

# STATISTICS 7303

Room: Enarson Classroom Bldg 318

Spring 2016

M W F 1:50PM-2:45PM

**Lecturer:** Prof. Mario Peruggia - 205A Cockins Hall, 292-0963  
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**Grader:** Ms. Rong Lu - CH 320, 292-7538  
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**Text:** Berger, J.O., "Statistical Decision Theory and Bayesian Analysis," 2nd ed.

**Course Web Site:** Important announcements and course materials will be posted on the Carmen course web site at <https://carmen.osu.edu/>

**Office Hours:** Peruggia: W 5:00-6:00, R 10:30-11:30, and by appointment

**General:** During the semester we will cover the following core topics:

- Basic elements of Decision Theory
- Bayesian Expected Loss, Frequentist Risk, Bayes Risk
- Decision Principles (Bayesian, Frequentist, Likelihood)
- Foundations (Likelihood Principle, Conditionality Principle)
- Loss Functions
- Prior Distributions (Subjective, Noninformative, Improper, Empirical, Hierarchical)
- Posterior Distributions
- Bayes Inference (Estimation, Credible Sets, Hypothesis Testing)
- Bayes Decision Theory
- Empirical Bayes Analysis

As times permits, we will also cover a selection of the following discretionary topics:

- Bayesian Sequential Analysis
- Sequential Probability Ratio Test
- Hierarchical Bayes Models (Extended coverage)
- Bayesian Calculation
- Predictive Inference
- Bayesian Robustness

**Homework:** Problem sets will be regularly assigned and graded.

**Midterm Exam I:** Midterm Exam I will be on Monday, February 15, in lecture.

**Midterm Exam II:** Midterm Exam II will be on Monday, March 28, in lecture.

**Final:** The final examination will be on Tuesday, May 3, 4:00pm-5:45pm, in the lecture classroom.

**Grades:** The final numerical course grade will be determined according to the following scheme:

Homework .....	10%
Midterm Exam I .....	25%
Midterm Exam II .....	25%
Final Exam .....	40%

## **Rules and Policies**

**Academic Misconduct:** Please help us to maintain an academic environment of mutual respect, fair treatment, and personal growth. You are expected to produce original and independent work for quizzes and exams. Although students are often encouraged to work together on homework assignments, each student is to submit her/his written work in her/his own words. Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with University Rule 3335-31-02. Please refer to <http://oaa.osu.edu/coamfaqs.html> for additional information on academic misconduct.

**Addressing Issues of Differing Abilities:** Any students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. Students with documented disabilities must also contact the Office of Disability Services (ODS) in 150 Pomerene Hall (phone: 292-3307) to coordinate reasonable accommodations for the course. ODS forms must be given to the instructor as early in the quarter as possible to be filled out and returned to you.

**Cell phones:** Cell phones must be either turned off or put on vibrate during class, as cell phones ringing during class disrupt the learning process.

**Recording equipment:** The use of any type of audio and/or visual recording equipment in the classroom is strictly prohibited. Exceptions will be made for students who need to have access to recordings of the lectures because of documented disabilities. Documentation must be obtained through the Office of Disability Services.

**E-mail Correspondence:** In order to protect your privacy, all course related E-mail correspondence must be done through a valid OSU “name.number” account. If you have not activated this email account, you can activate it at <https://my.osu.edu>