Biostatistics in a Nutshell

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Course Summary
This short 6 week online course is primarily for students in a MSc, PhD, or residency/fellowship program that has a requirement of a data analysis. Students learn about important fundamental statistical principles by studying the analysis of real data. These analyses introduce students to the following four outcome variables.

- Continuous: serum cholesterol, BMI and FVC
- Binary: death or cure yes/no
- Count: number of deaths, number of cures
- Survival time: time to death, time to cure

The course will include the statistics of diagnostic accuracy and agreement, two important tools in medical research. Students must complete an analysis of data collected during their program. If their data collection is incomplete or their program does not have the data analysis requirement, they can create an artificial dataset of observations or use a public dataset. Their report must be less than 10 pages long (including all sections and double spaced). All students will participate in providing mock statistical consultation to fellow classmates.

Topics of discussion:

- Paired and unpaired proportions
- Paired and unpaired means
- Frequency data and diagnostic tests
- Statistical design
- Agreement

Course evaluation scheme

Criterion	Weight (%)
Participation in seminars/meetings and other educational program activities	10
Student mentoring	10
Project proposal	10
Statistical report	10
Final report (10-page limit)	60
Total	100

This Module will assign a Pass/Fail grade.

Tentative schedule:

All lectures will be available online as video recordings (see http://www.tyrrell4innovation.ca/). There will be discussion sessions (1.5 hrs) held every other week on Wednesday evenings at 6PM for 6 sessions.