University of Florida  
College of Public Health & Health Professions Syllabus  
Introduction to Biostatistical Theory (3 credit hours)  
Fall: 2020  
Delivery Format: Online  
Monday period 3, Wednesday Periods 3-4

Instructor Name: Yang Yang  
Room Number: 460, Dauer Hall, 22 Buckman Drive  
Phone Number: 352-2941933  
Email Address: yangyang@ufl.edu  
Office Hours: TBA  
Teaching Assistants: Lingsong Meng (lingsongmeng@ufl.edu)  
Preferred Course Communications (e.g. email, office phone): email  
Office Hours: TA (online students only): TBD, Instructor: TBD.

Prerequisites: Multivariate calculus similar to MAC 2313. Linear algebra is a plus, but not required.

PURPOSE AND OUTCOME

Course Overview: It will provide a detailed introduction to basic statistical theory such as point estimation, hypothesis testing, asymptotic theory and Bayesian inference.

Relation to Program Outcomes: This is a required core course for the MS program in Biostatistics.

Course Objectives and/or Goals: Upon successful completion of the course, students will be able to understand the fundamental concepts in estimation and statistical testing as well as their applications in Bayesian inference.

Instructional Methods: This course will be fully online, using the instructor’s personal meeting room, which should be accessible either from your e-learning account or using the following URL.  
Meeting ID: 236 733 5991  
Join URL: https://ufl.zoom.us/j/2367335991

What is expected of you?

You are expected to actively engage in the course throughout the semester. You must come to class prepared by completing all out-of-class assignments. This preparation gives you the knowledge or practice needed to engage in higher levels of learning during the live class sessions. If you are not prepared, you may struggle to keep pace with the activities occurring in the live sessions, and it is unlikely that you will reach the higher learning goals of the course. Similarly, you are expected to actively participate in the live class. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.
**DESCRIPTION OF COURSE CONTENT**


**Useful external lecture videos:** (strongly recommended for students with difficulties in calculus or basic probability theory)

MIT single-variable calculus

[https://www.youtube.com/watch?v=7K1sB05pE0A&index=1&list=PL590CCC2BC5AF3BC1](https://www.youtube.com/watch?v=7K1sB05pE0A&index=1&list=PL590CCC2BC5AF3BC1)

MIT Open: Probabilistic systems analysis and applications

[https://www.youtube.com/watch?v=j9WZyLZCBzs&list=PLUl4u3cNGP60A3XMwZ5sep719_nh95qOe](https://www.youtube.com/watch?v=j9WZyLZCBzs&list=PLUl4u3cNGP60A3XMwZ5sep719_nh95qOe)

**Topical Outline/Course Schedule (actual pace may change)**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date(s)</th>
<th>Topic(s)</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td></td>
<td>Set theory and probability review</td>
<td>Appendix A, Abramovich &amp; Ritov; Chapters 1-4, Casella and Berger</td>
</tr>
<tr>
<td>3-4</td>
<td></td>
<td>Sufficient, ancillary and complete statistics</td>
<td>Chapter 1, Abramovich and Ritov; Section 6.2, Casella and Berger</td>
</tr>
<tr>
<td>5-7</td>
<td></td>
<td>Point estimation</td>
<td>Chapter 2, Abramovich and Ritov; Chapter 7, Casella and Berger</td>
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<tr>
<td>8</td>
<td></td>
<td>Mid-term</td>
<td></td>
</tr>
<tr>
<td>8-10</td>
<td></td>
<td>Hypothesis testing and interval estimation</td>
<td>Chapter 3 &amp; 4, Abramovich and Ritov; Chapter 8 &amp; 9.2, Casella and Berger</td>
</tr>
<tr>
<td>11-12</td>
<td></td>
<td>Asymptotic theory</td>
<td>Chapter 5, Abramovich and Ritov; Sections 5.5.1 5.5.3, 5.5.4, 10.1.1, 10.1.2, 10.3.1 and 10.4.1, Casella and Berger</td>
</tr>
<tr>
<td>13-14</td>
<td></td>
<td>Bayesian inference</td>
<td>Chapter 6, Abramovich and Ritov; Section 1.2.3 and 8.2.2, Casella and Berger</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Decision Theory (depending on availability of time)</td>
<td>Chapter 7, Abramovich and Ritov</td>
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</tbody>
</table>
For technical support for this class, please contact the UF Help Desk at:
- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://lss.at.ufl.edu/help.shtml

**ACADEMIC REQUIREMENTS AND GRADING**

**Assignments and Grading**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Date</th>
<th>Points or % of final grade (% must sum to 100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (4-6 assignments)</td>
<td>TBA</td>
<td>20%</td>
</tr>
<tr>
<td>Attendance</td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>TBA</td>
<td>30%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>TBA</td>
<td>40%</td>
</tr>
</tbody>
</table>

**Point system used** (i.e., how do course points translate into letter grades).

<table>
<thead>
<tr>
<th>Percentage Earned</th>
<th>Letter Grade</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-100</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>90-94</td>
<td>A-</td>
<td>3.67</td>
</tr>
<tr>
<td>85-89</td>
<td>B+</td>
<td>3.33</td>
</tr>
<tr>
<td>80-84</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>77-79</td>
<td>B-</td>
<td>2.67</td>
</tr>
<tr>
<td>74-76</td>
<td>C+</td>
<td>2.33</td>
</tr>
<tr>
<td>70-73</td>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>65-69</td>
<td>C-</td>
<td>1.67</td>
</tr>
<tr>
<td>60-64</td>
<td>D+</td>
<td>1.33</td>
</tr>
<tr>
<td>55-59</td>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>50-54</td>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>Below 50</td>
<td>E</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>WF</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>I</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>NG</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>S-U</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Please be aware that a C- is not an acceptable grade for graduate students. The GPA for graduate students must be 3.0 based on 5000 level courses and above to graduate. A grade of C counts toward a graduate degree only if based on credits in courses numbered 5000 or higher that have been earned with a B+ or higher. In addition, the Bachelor of Health Science and Bachelor of Public Health Programs do not use C- grades.
More information on UF grading policy may be found at:
http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Exam Policy
Exams will be proctored by proctoring service providers such as ProctorU. Students will be asked to contact the service provider to schedule an exam time. Whether the exams will be open book or close book will be announced later.

Policy Related to Make up Exams or Other Work
Students are allowed to make up work ONLY as the result of illness or other unanticipated circumstances warranting a medical excuse and resulting in the student missing a homework or project deadline, consistent with College policy. Documentation from a health care provider is required. Work missed for any other reason will receive a grade of zero.

Policy Related to Required Class Attendance
Class attendance is mandatory. Excused absences follow the criteria of the UF Graduate Catalogue (e.g., illness, serious family emergency, military obligations, religious holidays), and should be communicated to the instructor prior to the missed class day when possible. UF rules require attendance during the first two course sessions. Regardless of attendance, students are responsible for all material presented in class and meeting the scheduled due dates for class assignments. Finally, students should read the assigned readings prior to the class meetings, and be prepared to discuss the material except for the first class session.

Please note all faculty are bound by the UF policy for excused absences. Excused absences must be consistent with university policies in the Graduate Catalog (http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance). Additional information can be found here: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

STUDENT EXPECTATIONS, ROLES, AND OPPORTUNITIES FOR INPUT

Expectations Regarding Course Behavior
Students are encouraged to be actively engaged in classes. Responses to teacher’s requests on sharing thoughts or solutions will be rewarded, e.g., 1-5 points towards homework grades.

Communication Guidelines
Students are encouraged to ask questions in class or during office hours or email instructor and TA about questions. Students are also encouraged to use the discussion board on the e-learning course website to discuss problems with peer students. TA will check the board regularly. Instructor may check less frequently, so emailing the instructor is the most efficient way if you expect a quick response.

Academic Integrity

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:
“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/
http://gradschool.ufl.edu/students/introduction.html

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Online Faculty Course Evaluation Process
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

On Campus Face-to-Face
We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- Follow your instructor’s guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
  - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work (https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/).

Online Synchronous Sessions:
Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are
agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the “chat” feature, which allows students to type questions and comments live. The chat will not be recorded or shared. You can also use chat to tell the instructor to pause recording before you talk. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Policy Related to Guests Attending Class:

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are not permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: http://facstaff.phhp.ufl.edu/services/resourcguide/getstarted.htm

SUPPORT SERVICES

Accommodations for Students with Disabilities
If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office http://www.dso.ufl.edu within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

Students in UF Health Sciences programs should be mindful that unique course accommodations may not be applicable in a clinical, fieldwork or practicum setting. Thus, planning a semester in advance with the DRC Health Sciences Learning Specialist, Lisa Diekow ldiekow@ufsa.ufl.edu, is highly encouraged.

Counseling and Student Health
Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: http://www.counseling.ufl.edu. On line and in person assistance is available.

- You Matter We Care website: http://www.umatter.ufl.edu/. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.

- The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: https://shcc.ufl.edu/
• Crisis intervention is always available 24/7 from:
  Alachua County Crisis Center:
  (352) 264-6789
  http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Inclusive Learning Environment
Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. We embrace The University of Florida’s Non-Discrimination Policy, which reads, “The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans’ Readjustment Assistance Act.” If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website:
  www.multicultural.ufl.edu