Office Hours: Preference is by appointment, but the door is usually open, the candy bowl is full, and there’s likely to be a piece of fruit...

**Recommended Texts and Other Readings:**


or


(Other intro statistics books can be used. If you are using another book, show it to Dr. B. to get approval.)

Cited articles will be posted on CANVAS. Please check regularly.

**Additional Materials Required:**
- Scientific calculator. (Nothing too fancy though)
  **It is NOT ACCEPTABLE to use the calculator on your mobile phone.**
- A handful of 3x5 index cards
- Colored pencils/pens
- I strongly recommend a loose-leaf binder (2-3inch). There will be many handouts throughout the term.

THIS WILL BE A TECHNOLOGICALLY FREE LECTURE HALL.

Note-taking should be done with paper and pencil/pen, in a notebook. **NO LAPTOPS, NO TABLETS.**

If you must use or take a call or respond to a text during class, please leave the lecture hall (but return asap).

**Course Description:** This is an introduction to Biostatistics. Statistics is a wonderful tool to make sense of the world and science. This course focuses on biostatistics, which considers social and behavioral data to better understand public health. Through this course, students will be exposed to a variety of techniques to know how to appropriately approach data to answer public health research questions.

**Course Learning Objectives:**

Upon completing this course, the student will be able to:

1. Understand why we use biostatistics.
2. Recognize biostatistics in the real world. Reading the results section of journal articles will be a goal.
3. Acquire the basic vocabulary to read and communicate about real world biostatistics.
4. Choose and apply appropriate analytic approaches to answer real-world research questions.
5. Compute and utilize descriptive statistics appropriate to the real-world research questions.
6. Recognize and apply basic statistical tests appropriate to the type of data and study design.
7. Systematically evaluate results for accuracy, limitations, and relevance to public health.
Program Competencies Addressed in this Course:
The following competencies are addressed in this course:

1. Apply statistics and research methods to accurately describe the distribution and examine the determinants of population health.
2. Apply statistics and research methods to community health program evaluations.

Course Requirements:
This course requires students to learn concepts, building on proficient skills reflected by the UMD Mathematics Fundamental Studies requirement. To be successful, students will perform basic algebraic and mathematical operations. The course is cumulative; please avoid falling behind. There are assignments and quizzes throughout the semester to ensure students keep up with the material.

Lectures: Material covered through homeworks, prelims, and the final will be presented during class. **STUDENTS ARE EXPECTED TO ATTEND EVERY CLASS.** If a student misses a class, he/she will miss key concepts. Only skeletal Powerpoint slides are available on CANVAS. Students will not be successful in the course if they are not in class to hear the lectures and do the practice problems with classmates.

Prelims: There will be 3 preliminary tests throughout the semester. These will be administered in person during class. **IF YOU MISS A CLASS WHEN THERE IS A PRELIM, YOU WILL HAVE 24 HOURS TO SET UP A TIME** (although a make-up administration will only be done if a student has a university recognized absence and documentation). The location of the make-up prelim will be either the Professor’s office of the Chair’s conference room. No make-up tests will be done after 72 hours after the original administration. **They cannot be made up.**

Assignments: There are eleven assignments corresponding to lectures and concepts. These are posted on CANVAS as is the due date/time listed on the syllabus (usually by 12:30pm). **HARD COPIES are acceptable as are submissions via canvas.** Late assignments will be accepted, but a full point will be deducted for each 24 hours accumulated following the due date (starting immediately after the due date/time).

Final Exams: There will be a final exam. It is cumulative.

Course Policies:
Absence Policy: In accordance with university policy, if you are absent for a single lecture due to illness or some form of personal or family emergency, this absence will be considered “excused.” Whenever feasible, contact me in advance. **Attendance in this course is absolutely necessary for success.** Multiple or prolonged absences, and absences that prevent attendance at a scheduled quiz or exam will require written documentation from an appropriate health care provider/organization. **Make up exams will be given only when the student has a University-recognized absence.** If an exam is to be missed for a legitimate reason (going on vacation or having an early flight is NOT a
legitimate reason), the student must contact me (by email ONLY) PRIOR to the exam. If an exam is missed due to unforeseen circumstances on the day of the exam, the student must contact me within 24 hours of the missed exam. Official documentation of the excuse must be provided. I will NOT accept a Health Center honor statement to verify illness. If a student misses a quiz/exam for any unauthorized reason he/she will receive a grade of zero for that quiz or exam.

For complete information on the university’s absence policy see: http://www.president.umd.edu/policies/v100g.html

Canvas: This course requires students to use CANVAS as pertinent information will be posted on the course site. Students can access CANVAS, Maryland Enterprise Learning System at http://umd.instructure.com. Students login to this system using their UMCP Directory ID (your email login) and password. Under “My Courses,” select “HLTH300: Biostatistics for Public Health Practice.” This gives students access to all course material. For problems logging in, contact the Office of Information Technology (OIT) at 301-405-1400, as I will not be able to help.

Religious Observances: The University System of Maryland policy provides that students should not be penalized because of observances of their religious beliefs; students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the student’s responsibility to inform me VIA EMAIL in advance of any intended absences for religious observance.

Special Accommodations / Disability Support Services: If a student has a documented disability and wishes to discuss academic accommodations for test taking or other needs, please obtain documentation from Disability Support Service (301-314-7682). In case of illness or personal difficulties, please let me know as soon as possible. Students can also contact Learning Assistance Services (301-314-7693) and/or the Counseling Center (301-314-7651) for assistance.

ACADEMIC INTEGRITY
The University's code of academic integrity ensures that the principle of academic honesty is upheld. Any of the following acts, when committed by a student, constitutes academic dishonesty:

• CHEATING: intentionally using or attempting to use unauthorized materials, information, or study aids in an academic exercise.
• FABRICATION: intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
• FACILITATING ACADEMIC DISHONESTY: intentionally or knowingly helping or attempting to help another to violate any provision of this code.
• PLAGIARISM: intentionally or knowingly representing the words or ideas of another as one’s own in any academic exercise.

For more information see: http://www.shc.umd.edu/code.html.
The Honor Pledge is a statement undergraduate and graduate students should be asked to write by hand and sign on prelims and examinations. The Pledge reads:

*I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. [YOUR SIGNATURE]*

The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit [http://www.shc.umd.edu](http://www.shc.umd.edu).

Statement on Cheating
The Department of Behavioral and Community Health has a zero tolerance policy on academic dishonesty of any kind. If a Departmental instructor believes that a student has been involved in academically dishonest activity, he or she will report it to the University’s Office of Student Conduct, and is not obligated to disclose the report to the student in question. Once referred, the Office of Student Conduct will contact the student in writing to inform them of the charges.

Statement on Classroom Disruptions/Code of Conduct: The success of this class is dependent not only on my abilities as an instructor to communicate new and complicated ideas, it is also dependent on our ability as a class to work together to create an environment conducive to learning. As a department and university, we expect the faculty and students to be prepared for class, be respectful, and to be actively engaged in the classroom activities. Unfortunately, disruptive behaviors in the classroom cheat other students of opportunities to learn.

The University of Maryland’s Code of Academic Integrity defines classroom disruption as “behavior a reasonable person would view as substantially or repeatedly interfering with the conduct of the class.” Examples include coming late to class, repeatedly leaving or entering the classroom, making loud or distracting noises, persisting in speaking without being recognized, using cell phones and blackberries, reading outside materials, sleeping, and conducting side conversations. If a student engages in repeated participation in any of these activities in lecture or discussion, the student will be asked to leave.

Inclement Weather / University Closings: In the event that the University is closed for an emergency, I will communicate to students regarding schedule adjustments, including rescheduling of exams and assignments due to inclement weather and campus emergencies. Official closures and delays are announced on the campus website ([http://www.umd.edu](http://www.umd.edu)) and snow phone line (301-405-SNOW), as well as local radio and TV stations.

Email – The Official University Correspondence: Verify your email address by going to [www.my.umd.edu](http://www.my.umd.edu). All enrolled students are provided access to the University’s email system and an email account. All official University email communication will be sent to this email address (or an alternate address if provided by the student). Email has been adopted as the primary means for sending official communications to students, so email must be checked on a regular basis. Academic advisors, faculty, and campus administrative offices use email to communicate important and time-sensitive notices.
Students are responsible for keeping their email address up to date or for redirecting or forwarding email to another address. Failure to check email, errors in forwarding email, and returned email, will not excuse a student from missing University announcement, messages, deadlines, etc. Email addresses can be quickly and easily updated at www.my.umd.edu or in-person at the Student Service Counter on the first floor of the Mitchell Building. For technical support for University email visit www.helpdesk.umd.edu or call OIT at 301-405-1400.

Grading Procedures:

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Points</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prelims (3 @ 40 pts)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Assignments (2@5, 8@10, &amp; 1@15 pts)</td>
<td>95</td>
<td>* One assignment will be dropped. You CANNOT drop #1, #8, or #11.</td>
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<tr>
<td>5 points — wiggle room</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

GRADING RUBRIC – THERE ARE NO DEVIATIONS FROM THIS. PLEASE DO NOT ASK FOR ANY EXCEPTIONS.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lower percentile</th>
<th>Higher Percentile</th>
<th>Lower Cut Off</th>
<th>Upper Cut Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>0.96</td>
<td>1</td>
<td>288</td>
<td>300</td>
</tr>
<tr>
<td>A</td>
<td>0.92</td>
<td>0.95999</td>
<td>276</td>
<td>287.997</td>
</tr>
<tr>
<td>A-</td>
<td>0.895</td>
<td>0.91999</td>
<td>268.5</td>
<td>275.997</td>
</tr>
<tr>
<td>B+</td>
<td>0.86</td>
<td>0.89499</td>
<td>258</td>
<td>268.4997</td>
</tr>
<tr>
<td>B</td>
<td>0.82</td>
<td>0.85999</td>
<td>246</td>
<td>257.997</td>
</tr>
<tr>
<td>B-</td>
<td>0.795</td>
<td>0.81999</td>
<td>238.5</td>
<td>245.9997</td>
</tr>
<tr>
<td>C+</td>
<td>0.76</td>
<td>0.79499</td>
<td>228</td>
<td>238.4997</td>
</tr>
<tr>
<td>C</td>
<td>0.72</td>
<td>0.75999</td>
<td>216</td>
<td>227.9997</td>
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<tr>
<td>C-</td>
<td>0.695</td>
<td>0.71999</td>
<td>208.5</td>
<td>215.9997</td>
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<tr>
<td>D+</td>
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<td>0.69499</td>
<td>198</td>
<td>208.4997</td>
</tr>
<tr>
<td>D</td>
<td>0.65</td>
<td>0.65999</td>
<td>195</td>
<td>197.997</td>
</tr>
<tr>
<td>F</td>
<td>0.64999</td>
<td>0</td>
<td>194.997 and below</td>
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</table>

► BCH Undergraduate Final Program Portfolio:

During HLTH 491 (internship semester) BCH students are responsible for the development of a “Final Program Portfolio”. The portfolio is contained in a 3-ring binder and includes material, reflective of your internship and academic experiences as a community health major. The academic section will include a specific deliverable for each of your core courses.

The portfolio deliverable for this course (HLTH 300) is a Critique of Public Health Statistics and Research. THIS IS ASSIGNMENT #11, December 12, 2017. Please be sure to save this assignment for inclusion in your Final Program Portfolio. You may use a copy of your original work, the graded returned assignment, or an edited version that incorporates grading comments. For more information regarding the Final Program Portfolio, please refer to the Undergraduate Internship Program Manual located on the Department of Behavioral and Community Health website.

Emails:

Due to the volume of emails that professors and TAs receive, USE the subject line “HLTH 300” when sending an email. If you do not get a response in 48 hours, please check back with another email. You may send emails through Canvas, but the STRONG preference is to use regular email and cc both the Professor and TA.
Available Support Services:
Learning Assistance Services offers the Academic Success Workshop series to help students become successful active learners. Workshops focus on helping students manage time, and improve approaches to studying and learning at the University of Maryland. Workshops are held once or twice a month on Mondays. Math Success workshops are held regularly throughout the semester. Workshops are held in 2122 Shoemaker Bldg. See: [www.counseling.umd.edu/LAS/html/acadsuccseries.html](http://www.counseling.umd.edu/LAS/html/acadsuccseries.html). Additional information about tutoring services available at the University of Maryland can be found at: [www.tutoring.umd.edu/](http://www.tutoring.umd.edu/)

### COURSE OUTLINE

<table>
<thead>
<tr>
<th>DATE</th>
<th>ASSIGNMENTS (pts)</th>
<th>EXAMS (pts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 29</td>
<td>Overview of the Course</td>
</tr>
<tr>
<td>2</td>
<td>August 31</td>
<td>Basic Terminology 1) Complete Survey (5)</td>
</tr>
<tr>
<td>3</td>
<td>September 5</td>
<td>Presenting and Organizing Data</td>
</tr>
<tr>
<td>4</td>
<td>September 7</td>
<td>Presenting and Organizing Data/Crosstabs 2) Organizing Data (10)</td>
</tr>
<tr>
<td>5</td>
<td>September 12</td>
<td>Measures of Central Tendency</td>
</tr>
<tr>
<td>6</td>
<td>September 14</td>
<td>Measures of Central Tendency 3) Measures of Ctrl Tend. (10)</td>
</tr>
<tr>
<td>7</td>
<td>September 19</td>
<td>Samples, populations, z-scores</td>
</tr>
<tr>
<td>8</td>
<td>September 21</td>
<td>DAY OFF</td>
</tr>
<tr>
<td>9</td>
<td>September 26</td>
<td>Normal curve, z scores</td>
</tr>
<tr>
<td>10</td>
<td>September 28</td>
<td>Prelim 1 (40)</td>
</tr>
<tr>
<td>11</td>
<td>October 3</td>
<td>T-Tests, 95% Confidence Intervals 4) z Scores (10)</td>
</tr>
<tr>
<td>12</td>
<td>October 5</td>
<td>T-Tests, 95% CIs, ANOVA</td>
</tr>
<tr>
<td>13</td>
<td>October 10</td>
<td>ANOVA, chi-square 5) Testing Diff. btwn Means (10)</td>
</tr>
<tr>
<td>14</td>
<td>October 12</td>
<td>Chi-Square</td>
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<tr>
<td>15</td>
<td>October 17</td>
<td>Chi-Square 6) ANOVA, Chi Square (10)</td>
</tr>
<tr>
<td>16</td>
<td>October 19</td>
<td>Correlation</td>
</tr>
<tr>
<td>17</td>
<td>October 24</td>
<td>Correlation &amp; Review 7) Correlation (10)</td>
</tr>
<tr>
<td>18</td>
<td>October 26</td>
<td>Prelim 2 (40)</td>
</tr>
<tr>
<td>19</td>
<td>October 31</td>
<td>DAY OFF</td>
</tr>
<tr>
<td>20</td>
<td>November 2</td>
<td>Regression</td>
</tr>
<tr>
<td>21</td>
<td>November 7</td>
<td>Regression 8) Real life biostatistics (5)</td>
</tr>
<tr>
<td>22</td>
<td>November 9</td>
<td>Regression</td>
</tr>
<tr>
<td>23</td>
<td>November 14</td>
<td>Regression 9) Regression (10)</td>
</tr>
<tr>
<td>24</td>
<td>November 16</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td>25</td>
<td>November 21</td>
<td>Prelim 3 (40)</td>
</tr>
<tr>
<td>26</td>
<td>November 23</td>
<td>DAY OFF</td>
</tr>
<tr>
<td>27</td>
<td>November 28</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td>28</td>
<td>November 30</td>
<td>Real life Biostatistics 10) Logistic Regression (10)</td>
</tr>
<tr>
<td>29</td>
<td>December 5</td>
<td>Real life Biostatistics</td>
</tr>
<tr>
<td>30</td>
<td>December 7</td>
<td>Review</td>
</tr>
</tbody>
</table>

11) A Critique of Public Health Statistics & Research (15) **DUE 12/11**

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})
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| FINAL EXAM | FINAL (80) |         |
### Sessions 1 and 2

**Topic:** Introduction to Statistics and Basic Terminology

**Learning Objectives for Sessions:** (Program Competencies #1 and #2)
1. Understand why we use biostatistics and recognize it in the real world.
3. Be aware of basic terminology used in biostatistics.
4. Recognize different types of measures and variables.
5. Understand what dependent and independent variables.
6. Recognize hypotheses.

### Sessions 3 and 4

**Topic:** Presenting and Organizing Data, Crosstabs

**Learning Objectives for Sessions:** (Program Competencies #1 and #2)
1. Identify different ways to present data.
2. Understand types of graphs and why they are used.
3. Calculate frequencies and proportions in table format.
4. Introduction of crosstabs

### Sessions 5 and 6

**Topic:** Measures of Central Tendency and Variability

**Learning Objectives for Sessions:** (Program Competency #1)
1. Apply methods of determining central tendency of a data distribution (mode, mean, median).
2. Compare methods and distinguish the optimal method depending on the level of measurement of the data.
3. Apply methods of measuring the variability in datasets including variance and standard deviation.
4. Step by step demonstrations of calculations

### Sessions 7, 8, and 9

**Topic:** The Normal Curve, Samples and Populations

**Learning Objectives for Sessions:** (Program Competencies #1 and #2)
1. Understand how sampling error factors into study results.
2. Identify a normal curve and understand its importance.
3. Understand and apply sampling distribution and standard error of the mean concepts.
4. Understand and know when to use z scores.
5. Understand the term ‘degrees of freedom.’

### Sessions 12, 13, and 14

**Topic:** T tests, 95% Confidence Intervals, and ANOVA

**Learning Objectives for Sessions:** (Program Competencies #1 and #2)
1. Recognize when it is useful to test between means.
2. Recognize and formulate null and research hypotheses examining the difference between means.
3. Understand Type I and Type II errors.
4. Read output on t tests, 95% confidence intervals and ANOVA.

### Session 15, 16, and 17

**Topic:** Nonparametric tests of significance

**Learning Objectives for Sessions:** (Program Competencies #1 and #2)
1. Recognize when nonparametric tests should be used. Understand the meaning and importance of $F$ ratio.
2. Perform a chi-square test
3. Read output featuring chi-square tests.
**Sessions 19 and 20**  
**Topic:** Correlation

Learning Objectives for Sessions: (Program Competencies #1 and #2)  
1. Recognize when correlations should be used.  
2. Understand the meaning and importance of Pearson’s $r$.  
3. Calculate a Pearson’s Correlation Coefficient.  
4. Read output featuring correlations.

**Sessions 21, 22, and 23**  
**Topic:** Regression Analysis

Learning Objectives for Sessions: (Program Competencies #1 and #2)  
1. Recognize when regression analysis should be used.  
2. Understand the meaning and importance of coefficients in the regression model.  
3. Recognize dummy variables.  
4. Calculate a regression model.  
5. Read output featuring simple and multivariate regression.

**Sessions 24, and 27 and 28**  
**Topic:** Logistic Regression

Learning Objectives for Sessions: (Program Competencies #1 and #2)  
1. Recognize when logistic regression analysis should be used.  
2. Understand the meaning and importance of odds and odds ratios.  
3. Read output featuring logistic regression.

**Session 29 and 30**  
**Topic:** Choosing Statistical Procedures for Research

Learning Objectives for Sessions: (Program Competencies #1 and #2)  
1. Identify research questions and hypotheses.  
2. Recognize appropriate statistical tests for different situations.  

**Session**

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**FINAL EXAM - SHOW WHAT YOU KNOW!!!**