: first 5 weeks (January 5 – February 6) and one week in March (22–26).

If you have already taken VHM 812: no requirement to participate in shared sessions (but you're welcome to do so for review purposes).

If you have not taken VHM 812: shared sessions are part of the course, but involve some logistical changes:

- the schedule follows VHM 812, centered around two weekly sessions (Tuesday/Friday),
- instructors alternate between Javier Sanchez and Henrik Stryhn,
- main textbook is VER2 (Veterinary Epidemiological Research, 2nd ed.),
- main software is Stata 18 (versions 16 or 17 will also do),
- if you take VHM 812 simultaneously, the shared parts belong to the syllabus of VHM 812 $\Rightarrow$ part of VHM 812 assignments and exams.

Credits for VHM 802: (make sure to register with the correct credits!)

- without VHM 812 part (VHM 812 taken previously or simultaneously): 2 credits,
- with VHM 812 part (VHM 812 not taken): 3 credits.

Course Website and Moodle Sites

Course webpage/site (`stryhnstatistics.ca/vhm802`):

- the primary source of information:

  schedule, lectures, labs (data and solutions), assignments, and links to websites of previous years,

- dynamic page/site: continually updated (so check back for updates).

Moodle site for "2024W VHM−8020−02" (should be in your Moodle account):

- Discussion forum to view and participate in discussions,
- (eventual) links to home assignments and other assorted other course material.

Moodle site for "2024W VHM−8120−01" (should also be in your Moodle account[1]):

- material for shared sessions posted by Javier Sanchez,
  - some overlap with material posted at VHM 802 site,
  - lecture material may appear first (or only) at site for corresponding lecturer.

[1] Even if you are not taking the VHM 812 course, you will get access to its Moodle site.

Assignments and Exam for the Course

The course mark is made up by:

- home assignments for a total of 40% (not individually marked),
  - 4 home assignments for VHM 802 only, and 2 extra home assignments for students participating in the shared part that are not in VHM 812,
  - tentative deadline dates: (2/2), (16/2), 26/2, 7/3, 18/3, and 28/3,
- project (30%):
  - practical data analysis using the methods of the course, preferably using your own data,
  - course report and presentation to the class on April 4,
  - deadlines — project outline: March 14, report: April 7,
- final exam (30%):
  - April 22, in-class 9am-12pm (open book, but no computer),
  - covers all sessions and involves practical data analysis from statistical software output.

Two Course Versions/focuses

Traditional focus on experimental design and data analysis:

- experimental design much expanded from the basics covered in VHM 801,
- multifactorial analysis discussed in more detail than in shared part with VHM 812,
- random effects models and repeated measures analysis discussed in detail, much more than in the one week shared with VHM 812.

New focus on multivariate methods (first run in Winter 2021):

- an introduction — focused more on ideas and principles than on technical details,
- topics covered (with some flexibility to student wishes):
  - distance-based methods, e.g. cluster analysis[2] and multidimensional scaling, including also space-time clustering methods (SaTScan approach),
  - dimension-reduction methods, e.g. principal components and factor analysis,
  - multivariate inference, e.g. MANOVA (multivariate ANOVA),
- some experimental design material retained (but much reduced).

Based on our preliminary discussion, the default choice is for multivariate methods.

[2] Not at all! the same as clustering arising from (hierarchical) data structure in the shared part with VHM 812.

Textbooks and Software for the Course

Multiplicity is the reality — let's see it as an opportunity instead of a challenge:

- different topics require different textbooks and to some extent different software,
- the two courses and focuses have different emphasis, for both textbook and software.

Textbooks:

- for regression (shared with VHM 812), use primarily VER2 (Veterinary Epidemiological Research, 2nd ed.); students in VHM 802 only will be provided suitable excerpts,
- for experimental design and multifactorial analysis, use primarily Oehlert's book (A First Course in Design and Analysis of Experiments; downloadable as .pdf),
- for multivariate analysis, use primarily Manly & Alterto's book (Multivariate Statistical Methods: A Primer, 3rd/4th ed.) — a non-technical introduction.

Software — no required software, but

- Stata recommended for regression (shared parts with VHM 812), because the only software covered in lectures (similar analyses can be done with Minitab and R)[3],
- lectures on experimental design and multifactorial analysis will for simplicity use Minitab, but similar analyses can be obtained in Stata and R[3],
- for multivariate analysis, lectures will, where feasible, utilize Minitab and Stata[3].

[3] The VHM 802 website will offer coding support for Minitab, Stata and R for most methods covered in course.