Syllabus and Basic Information for STA4322/5328, Fall 2018

Instructor: Rohit Patra

1 Basic Information

Objective The sequence of courses STA 4321–4322 (rep. 5325–5328) provides a formal and systematic introduction to mathematical statistics for students who have passed three semesters of standard undergraduate level calculus. Major topics of STA 4322/5328 include normal-theory sampling distributions, estimation methods, properties of point estimators, confidence intervals, hypothesis testing and related theory, and basic linear regression. The primary purpose of STA 4322/5328 is preparation for graduate-level study in statistics and closely related subjects.

Prerequisite STA4321/5325 is a prerequisite for this course. We expect everyone to be *very very* comfortable with **Chapters 1–6** of *Mathematical Statistics with Applications*, 7th Edition by Wackerly, Mendenhall, and Scheaffer.

Class Schedule M,W,F—**1145–1235** (Period 5), Room– **FLO–100**

Website We will use Canvas. You will find the class notes, Homeworks, and Grades on there.

Book *Mathematical Statistics with Applications*, 7th Edition by Wackerly, Mendenhall, and Scheaffer **Chapters 7–11, 13**. The book is not required. However, I will give some practice problems from the book.

Course Notes The level of the class will be significantly higher than the book. Lecture notes will be provided in Canvas but are only meant as a guide/review. They are not be exhaustive and *are not meant replace the lectures.*

Instructor Rohit Patra, 221 Griffin-Floyd Hall
Email: rohitpatra@ufl.edu
Office Hours:

- Monday 4:00pm–5:00pm
- Tuesday 5:00pm–6:00pm
- Wednesday 3:00pm–4:00pm
- Thursday 2:30pm–3:30pm

TA **Yichen Bai**, 234 Griffin-Floyd Hall
Email: ybai@ufl.edu
Office Hours:

- Monday 1:00pm–2:00pm
- Wednesday 10:00am–11:00am
- Friday 10:00am– 11:00am
- Friday 1:00pm– 2:00pm

Feel free to email me or the TA with questions if you cannot make the regular office hours.

Grades: The final grade is based on the following composite score:

- In-class quizzes — 10%
- Homeworks — 10%
- 1st Midterm, — 20%
  Mon, Sep 24, Time–1145–1235
- 2nd Midterm, — 20%
  Mon, Oct 29, Time–1145–1235
- Final Midterm, —40%
  Wed, Dec 5, Time–2020–2210

All exams and quizzes are cumulative.

In-Class Quiz There will be a closed-note quiz every two weeks (approximately). You will have 5-10 minutes to answer one short question. All quizzes have equal weight for grading. No make-up quizzes will be offered. However, **two** of your quiz scores (with the lowest grades) will be **dropped**. I will notify you about the upcoming quizzes in class or via email.

Homework: There will approximately 8-10 homeworks with 10-15 questions each. The homeworks will generally be due at 5pm a week from the day of assignment. Late submissions will not be accepted under any circumstances. Some but not all of the problems on each homework will be graded. No makeup homeworks will be offered. However, homeworks with the lowest **two** grades will be **dropped**.

Attendance Classroom lecture attendance and participation is fully expected, even if not strictly enforced. You are responsible for learning all material presented during lecture, and any topic covered in lecture is a potential exam topic (unless otherwise stated). You should not use cell phones in class.

Integrity Please familiarize yourself with the Student Honor Code and Academic Honesty Guidelines outlined in your University of Florida Student Guide and at http://www.dso.ufl.edu/studentguide/studentrights.php.

Accommodations To request classroom accommodation, please be certain that you have made all necessary arrangements with the Dean of Students Office, and obtain from them documentation to submit to the instructor at the time of your request. A request must be made to the instructor at least 10 days in advance of the date for which the accommodation is requested.

Exam Aid:

- No calculators or phones will be allowed in the exam or during any of the quizzes.
- **1st Midterm**: You will be allowed a handwritten formula sheet on **1** side of an $A4$ size paper (this is the most common size of paper).
- **2nd Midterm**: handwritten formula sheet on **2** sides of $A4$ size paper.
- **Final**: handwritten formula sheet on **3** sides of $A4$ size paper.

Grades: After each exam I will send you an email with your current grade. The grade will take into account all the exams, quizzes, and homeworks up to that point in time. It should be only taken as a rough guide on your current standing in the class. The calculation of your final average will be done outside of Canvas; the formula used by Canvas will not necessarily produce the final average according to the course grading scheme.

Tentative Grades: A =90 or above, , $A-$ = 86-89, $B+$ = 81-85, B = 71-80, $B-$ = 66-70, $C+$ = 61-65, C = 56-60, $C-$ =51-55, $D+$ = 46-50, D = 41-45, $D-$ = 36-40, $E = 35$ or below. These numbers are tentative and are subject to change over the course of the semester. The tests will be hard the final cutoffs are very likely to be lower than these numbers. The calculation of your final average will be done outside of Canvas; the formula used by Canvas will not necessarily produce the final average according to the course grading scheme.

Feedback: I have created an assignment on Canvas. There you can submit anonymous feedback. You should be able to submit **as many feedbacks** as you want throughout the semester.

2 Approximate Lecture Schedule

Table 1: This is a tentative schedule and subject to change.

Week	**Class Date**	**Topic**	**Text book**
Week 1	22, 24 Aug	Review, Law of averages	4-5, 7
Week 2	27, 29, 31 Aug	CLTs and Inference	7.1–7.3, 8.1
Week 3	5, 7 Sep	Bias and Unbiased estimates	8.2–8.4
Week 4	10,12, 14 Sep	Efficiency	8.2–8.4
Week 5	17, 19, 21† Sep	Sampling distributions	7.2
Week 6	24, 26, 28 Sep	Confidence Intervals	8.5–8.8
Week 7	1, 3, 5 Oct	Confidence Intervals contd	8.9
Week 8	8, 10, 12 Oct	Consistency and MLE	9.3, 9.7
Week 9	15, 17, 19 Oct	MLE contd	9.7
Week 9	22, 24, 26† Oct	Hypothesis testing	10.1–10.3
Week 9	29, 31 Oct	Hypothesis testing contd	10.3–10.5
Week 10	5, 7, 9 Nov	p-values and test for means	10.6, 10.8
Week 11	14, 16 Nov	Power of test and LRT	10.10–10.11
Week 12	19 Nov	The linear model	11.2
Week 13	26, 28, 30 Nov	Method of least squares and inference	11.2–11.5
Week 14	3, 5† Dec	ANOVA	13.1–13.4

† marks the exam dates.