Proposed Survey Of Business Statistics Teachers

MSMESB 2002

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A Big Job!
300,000+ students per year

227,000 undergraduates per year
   ~1,000 teachers (4 sections/yr; 50 students/section).

94,000 graduate students per year
   ~1,000 teachers (3 sections/yr; 33 students/section).

At $1,000 per student, the total revenues are:
   US Undergraduate:   $230 million per year.
   US Graduate:        $100 million per year.
What Are Our Goals in Introductory Statistics?

To teach business students:

• **the power & beauty of statistical inference.**
  What percent teach confidence intervals?
  What percent teach hypothesis testing?

• **the importance of statistical process control.**
  What percent teach quality tools or control charts?

• **how to describe and model associations.**
  What percent teach interpreting tables and graphs?
  What percent teach multivariate/logistic regression?
What do Teachers Teach?
Stroup-Jordan Survey #1

105 teachers of business statistics were asked:

Q1. What topics do you teach?

Q2. If you teach a topic, do you teach it moderately or extensively?

1982 ASA Proceedings of the Section on Statistical Education
“Statistics: Monster in the University”
Topics in Business Statistics

- Hypothesis tests
- Averages
- Linear Regression
- Probability
- Sampling
- Chi-squared
- Dispersion
- Tables and Charts
- Intro to Stats
- ANOVA
- Time Series
- Index numbers
- Bayesian Analysis
- Non-Parametrics
- Quality Control
- Non-linear regression
- Decision Theory
- Multiple Regression
- Linear Regression
- Sampling
- Probability
- Averages
- Hypothesis tests

Teachers who teach vs. Teach extensively

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
1,495 business managers were asked if they used various statistical topics in business.

*High usage*: graphs (83%), surveys (69%), and crosstabs/frequencies (65%)

*Moderate usage*: standard deviation (38%), regression (35%), time series (33%) and confidence intervals (30%)

*Low usage*: random sampling (20%) and non-parametrics (13%)
Foreseeable THREAT to Business Statistics

Topics taught extensively in business statistics are negatively correlated with business usage. What would happen if the statistics requirement was expanded to include any one of these?

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Risk Management</th>
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<tbody>
<tr>
<td>Management Science</td>
<td>Cost Accounting</td>
</tr>
<tr>
<td>Operations Research</td>
<td>Market Research</td>
</tr>
<tr>
<td>Business simulation</td>
<td>Investment theory</td>
</tr>
<tr>
<td>Actuarial science</td>
<td>Project Management</td>
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</tbody>
</table>
The MSMESB Should Survey Business Statistics Teachers

We have

• money for this survey.
• staff to compile a list of teachers.
• staff to mount/run web survey.

What is needed:
1. MSMESB authorization.
2. leadership.
3. participation.
MSMESB Survey of Business Statistics Teachers

- What text is used? How many students taught?
- How are the topics and the text chosen?
- What is teacher education and experience?
- What topics are taught? How extensively?
- How relevant are these topics in business?
- What are the course goals?
- What changes are needed?
- What justifies statistics versus other courses?
- What is importance of modeling vs. inference?
Next Step on Proposed Survey

Let me know if you are interested in:

• Survey coordination
• Generation of teacher contact list
• Survey design
• Survey field test
• Data preparation
• Data analysis
Benefits to MSMESB

Externally:
• Be proactive in anticipating change
• Meet foreseeable “threat”
• Improve quality of statistical education
• Make “statistics more effective”

Internally:
• To serve 100% of business majors