
Monday, November 13th 2023

Due:: Day 5.3 at 11 pm

Course notes:

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Where to find material in Lock5 textbook:

- Lock5 Section 6.12–6.13 (2-sample t and matched-pairs t)
- Lock5 Section 7.1–7.2 (chi-square tests)
- Lock5 Sections 8.1 (1-way ANOVA)

Population means

- distinguishing between matched-pairs data and that from independent samples
- t -tests
 - the details of 2-sample t hypothesis tests (the hypotheses, the t -score, finding a P -value through the use of `pt()`)
 - the details of matched-pairs t hypothesis tests
 - constructing a confidence interval for μ_D from matched-pairs data
 - R commands that achieve the following goals:
 - * calculating sample means (both for matched pairs and independent samples)
 - * calculating sample standard deviations
 - * calculating a critical value (using `qt()`, specifically) for a confidence interval; `t.test()` and R-like capabilities provided on (some) calculators are excluded as sources for answers
 - * calculating a P -value (`pt()`; `t.test()` and R-like capabilities provided on (some) calculators are excluded as sources for answers
- 1-way ANOVA
 - recognition
 - * of when, and when not, the method is applicable
 - * for those scenarios in which 1-way ANOVA is appropriate, recognizing of 2-sample t is also appropriate
 - stating the hypotheses of 1-way ANOVA
 - ANOVA tables
 - * how to complete a partial table
 - * what the various quantities of an ANOVA table are named

χ^2 -Tests

- recognition
 - that the problem focuses on categorical data, and not quantitative
 - distinguishing between situations that call for a goodness-of-fit test as opposed to a test for an association between categorical variables
- carrying out the steps of a goodness-of-fit test
 - stating hypotheses, based on a research question

- computing expected counts by hand
 - computing the chi-square statistic by hand
 - determining if we can reference a chi-square distribution when computing a P -value, and which chi-square distribution is appropriate
- carrying out the steps of a test for association
 - stating hypotheses, based on a research question
 - computing expected counts (by hand)
 - computing the chi-square statistic by hand
 - determining if we can reference a chi-square distribution when computing a P -value, and which chi-square distribution is appropriate
- R commands
 - building frequency and two-way tables using `tally()`
 - how and when to use `pchisq()` and `qchisq()`