Instructor: Dr. Subrata Kundu, 2140 Penn Ave, room 202. kundu@gwu.edu Phone: (202) 994-6355

Office Hours: M R: 5:00 - 6:00 p.m. and by appointment.

Course Structure: The class consists of one three hour lecture per week. Your grade is based on homework, one midterm and the final.


Course Content: The purpose of this course is to provide a broad overview of the statistical procedures for analyzing categorical data. We will begin with Logistic REgression followed by analysis of contingency tables. We will talk about traditional methods for two-dimensional tables and then generalize to multidimensional tables. Theoretical bases underlying the analysis of categorical data will be covered. Different topics will include measures and tests of association; Cochran-Mantel-Haenszel procedure; weighted least squares (GSK procedure) and maximum likelihood estimators in generalized linear models; estimating equations; logistic regression; log-linear models. Computer applications (using SAS or R) will be considered. Some external readings will be assigned. Any changes will be announced in the class. Prerequisite: Stat 6201, 6202.

Learning Outcome: As a result of taking this course students should be able to
i) Recognize data as being categorical data and summarize data as categorical data where appropriate.
ii) Apply the methods available for the analysis of such data and distinguish between methods which are appropriate and those which are not.
iii) Demonstrate skills in using standard analytic methods for single and two-way classification data, including the application of Poisson and multinomial models for data, odds ratios, and Pearson's chi-squared and likelihood ratio statistics
iv) Compare and contrast the strengths and weaknesses of each approach
iv) Appreciate the need for, the structure, and the usefulness of, generalized linear models
vi) Analyze categorical data using generalized linear models, including log-linear models (for example trend models) and logistic regression models, and interpret the results of fit.
vii) Select and fit good models in three-way situations using a formal hierarchical approach

Code of Academic Integrity: All examinations, papers, and other graded work products and assignments are to be completed in conformance with The George Washington University Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: http://www.gwu.edu/~ntegrity/code.html
**Homework and Projects:** Homework will be assigned in the lecture every other week. Your homework will be collected two weeks later.

**Midterm:** One closed-book midterm examinations will be given around October 17th. If the midterm is missed, you will receive zero credit for that part of the grade. No make-up midterm will be given. In exceptional circumstances (e.g. well-documented medical problems), a missed midterm will not be counted when computing your course grade.

**Final Exam:** The Final examination (Tentative: Dec 10th.) is cumulative. In the event that you are going to miss an examination, you must notify me prior to the examination. There will be no make-up final.

**Course Grading:** Your final letter grade will be based on a total score computed as follows:

- Homework  30%
- Midterms  35%
- Final  35%

A grade of INCOMPLETE will ONLY be given to a student who is passing the course and cannot complete the course due to illness or other (documented) circumstances beyond their control.

**Class Policy:** Late work will not be accepted. Except for medical cases (with proper documentation) there will be no make-ups. If you miss an exam or miss a deadline you get zero credit for that part. For university policies on teaching see [http://www.gwu.edu/~academic/Teaching/main.htm](http://www.gwu.edu/~academic/Teaching/main.htm)

**Student Services:** If you experience difficulty in this course for any reason, please consult with me. If you have a disability and require accommodations, please notify me with a letter from DSS so that we can make arrangements.

DISABILITY SUPPORT SERVICES (DSS): Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: [http://gwired.gwu.edu/dss/](http://gwired.gwu.edu/dss/)

UNIVERSITY COUNSELING CENTER (UCC): The University Counseling Center (UCC, 202-994-5300, [http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices](http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices)) offers 24/7 assistance and referral to address students’ personal, social, career, and study skills problems. Services for students include: i) crisis and emergency mental health consultations, ii) confidential assessment, counseling services (individual and small group), and referrals.

**SECURITY:** In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

**Other:** Please turn your cell phone ringer off. No eating in the classroom.