STAT:6220

Overview
Statistical Consulting Course

Goals and Focus Areas:

- Gain some consulting experience (in-practice)
  - Work one-on-one with a client

- Communication
  - Listen to client
  - Ask relevant questions to better understand the goal
  - Explain analysis results
  - Write-up analysis for non-statistician

- Apply what you’ve learned
  - R, SAS
  - Exploratory analysis
  - Graphical displays
  - Statistical Modeling
Statistical Consulting Course

Expectations:

- Be professional in consulting setting...
  - Be courteous when working with others (including your project partners)

- Give client undivided attention
  - NEVER be on your phone during a presentation or meeting

- Return emails in a timely manner

- Be on-time for any meetings

- Deliver what was promised

- Don’t leave clients ‘hanging’
  - Keep communicating until project is ‘complete’, and make sure they know when we consider it ‘complete’ (these projects are meant to be non-ongoing)
Expectations:

- **In class...**
  - Attend 8:30am class.
    - This is an ‘S/U’ graded course.
    - You must attend 90% of the classes to receive a ‘Satisfactory’.
  
  - Complete all assignments with a 4 or 5 score (out of 5).
    - You may be asked to re-submit if not up to par.
  
  - Update the Wiki on all statistical consulting progress for each client
    - Use your HawkID and password. There is a link on ICON.

- **TURN-IN WRITTEN CLIENT REPORT**
  - Each person must do their own!
  - Again, Each person must do their own!
Client work:

- These may be very simple in nature (and that is often the case)
  - Graphical displays
  - \( t \)-tests

- Or they may be more involved
  - Model selection for a large data set
  - Mixed model analysis
  - Predictive modeling

- Regardless of the type of project you are on, please treat the client professionally and give them quality input. Having a good reputation is what allows us to get clients for NEXT YEAR!
DNP students (everyone will work with at least one of these, maybe two):

- **DNP**: Doctor of Nursing Practice

- These students must do a clinical project collecting data, do a poster, and write a report
  - Some data possibilities:
    * Surveys given to medical providers or patients
    * Electronic records data gathering
  - Some possible measures:
    * Comparison of proportions (before/after)
    * Comparison of attitudes (before/after)

- These will be very simple in nature statistically, but communication and data reformatting may take some effort
DNP students (everyone will work with at least one of these, maybe two):

- **DNP**: Doctor of Nursing Practice

Possible deliverables:
- Bar charts
- Likert scale results and comparisons
- Before/After analyses
  - Paired (e.g. same doctor before and after education)
  - Unpaired (e.g. group before unmatched with group after)
- $t$-tests, $p$-values
- Explanation/interpretation of statistical methods used

You should do these in R and provide nice graphics (color is going to be very relevant!)

Example of data spreadsheet (provided by client)
SIDE NOTE:

- Sometimes the data *should* be modeled with a more complex design than the client is planning (this is common in the DNP projects).
  - It’s a good idea to discuss this issue with the client.

- Ultimately, our job is to serve the client, and we can give suggestions and caveats, but the final choices are made by them.

- Keep the clients goals in mind...
  - Is the end product a simple poster presentation? *Perhaps simple graphics are what is desired.*
  - Is the goal a submitted manuscript into a peer-reviewed journal? *The modeling will need to be justified to reviewers, so appropriate modeling needs to be applied.*
You’ll find that this is **mostly** about gaining experience communicating with a client.

We **rarely** see clients in this course looking for high-level complex modeling (though we have seen mixed-models, predictive analyses, database creation). Every semester is different.

So please don’t be disappointed if you are simply asked to do t-tests or comparisons of proportions. If this is what the client needs, then that is what we should do for them!