Topics

• Statistical skills
• In addition to statistical knowledge, what skills do employers need from new graduates?
• Communications
  — Oral
  — Written
• Organizational skills
• Leadership
• Ethical principles
Why I’m Interested

• Westat
  — Director, Statistical Group
  — Consulted on Quality Improvement

• ASA

• Special Faculty at the Joint Program for Survey Methodology

• GMU Statistics Dept. Advisory Board
Westat

• Survey research, primarily government customers
• 2000 employees at Rockville Headquarters
• 10,000 temporary field staff
  — In-person interviewing
  — Measurement, including testing
  — Phone interviewing
• Surveys
• Case Control studies, Epidemiological studies, Clinical trials
Westat Statistical Group

- 70 MS & PhD statisticians
- Authors, presenters, instructors
- Areas of expertise:
  - Survey Methodology: reducing total survey error
  - Sample Design/Selection: Weighting, Imputation, Variance Estimation
  - Analysis: Multiple/Logistical Regression, Survival Analysis, HLM, Propensity Scores
  - Item Response Theory
Survey Methodology

— Reducing total survey error
— Improving response propensity
— Assessing potential bias
— Minimizing recall errors
Sample Design/Selection

— Sample Designs
— Weighting
— Imputation
— Variance Estimation
Analysis

— Multiple/Logistical Regression
— Survival Analysis
— Hierarchical Linear Models
— Propensity Scores
— Machine Learning
  ✧ Boosted regression
Software Skills

— SAS
— SUDAAN
— SPSS
— Stata
— R
— Python
We assume…

• Graduates receive
  — Deep and broad statistical knowledge
  — Experience with relevant software
  — Experience solving statistical problems

• What else will they need in the workplace?
  — Can graduate programs provide these skills?
  — Should graduate programs provide these skills?
What Else do Employers Need?

• Communications
  — Oral
  — Written
• Organizational skills
• Leadership training
• Ethical Principles
Organizational & Leadership Skills

• Organizing a task into components
  — Assigning responsibilities
  — Providing support
• Estimating effort
• Scheduling tasks
• QC the process
Ethical Principles

• Confidentiality & Privacy
• Informed Consent
  — IRB
• Conflicts of Interest
• Objectivity, Impartiality
• Professional Competence
Summary

• Statistical & computer skills
• Communications
• Organizational skills
• Leadership training
• Ethical principles