Instructor: Mr. Wesley K. Hough

E-mail: wesley.hough@uky.edu

Office: Multidisciplinary Science Building, MDS 305A (only for duration of course)

Office Hours: I’ll be in MDS 305A from 12:30 to 1:30 PM each class day. You’re welcome to stop by any other time that I happen to be there. My regular office is Patterson Office Tower 706, so you may find me there from time to time as well.

Class Time and Location: Class will always meet in MDS 337. In order to accommodate the Calc II class that I’m teaching this summer, we will meet according to the following schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Morning Session</th>
<th>Afternoon Session</th>
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<tbody>
<tr>
<td>8/3 to 8/6</td>
<td>8:45 to 10:00 AM</td>
<td>1:30 to 2:45 PM</td>
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<tr>
<td>8/7 to 8/11</td>
<td>10:00 to 11:15 AM</td>
<td>1:30 to 2:45 PM</td>
</tr>
<tr>
<td>Wed 8/12</td>
<td>10:00 to 11:15 AM</td>
<td>No Class</td>
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Course Materials: You should have access to a calculus reference and a linear algebra reference for this course. I will be loosely using the textbooks below:


Course Website: The web page for this class is [http://www.ms.uky.edu/~houghw/STATS](http://www.ms.uky.edu/~houghw/STATS). A course schedule and handouts will be posted here.

Overview of Course: You are beginning a career of graduate study in statistics. As you progress through your course work, your professors will assume that you possess a certain amount of mathematical background. The goal of this course is to provide a focused review to strengthen this mathematical background in the areas of calculus and linear algebra as well as to strengthen your mathematical communication skills. We will discuss limits, continuity, differentiation, integration, sequences, series, vector spaces, matrices, linear transformations, determinants, eigenvalues, eigenvectors, diagonalization, and orthogonal projections. Time permitting, we will discuss uniform continuity, Taylor series, spectral decomposition, and positive definite matrices.

Grading and Assessment: I will consider your overall performance on the homework assignments and participation in class discussions and compose a written evaluation that will reflect your level of mathematical preparedness. This evaluation will be reported to the Director of Graduate Studies for the Statistics Department, but the evaluation will NOT appear on your official UK transcript.
**Homework:** Homework will be assigned at the end of each class session. Unless otherwise stated, each assignment is due at the start of the following class period. These assignments are meant to improve your problem-solving skills. Searching for solutions online or in a solution manual as well as copying from someone else completely undermines this purpose. I am firm supporter of students working collaboratively, but there are many times when a student has to stand on his or her own merit. Therefore, you are welcome to work with each other to learn a concept or understand the idea behind a problem, but you should write up your solutions independently and in your own words. An over-reliance on your notes or other students will cause problems later in your graduate career.

**Participation and Attendance:** This course constitutes fifteen 75-minute class sessions, and full attendance is expected. Frequent absence indicates a lack of commitment to your graduate study and will be reported to your DGS. Not only should you attend each class session, but you should be willing and prepared to participate and engage with the material each day. From time to time, I may ask students to present work at the board. Willingness and preparedness for these presentations will be referenced in the end-of-course evaluation. While I don’t have a strict technology policy, I find it very rude and unprofessional to be regularly messing with your phone or tablet. If you are unable to give proper respect to yourself, your classmates, or your instructor, then you may be asked to leave the class.

**Suggestions and Conflict:** Constructive suggestions for this course are welcome at any time. If you have any concerns, please bring them to my attention first. Further recourse is available through the offices of the Department Ombud and the Department Chair, both of whom can be reached from the main office in the Statistics Department.

**Biographical Assignment:** This class will be more beneficial if I know a little bit about you. Before the start of the morning session on August 4, please send me an e-mail with a short biography about yourself. Use the e-mail address that you will be checking over the next week and a half in case that I want to e-mail you. Be sure to include the following:

- your name (and what you like to be called if not your given name)
- your mathematical background (what kinds of math classes have you taken? how long ago?)
- what previous undergraduate and graduate institutions did you attend?
- if you took time off from your studies, what did you do?
- what drew you to graduate school in statistics?
- something interesting and/or unique about yourself.

After you have written your short biography, write a short paragraph regarding what you hope to accomplish in this review course. Are there any particular topics you wish to address? I would like to know where to focus our time, so this is your chance to provide your input. We will be covering selected topics in calculus (e.g. limits, differentiation, integration, sequences, series, Taylor series), linear algebra (e.g. column and null spaces, linear maps, eigenvalues/eigenvectors, diagonalization, orthogonal projections), and basic proofs.