

STA 306: Applied Multivariate Analysis Course Syllabus

Section 1 MW 5.00 – 6.20 SCP 221

Textbook: Multivariate Statistical Methods by Bryan Manly (Chapman and Hall)

Instructor: Dr David Holmes

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Office Hours: 3.30 – 4.50 MW; 11.30-12.30 R.

Course Description:

The course will introduce students to a variety of multivariate statistical methods as aids to analyzing and interpreting large data sets. These methods will have general applications across a wide range of client disciplines. Statistical software packages are essential to the course and will be used throughout.

Syllabus: The following topics will be covered:

- Matrices, eigenvalues and eigenvectors
- Principal components analysis
- Factor analysis
- Discriminant analysis (two and three group analyses)
- Cluster analysis, using a variety of metrics and clustering algorithms
- Multi-dimensional scaling (classical and ordinal)
- Correspondence analysis
- Canonical correlation analysis

Most class sessions will mix instructional theory with practical applications and problem-solving. Statistical computer packages will be used extensively.

Calculators: Please bring these to every class and to all tests and examinations.

Evaluation: Three tests will be administered during the course, plus a final examination which will be comprehensive.
Each test will score **100** points.
The final examination will score **200** points.
Final grades will be computed on the basis of the total score obtained from the maximum available **500** points.

Homework: This will be set regularly and will be marked on a 1-5 scale.
The marks obtained will be recorded and will be taken into account in cases of borderline decisions between final grades. Late homework will not be accepted.

Policy:

(a) Absences

A student who is absent for a test will not be permitted to make up the test unless some arrangement has been made with me in advance. Approval for missing a test will be rare and based on truly exceptional circumstances. In the case of illness, a doctor's note will be required.

(b) Participation

Class participation is expected by way of thoughtful comments, questions, and a demonstration that you are prepared to respond in class when asked to do so.

Lecture sessions will sometimes not permit a great deal of class participation but problem-solving sessions will most certainly do so, as will sessions involving the use of statistical software and the interpretation of printout from these sessions.

Academic Honesty: Please make sure you are familiar with TCNJ's academic honesty policy. Any suspected violation of this policy will be confronted in strict accordance with the policy.

If you have any queries or concerns about the above, or think you will have difficulty attending class on a regular basis for some reason because of a commitment or appointment made prior to enrolling in the class, please bring this to my attention during the first two weeks of the semester.

