Midterm II Review

STA 104 - Summer 2017

Duke University, Department of Statistical Science

Prof. van den Boom

Slides posted at

http://www2.stat.duke.edu/courses/Summer17/sta104.001-1/

Announcements

- Don't forget to submit Lab 3, due tomorrow at 2 pm.
- Lab session tomorrow at 2 pm is on as usual
- RA4 is on Monday

Midterm 1

- When: Tomorrow, Thursday, 12.30 pm - In class using WebEx
- What to bring:
  - Calculator (No Phones! You can use RStudio however)
  - Writing utensils + scratch paper if desired
  - Cheat sheet (handwritten)
- Probability tables and distribution applet will be provided in links. You can already find the links on Piazza.

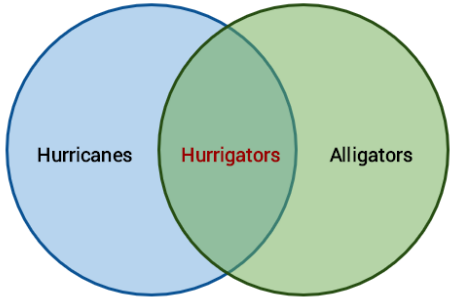
Exam Format

- Covers everything up to and including yesterday's lecture
- Both written, multiple choice, and true/false questions: Similar to practice midterm
  1. First 3 'open' questions consisting of multiple parts, including some multiple choice (46 pts total)
  2. Followed by 5 true/false questions (1 pt each)
  3. With 8 multiple choice questions to finish it (2 pts each)
- Sakai quiz: Don't worry about drawings, just provide me equation or something such that I understand your work. E.g. probability tree for Bayes' theorem: Tree on scratch paper, final formula and answer written out in the quiz

Venn diagrams

Hurrigator is a year when alligators attack (event A) and a hurricane happens (event B).

- The probability of an alligator attack in a year is $P(A) = .01$. The probability of a hurricane during a year is $P(B) = .10$.
- Assume that A and B are independent.
- Add probabilities to the Venn diagram below.
- Do you have enough information for this without the independence assumption?



Bayes' theorem

Compute the probability of being HIV positive given that you test positive on an enzyme-linked immunosorbent assay (ELISA).

- Assume 1.48 out of every 1000 Americans is HIV positive
- ELISA's true positive rate is 93% and the true negative rate is 99%.

Questions

Questions?