

Syracuse University
Department of Mathematics
MAT 755: Multivariate Analysis
Fall Term 2018-19

Instructor: William Volterman
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Lectures: TH 9:30 am – 10:50 am CARN 115
Office Hours: TH 11:00 am – 12:00 pm CARN 316A or by appointment
Text Book: Applied Multivariate Statistical Analysis (6th Edition)
Richard A. Johnson and Dean W. Wichern
ISBN-10: 0131877151
ISBN-13: 978-0131877153

Prerequisite:

MAT 525 & MAT 532 or graduate standing in mathematical sciences.

Goals:

The learning outcomes as stated in the catalogue are as follows

Multivariate normal distribution, conditional densities, partial correlation, multiple correlation, regression coefficients, maximum likelihood estimates, Hotelling's statistic, Wishart distribution, tests of hypotheses, and linear discriminant functions.

May include additional topics such as Factor Analysis, Canonical Correlation Analysis, Principal Component Analysis, etc.

Academic Integrity:

Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see [SU Academic Integrity Policy \[http://class.syr.edu/academic-integrity/\]](http://class.syr.edu/academic-integrity/)

Software:

Part of this course will require use of the R statistical software language. R is free and can be downloaded from <http://probability.ca/cran>. More information is also available at [R-project Webpage \[http://www.r-project.org\]](http://www.r-project.org).

You can find free manuals available at [R Manuals \[http://cran.r-project.org/manuals.html\]](http://cran.r-project.org/manuals.html), in particular you can get the R manual as a pdf file at [R Manual \[http://cran.r-project.org/doc/manuals/R-intro.pdf\]](http://cran.r-project.org/doc/manuals/R-intro.pdf).

You may also want to consider the R IDE RStudio available at [R-studio Webpage \[http://www.rstudio.com/products/rstudio/\]](http://www.rstudio.com/products/rstudio/).

Cell Phones:

All electronic devices other than the calculator should be turned off and put away during class. Calculators on cell phones are not to be used on tests or quizzes.

Attendance:

Attendance in classes is expected in all courses at Syracuse University. It is a federal requirement that students who do not attend or cease to attend a class to be reported at the time of determination by the faculty that the student never attended or stopped attending the class. Faculty should use Early-Semester Progress Reports and Mid-Semester Progress Reports in Orange SUccess to alert the Registrar and Financial Aid Office. For more information visit: [SU non-attendance policy \[http://registrar.syr.edu/faculty-staff/non-attendance/\]](http://registrar.syr.edu/faculty-staff/non-attendance/)

Important Message

The instructor(s) and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their email and course website during the term and to note any changes.

I.e., everything in this outline (or posted online) is subject to change.

Grading Scheme:

The grading scheme is tentatively as below. Dates will be announced later.

Alternative grading schemes may be considered. There are no make ups. If something is missed with legitimate reason and proof, the marking scheme will be adjusted accordingly. Each assignment is weighted equally, the lowest assignment score will be dropped.

- Assignments: 50 %
- Midterm Test: 15 %
- Final Exam 35 %

Grade Conversion Chart: Note that the following grade conversion chart is used for this course. This may be different from your other courses.

| Grade | Score | Grade | Score |
|-------|-------|-------|--------|
| F | 0-59 | B- | 80-82 |
| D | 60-69 | B | 83-86 |
| C- | 70-72 | B+ | 87-89 |
| C | 73-76 | A- | 90-92 |
| C+ | 77-79 | A | 93-100 |

Students with Disabilities:

If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), [Disability Services Webpage \[http://disabilityservices.syr.edu\]](http://disabilityservices.syr.edu), located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Religious observances policy:

SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services > Enrollment > My Religious Observances) from the first day of class until the end of the second week of class.

Key dates:

See the Academic Calendar for important dates during the term

- First day of classes: Monday August 27th
- Last Day of classes: Friday December 7th
- Withdrawal deadline: Friday November 16th
- Financial/Academic drop deadline: Monday September 17th

Excuses for class absences for medical reasons will be given only if such absences are advised by a health care provider at the Health Center, based on clinical findings and prescribed treatment recommendations. Excused notes will not be given solely to confirm a visit to the Health Center. For complete details on excuse notes, visit: [Heath Services FAQs \[http://health.syr.edu/faqs/index.html\]](http://health.syr.edu/faqs/index.html)

Getting Help:

Your instructor will be holding regular office hours and will make appointments with students having class conflicts with their scheduled office hours. In addition, the Mathematics Department offers regular math clinics. These will be set up by the second day of classes and will be posted outside the math office.