

STA 6329– SECTION 13B0 - CLASS # 21298
MATRIX ALGEBRA & STATISTICAL COMPUTING
FALL 2019
MWF 5 @ GRIFFIN/FLOYD 230

INSTRUCTOR: Dr. Larry Winner

OFFICE: 228 Griffin/Floyd

PHONE: 273-2995

E-MAIL: winner@stat.ufl.edu (not to be used for technical explanations)

OFFICE HOURS: TBA (will be posted on class website)

TA: Yuna Kim e-mail: ynkim732@ufl.edu Office Hours: TBA

CLASS WEBSITES: users.stat.ufl.edu/~winner/sta6329/ <https://people.clas.ufl.edu/winner/sta-6329/>

TEXTS:

Matrix Algebra From A Statistician's Perspective, by David A. Harville

A First Course in Statistical Programming with R, 2nd Ed., by W. John Braun and
Duncan J. Murdoch

Advanced R, by Hadley Wickham <http://adv-r.had.co.nz/> (Optional)

General Topics (Tentative)

- Matrix Algebra
 - Definition, Basic Operations, Basic Types
 - Submatrices and Partitioned Matrices
 - Linear Independence/Dependence, Subspaces, Rank
 - Trace of Square Matrices
 - Geometrical Results
 - Linear Systems

- **Inverses, Generalized Inverses, and Idempotent Matrices**
- **Projections and Projection Matrices**
- **Determinants**
- **Eigenvalues and Eigenvectors**
- **Linear and Quadratic Forms**
- **Matrix Differentiation**
- **Kronecker Products and Vec Operators**
- **Computing with R**
 - **Basic Operations**
 - **Functions**
 - **Graphics**
 - **Computational Linear Algebra**
 - **Simulation**
 - **Parallel Computing**
 - **Development of an R Package**

Grading and Tentative Exam Dates:

This course will consist of a series of approximately 10 homework projects and 2 exams. The projects will count 50% of final grade, and each exam 25%.

- **Exam 1: Friday, October 11 (Periods 4-5)**
- **Exam 2: Wednesday, December 4 (Periods 4-5)**

Projects and datasets will be posted on class website.

R can be downloaded for free from the website:

<http://cran.r-project.org/bin/windows/base/>

Notes:

- Practice Problems are available from old exams.
- Homework projects will be posted on class website and will be taken up and graded. Projects must be handed in (hard copy), e-mail will not be accepted.
- Exams are 2-hour.
- No early exams will be given.
- If due to medical or academic conference reasons, any make-up exams must be taken within 7 days of scheduled exam time.
- Grades are not negotiable.
- You may request problems to be worked out in upcoming class via e-mail. I will not give detailed solutions via e-mail.

Course Grade Cut-offs:

A	A-	B+	B	B-	C+	C	C-	D	E
92	87	83	75	65	55				

Attendance/Exam/Assignment Policies: While attendance is not taken, students are expected to attend lectures and participate in class. Make-up exams will only be considered with documented medical event or conference attendance (graduate students) and must be taken within 7 days of in-class exam. Early exams will be given under no circumstances. Assignments are to be handed in during class on the date the assignment is due in paper format. Electronic submission of assignments will not be accepted. Turn off cell phones during classes.

Academic Accommodations: If you have a documented disability and wish to discuss academic accommodations with me, please contact me as soon as possible.

University Grading Points:

A	A-	B+	B	B-	C+	C	C-	D	E
4	3.67	3.33	3	2.67	2.33	2	1.67	1	0

Online Course Evaluations: The University has an online course evaluation system. Late in each semester (after final withdrawal date), students can go to the GATORRATER portal and evaluate courses. The website is located at: <https://evaluations.ufl.edu/evals/Default.aspx>.

University Policies:

Academic Dishonesty: All members of the University Community share the responsibility to challenge and make known acts of apparent academic dishonesty. Acts of academic dishonesty will not be tolerated and will be referred to the Student Honor Council.

Incomplete: An incomplete grade may be assigned at the discretion of the instructor as an interim grade for a course in which the student has completed a major portion of the course with a passing grade, been unable to complete course requirements before the end of the term because of extenuating circumstances, and obtained agreement from the instructor and arranged for resolution of the incomplete grade in the next term. Instructors are not required to assign incomplete grades. For complete details please visit:

[CLAS incomplete grade policies and forms.](#)

Campus Resources:

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/>

Academic Resources: <http://www.ufl.edu/academics/resources/>

Disability Resource Center: <https://www.dso.ufl.edu/drc/>

Student Health Care Center: <http://shcc.ufl.edu/>