

# BIOS Linear Algebra Bootcamp

August 5– 16, 2019

**Class Time:** M-F 1:30 – 3:30 PM McGavran Greenberg 2301

Class will be from 10:30 AM – 11:15 AM on Thursday August 15<sup>th</sup>.

**Instructor:** Sean McCabe ([mccabes@live.unc.edu](mailto:mccabes@live.unc.edu))

**Grader:** Hannan Yang ([hnyang@live.unc.edu](mailto:hnyang@live.unc.edu))

**Office Hours:** 3:30 PM – 4:30 PM McGavran Greenberg 2301

**Website:** <https://sph.unc.edu/bios/biostatistics-boot-camp/>

## Course Description:

This course will review linear algebra concepts and techniques which will be used extensively in BIOS 762 and the doctoral theory qualifying exam. This course is mandatory for students enrolling in BIOS 762 in Fall 2019.

## Texts:

There are no required textbooks for this course. All relevant material will be provided in the notes. If you would like additional review, the notes cover Appendices A and B of the following textbook, which is required for BIOS 762. You can obtain a PDF version online from the [UNC Chapel Hill Libraries](#).

- Christensen, R. (2011). Plane Answers to Complex Questions: The Theory of Linear Models, 4th Edition, Springer-Verlag

## Topics:

1. Vector Spaces
2. Subspaces
3. Matrices
4. Matrix Properties
5. Matrix Decompositions
6. Projections
7. Vector/Matrix Differentiation

## Homework:

There will be 4 homework assignments and a final exam for this course. The homework will be due at the beginning of class on the due date. The final exam will be on August 16 from 10:30 – 11:15 AM in Room McG 2301.

## Quizzes:

There will be daily quizzes at the beginning of each class. These are intended to ensure everyone is keeping up with the material. Quizzes will be short (1-2 questions) and typically true/false, multiple choice, or short answer. Attendance to previous lectures and a quick review of the material should be sufficient.

**Attendance:**

Attendance is required if you are enrolling in BIOS 762 in Fall 2019. This course is open to any BIOS students looking for a linear algebra review. Please contact Ben Langworthy ([blangwor@live.unc.edu](mailto:blangwor@live.unc.edu)) if you wish to join the course.