BIOSTATISTICS 672 (FALL 2017)
Intermediate Probability and Statistical Inference I

Instructor: Anastasia Ivanova, Associate Professor of Biostatistics
Office Location: 3103C McGavran-Greenberg Hall
Office Hours: by appointment
Office Phone Number: 843-8086
E-mail: aivanova@bios.unc.edu

Lectures: Tuesday and Thursday, 12:30 PM to 1:45 PM, Rosenau 228
Thur 9:30 AM to 10:30 AM, McGavran-Greenberg Hall 2303
Please be aware of the UNC policy that food and drink of any kind are prohibited in all
General Purpose Classrooms.

Assessment, Probability and Statistical Inference (credits 1-3):
1) MIDTERM EXAM 1 help on Sep 17 (worth 20% of final grade);
2) MIDTERM EXAM 2 held on Oct 27 (worth 20% of final grade);
3) FINAL EXAM (worth 35% of final grade);
   UNC assigned time for Final Exam is Fri Dec 8 noon-3 pm, location
   Rosenau 228. You are allowed to bring a 1-page cheat-sheet to
   Midterm 1, a 2-page cheat-sheet to Midterm 2, and a 3-page cheat-sheet
   to the Final Exam. You can also bring the table with probability
   distributions from Casella and Berger (Casella and Berger is the table
   approved for MS qualifying exams).
4) HOMEWORK (worth 25% of final grade); the homework
   assignments are due by 12:30 PM. HW can be submitted by e-mail (e-
   mail to BOTH course assistants) or bring the paper copy of your HW to
   class to submit before the beginning of class. You are permitted to work
   together on homework assignments, but all work submitted must be your own.
   Copying or simply dividing up assignments among collaborating students is not
   allowed. Questions concerning the homework assignments can be addressed to
   the course instructor or the course assistant. Questions concerning grading of
   homeworks should be addressed to the course assistant.

Assessment, Special Topics (credit 4):
1) Quizzes, MIDTERM and/or FINAL EXAM (worth 50% of final
   grade);
2) HOMEWORK (worth 50% of final grade); the homework assignments
   are due before class). You are permitted to work together on homework
   assignments, but all work submitted must be your own. Copying or simply
   dividing up assignments among collaborating students is not allowed. Questions
   concerning the homework assignments can be addressed to the course instructor
   or the course assistant. Questions concerning grading of homeworks should be
   addressed to the course assistant.

Help sessions: Weekly help session (optional) Mon 2:20 PM - 3:15 PM, location TBD.
Course assistants: Phoebe (Xiaotong) Jiang <xiaotong@live.unc.edu>, Chao Huang chaoh@email.unc.edu. The course assistants will be grading the homework assignments.

Primary text: *A first course in probability* by Sheldon Ross, 8th (or other) edition. **ISBN-10:** 013603313X, **ISBN-13:** 978-0136033134

Lecture notes: https://sakai.unc.edu/portal/site/bios660


Course prerequisite: A working knowledge of multivariate calculus (e.g., MATH 33 at UNC)

Course evaluations: All students are expected to complete course evaluations during the two week time window at the end of the course as listed on the UNC Academic Calendar.

List of Lectures, Probability and Statistics
8/24 L 2. Combinations and permutations. Set theory.
9/5 L 5. Independence.
9/19 L 9. Derivation of the Poisson distribution.
10/31 L 20. Midterm 2

11/28 L 27. Sampling from populations. Infinite and finite populations.
12/5 L 29. Method of statistical differentials (delta method).
12/8 Final exam.

<table>
<thead>
<tr>
<th>HW</th>
<th>Date given</th>
<th>Date due</th>
</tr>
</thead>
<tbody>
<tr>
<td>HW 1</td>
<td>Aug 24</td>
<td>Aug 31</td>
</tr>
<tr>
<td>HW 2</td>
<td>Aug 31</td>
<td>Sep 7</td>
</tr>
<tr>
<td>HW 3</td>
<td>Sep 7</td>
<td>Sep 14</td>
</tr>
<tr>
<td>HW 4</td>
<td>Sep 26</td>
<td>Oct 5</td>
</tr>
<tr>
<td>HW 5</td>
<td>Oct 5</td>
<td>Oct 12</td>
</tr>
<tr>
<td>HW 6</td>
<td>Oct 12</td>
<td>Oct 24</td>
</tr>
<tr>
<td>HW 7</td>
<td>Nov 2</td>
<td>Nov 14</td>
</tr>
<tr>
<td>HW 8</td>
<td>Nov 14</td>
<td>Nov 28</td>
</tr>
<tr>
<td>HW 9</td>
<td>Nov 28</td>
<td>Dec 5</td>
</tr>
</tbody>
</table>

List of Lectures, Special Topics (see schedule)