

# Teaching Professional Skills in the Statistics Classroom through Authentic Assessment

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# Assessment Is Curriculum

## Professional Skills

- Teamwork
- Technical writing
- Presentations
- Feedback
- Reflection

## Activities/Assessments

- Assignments/Tests/Exams
- Group Projects
- Reports
- Presentations
- Oral Exams
- Reflective Writing
- Wildcard!



# Assignments/Tests/Exams

- At least 20% of marks are communication-based
  - Explain whether a model is appropriate for a situation
  - Logically justify why mathematical results make sense
  - Describe how results obtained
  - State conclusions in context
  - Make recommendations
- Best practices
  - Ask these kinds of questions consistently
  - Great principles from session yesterday!



# Group Projects

- Pick a topic and model it with a Markov chain
  - E.g. music, degree progress, disease progression, elections
- Design, conduct, and analyze an experiment
  - E.g. cookies, effect of coffee/alcohol on math performance
- Pick a topic, find data, and forecast using models
  - E.g. unemployment, university enrollment, tourism, temp
- Best practices for group work
  - Accountability – within- and between-group peer evals
  - Guidance on effective team work, meetings



# Reports

- Group projects
- Choice of articles to read and summarize
- Memo presenting findings and recommendations of technical analysis
- Summarizing product and making recommendation
- Best practices for writing assignments
  - Early-bird deadline to get feedback and resubmit
  - Exemplars



# Presentations

- Group projects
- Persuasive
- Individual research project
- Summarizing material from other sources
- Best practices for presentations
  - Make material part of curriculum
  - Guidance on effective structure, slide design, delivery



# Reflective Writing

- Reflect on goals and/or what they have learned
  - Summarize important course concepts in plain language
  - Describe a problem you struggled with but now understand
  - Discuss what made you want to study this topic
  - Explain whether you achieved your goals for the course
  - What did you learn from an in-class activity or project
- Best practices for reflections
  - Give a framework: “What? So What? Now What?”
  - Respond authentically



# Oral Exams

- Focus on explaining conceptual ideas in words
- Able to ask for clarification
- My format: 15-minutes, 5 questions
  - Definition, Advantages/Disadvantages, Compare/Contrast, Describe a Process, Predict the Impact
- Best practices for oral exams
  - Clear expectations, rubric for fair grading
  - Give students time to practice





# Wildcard Activities

- LEGO communication activity
- Answering sample client emails
- Article presentations with variable time limit
- Escape room in a box
- Debates
- Negotiation exercise
- Your ideas?



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