Perspectives on Statistical Practice

&

Statistical Pedagogy

36-701

Instructor/Course Leader: Brian Junker

Writing Consultant: Tim Dawson

Guest Lecturers and Panels

Class Meetings: MW 1:30-2:20, BH 231B

Pedagogy:

Activities that impart knowledge.

Goals of the course:

1. Become effective communicators of statistical ideas/knowledge.

2. Develop understanding of the elements of statistical practice.

I. TEACHING

- We'll Talk about:

  - How do students learn, and what are the the needs and difficulties of the learner?
  - What are the current trends in statistics education?
  - What are the challenges in teaching statistics?
  - How can we help students learn (and retain)?

- Practice in Instruction (Oded Meyer)

  - Supervised practice in TA-related activities (labs, office hours, grading)
  - Mini - lectures

- **Eberly Teaching Center (Michele DiPietro)**

    – Presentation on conducting office hours

    – Labs observations and feedback

    – Applying coginitive principles in teaching

    – Presentation on teaching first year students

II. CROSS-DISCIPLINARY WORK/CONSULTING

- What are some good and bad practices of statistical consulting (video)

- Panel discussions on cross-disciplinary work (Statistics Faculty)

- Ethics in Statistics Research (Joel Greenhouse)

$$\boxed{\text{Teaching} \iff \text{Consulting}}$$

III. WRITING

- We'll supervise the writing of two paper assignments

  – one from **711**

  – one from **707**

- Presentation on technical writing (Tim Dawson, English Department)

- Individual meetings with Tim after first draft is due.

The "heart" of statistical practice is the process of....

$$A B A^{-1}$$

Where:

A - Translating a scientific research question into well-posed statistical problems.

B - Solve the problems.

A^{-1} - translating the results back into a product that is accessible to the relevant scientific community.

- Also important when teaching introductory courses (tutor....)

Handouts:

1. Assignment 1 from 36-711

    <u>For next week</u> Wednesday (9/8).... Think about the "A" part - translate the research question into 2-3 statistical problems (and write them down).

2. Examples of old 707 papers.

What's coming.....

- Wed. 9/1 - Meet here a little early: presentation in the Library Instruction Center, Hunt Library (Paul Neuhaus)

- Mon. 9/6 - Labor Day

- Wed. 9/8 - More about the Clinical Depression assignment and ABA^{-1}