Teaching Statistics in a Community College – Connections

Friday, May 20, 2005, 10:30 – 11:50 a.m.  USCOTS Conference

Presenters:
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How can we use our connections to enhance our statistics courses and to bring more statistics into the other courses we teach?

Presentation:  Brian Smith.  Time series in an elementary statistics course.

Presentation:  Mary Parker.  Modeling and measurement noise in a math elective course.

Group work:  (10:50 – 11:35)

Participants will identify themselves as interested in one of the listed topics on the next page.  (It is acceptable to use a topic that isn’t listed if a group of 4-5 people wants to do that.)

Groups of 4-5 people who are interested in the same topic will work together to prepare an outline.  Resources available include some textbooks in statistics, college algebra, and math for liberal arts and possibly some access to the web.

During the last 15 minutes of the session, the groups will briefly present their outlines.

Presentation of group work:  (11:35 – 11:50)

List of subtopics, listed with “must include” subtopics first, “important” subtopics second, and “optional” subtopics third.

How many class days will this take and which of the subtopics would you expect to be able to include?

Make comments about two or three of the subtopics and why you classified them as you did.
**Possible topics:**

1. Regression in a College Algebra course
2. Time series in an Elementary Statistics course
3. ANOVA in an Elementary Statistics course that usually doesn't include ANOVA
4. Introduction to multiple regression in an Elementary Statistics course that usually doesn't include multiple regression
5. Estimation using confidence intervals in a Math for Liberal Arts course
6. Simpson's Paradox in a Math for Liberal Arts course
7. Sampling in a Math for Liberal Arts course
8. Regression in a Math for Liberal Arts course

**Possible Questions:**

1. About how much time will you spend on this topic in class? (And, if it is relevant, about what point in the course will it be covered?)
2. List a rough outline of what subtopics you might cover if you had twice as long to cover the material.
3. Put notes by each subtopic indicating about how many minutes it would take to present and any prerequisite knowledge needed for it.
4. What technology is available? Are the students already familiar with it? Include learning to use the appropriate technology as a subtopic, if that is relevant.
5. What do the faculty members in the students’ majors want the students to learn about this topic?
6. What is a typical problem that the student should be able to solve when they finish this topic?
7. What should a student understand about when to use this technique when they finish this topic?
8. Prioritize the subtopics by (1) must include, (2) important, (3) optional.
9. Is the time available adequate to cover the “must include” subtopics?
10. Resources. What are some presentations of this topic at an appropriate level? Which subtopics did all of them include? Which subtopics did some include that others didn’t?
Resources available today:

On the web:
- CAUSE: http://www.causeweb.org/
- COMAP: http://www.comap.org (Membership required for full access. $41/year)
- NSF’s National Digital Library: http://nsdl.org/
- NASA-AMATYC-NSF Projects: Follow the link from the web page for this presentation at http://www.austincc.edu/mparker/uscots/

Statistics Textbooks: Each of these books includes many standard topics. The comments here indicate which less-standard topics are also included.


Other textbooks:
- COMAP, *College Algebra: Modeling our World*. Prelim. Ed. W. H. Freeman, 2002. This is the only College Algebra book I have seen that introduces residual plots as part of determining whether data is linear enough to use regression.

Other books: