

**Syllabus for IAF 602: Statistical Methods for Data Analytics
Fall 2019**

Instructor:

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Note: In general, it is easier to reach me by email than by phone.

Class hours and location:

Thursdays, 6:00-8:50 pm, Bryan Building, Room 121

Office hours:

Tuesdays and Wednesdays, 4:30-6:00 pm, or by appointment.

Note: It is possible that the building at 500 Forest is closed after 5 pm. If you are at the door for my office hour and cannot get in, give me a call so that I can open the door for you.

Textbook:

The Statistical Sleuth: A Course in Methods of Data Analysis, by Ramsey and Schafer

Topics:

Tentatively, and overly ambitious, the goal is to cover the following topics

- Basic statistical terminology and concepts
- Hypothesis testing
- Data transformation
- Confidence intervals
- Regression models
- Analysis of variance
- Multivariate analysis
- Nonparametric methods
- Design of experiments

Many of these topics would typically be covered in a semester-long course just devoted to that topic. Our goal is to develop some understanding and awareness of these topics, and not to cover each of them in detail. Adjustments will be made based on time considerations.

Course objectives:

By the end of the course students should have a conceptual understanding and basic working knowledge of statistical topics useful for data analytics. Students will also gain knowledge about the statistical software package R for implementing the various statistical methods that are covered.

Exams and Grades:

Grades will be based on the following components:

1. Homework assignments (20%). There will be regular homework assignments. Not only are homework assignments a good way to improve your grade, they are also essential to master the materials covered in class. Students are encouraged to discuss solutions to homework assignments, but each student must prepare their own solutions. Copying other people's work is plagiarism and is unacceptable. Solutions should show the work (for example code) that was done to arrive at the answers that are provided.
2. Two exams (25% each). Students will be able to work on exams from home. They will have approximately one week to complete the exams. Unlike the homework assignments, students are expected to work independently on the exams, and should not discuss them with other students or any other individuals. Failure to comply is a breach of academic integrity and will have serious consequences. The tentative due dates for these exams are October 4, 2019, and November 26, 2019.
3. Final project (30%). The final project will be due on December 9, 2019. As with the exams, students will have the opportunity to work on the project from home. Further details will be provided at least two weeks prior to the due date.

With the weights as indicated above, the course grade will be determined based on the weighted score from homework, exams, and the final project. The tentative conversion of these weighted scores to letter grades is as follows:

- 90 and above A and A-
- 80-89 B-, B, B+
- 70-79 C, C+
- Below 70 F

Slight changes in this conversion may apply if deemed necessary by the instructor.

Use of Canvas:

The course has a Canvas page. Slides presented during lectures and all assignments will be made available there. Students can also submit their solutions electronically.

Attendance:

Attendance will not be kept. As a graduate student, you are wise enough to set priorities in your life. If you must miss a class, make sure that you learn from fellow students what was discussed. You will still be expected to know and understand all the material covered.

Academic Integrity:

You are responsible for knowing and abiding by the UNCG Academic Integrity Policy <https://osrr.uncg.edu/academic-integrity/>.

Academic Accommodations

The University of North Carolina at Greensboro respects and welcomes students of all backgrounds and abilities. If you feel you will encounter any barriers to full participation in this course due to the impact of a disability, please contact the Office of Accessibility Resources and Services (OARS). The OARS staff can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can learn more about OARS by visiting their website at <https://ods.uncg.edu/> or by calling [336-334-5440](tel:336-334-5440) or visiting them in Suite 215, EUC.

Discrimination and Harassment Policy

The UNCG policy on Discrimination and Harassment states that *“UNCG is committed to equal opportunity in education and employment for all persons and will not tolerate any discrimination against or harassment of persons on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, political affiliation, genetic information, veteran status, disabling condition, or age.”* It is the duty of every member of the UNCG community to uphold this policy. As a faculty member, I reaffirm my stand against discrimination and harassment of any sort. Such behavior will not be tolerated among my students and in the classroom.

Health and Wellness

Your health impacts your learning. Throughout your time in college, you may experience a range of health issues that can cause barriers to your learning. These might include physical ailments, illnesses, strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may be experiencing. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at <https://shs.uncg.edu/> or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. Help is always available.

Conduct

Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students can gain from time spent in class, unless otherwise

approved by the instructor, students are prohibited from engaging in any form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class. Please review the Disruptive Behavior in the Classroom Policy (<https://sa.uncg.edu/handbook/wp-content/uploads/Disruptive-Behavior-in-the-Classroom-Policy-8-4-17.pdf>) for additional information.

Emergency Response

1. If there is an emergency, I will stop teaching. When it is safe to do so, call 9-1-1 and identify our exact room and building as well as the issue [state the room and building in which the class is meeting].
2. If you see that I am not aware of an emergency at any point during our class – before, during or after class, please stop me and do what you can to make me aware. It is very important that I am aware. Even though our campus has an emergency notification system, there are some areas on campus where you may not receive emergency notification system messages (e.g., indoors). The first warning of an emergency may come to our attention via a messenger at the classroom door, or through a personal electronic device.
3. If you ever see or experience something unusual or concerning that may lead to an emergency, please let me or another faculty member/administrator know as soon as possible. I prefer that you let me know even if you have just an inkling that something is not right.
4. **In a weather emergency**, if you are inside, move to an interior room on the lowest floor and stay away from windows. If you are outside, seek shelter in a nearby building.
5. **In a medical/mental health emergency**, please make space for first responders to do their work. UNCG Police, the Fire Department, and EMS respond to all medical calls on campus.
6. **In the case of fire**, gather your personal items within reach and exit quickly – in as orderly a way as possible. Help others as much as possible.
7. In a situation in which **someone intends to do harm**, assess the situation and make a decision. Unfortunately, there may not be a clear “right” answer. However, one of the following actions should be taken, listed in priority of consideration:
 - a. **RUN**: Have an escape route and plan in mind, leave your belongings behind, keep your hands visible and follow law enforcement’s direction.

- b. **HIDE:** Hide in an area out of the threat's view, block entry to your hiding place and, if possible, lock doors. Silence your mobile devices.
 - c. **FIGHT:** Use as a last resort if your life is in imminent danger.
- 8. If you need to exit the building in an emergency, seek cover behind buildings, cars, and other solid structures – go as far away as possible while still staying safe. Just keep on going and going until you know that you are out of danger's way.
- 9. If you are a trained professional in emergency procedures, I encourage you to assist when able to do so.