

# Spring 2019 Stat 557: **Advanced Statistical Inference 2**

**Instructor:** Dr. James Degnan, [jamdeg@unm.edu](mailto:jamdeg@unm.edu),

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**Time and Location:** 10:00am-10:50am MWF, SMLC 356

**Office hours:** SMLC 342, M 12:00-1:30, F 12:00-1:30 or by appointment

**Textbook:** Essential Statistical Inference: Theory and Methods, by Dennis D. Boos and L. A. Stefanski, Springer

**Prerequisites:** STAT553, STAT556

**Examples of Topics:** Likelihood, quasi-likelihood, pseudo-likelihood, marginal likelihood, conditional likelihood, numerical methods for maximizing likelihood, likelihood-based tests, large sample results for likelihood, likelihood, likelihood, likelihood, and M-estimation.

**Grading:** Homework Assignments will be given about every 2-3 weeks to make for about a total of about 4-5 assignments. Let  $H$  be Homework,  $T_i$ ,  $i = 1, 2$  results from the exams (one midterm, one final). The final grade will be based on

$$\max\{(H + T_1 + T_2)/3, (2H + T_1 + 3T_2)/6\}$$

**Learning outcomes:** At the end of the course, you should be able to

- Formulate statistical models (especially likelihood) and evaluate estimators for parameters.
- Prove and/or derive properties of statistical models, such as statistical consistency (or lack thereof), asymptotic efficiency, etc.
- Determine appropriate sample sizes for certain statistical tests
- Determine reasonable confidence intervals for a variety of nonstandard problems.
- Use computers to assist in statistical inference for nonstandard problems.

## **Disability statement**

If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. You'll also need to register with the Accessibility Resource Center in 2021 Mesa Vista Hall (building 56) across the courtyard east from the SUB.

## **Title IX statement**

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