

INSTRUCTOR	Dola Pathak dpathak@msu.edu Office Hours 3-4 PM MW (other times by appointment)
COURSE MEETINGS	MW 12:40-2 PM via Zoom https://msu.zoom.us/j/98417839190 Password STT864CLAS Two meetings per week, on MW are synchronous during the scheduled class time in Michigan (US Eastern Time Zone).
VIRTUAL OFFICE	Via zoom https://msu.zoom.us/j/93007006215 Password SS21DOLAOH
COURSE DESCRIPTION	Generalized linear models(GLMs). Deviance and residual analysis in GLMs. Analysis of two-way and three-way contingency tables. Logistic regression. Log-linear models. Multicategorical response models. Poisson regression. Introduction to generalized estimating equations. Introduction to longitudinal data.
COURSE OBJECTIVES	This course will introduce a wide range of generalized linear models (GLM), linear mixed models (LMM), and generalized linear mixed models (GLMM). The course aims to provide students with a rich toolbox of statistical methodologies to handle different types of data sets. Students are expected to achieve the following objectives: A good understanding of the basic statistical computation, estimation and inference techniques used in GLM, LMM, and GLMM. A solid grasp of practical model building and diagnostics methods. Be familiar with the functions in R for fitting various models, and understand the outputs. Be able to write R codes to produce results that are not directly available from R functions. Be able to perform a comprehensive statistical analysis of real data sets.
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PREREQUISITES	Knowledge of linear regression models, mathematical statistics, linear algebra at Statistical Methods I (STT 863) level and a basic knowledge of R.
MAIN REFERENCES	Faraway, J. (2016). Extending the Linear Model with R: Generalized Linear, Mixed Effects and Non parametric Regression Models, 2nd edition , Chapman and Hall/CRC. Hardin, J. and Hilbe, J. (2018). Generalized Linear Models and Extensions, 2nd edition , Stata Press. McCulloch, Searle and Neuhaus (2008). Generalized, Linear, and Mixed Models, 2nd edition , Wiley- Interscience.
REQUIRED TECHNOLOGIES	D2L, R, RStudio, and Teams. Please have R/RStudio and Teams installed before the class starts. Instructions to install R/Rstudio is course content "Getting Started" folder. Please check availability in your current location. You will need a laptop to install R/Rstudio.
TECHNOLOGY HELP	Help with D2L: https://help.d2l.msu.edu .

INTERNET AND CONNECTIVITY	The course requires access to high speed internet. Since the class is synchronous, and class work will be done synchronously, it is very important to have reliable internet and webcam access. If ever, students have accessibility issues during synchronous class or exam sessions, they should immediately inform the instructor and provide proof of the issue.												
GRADING	Exams 30% Homework, 40% Project, 30%												
GRADE CUTOFFS	Let X be a student's final grade computed as a percentage. A student's final grade on the 4.0 scale will be determined as follows: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">4.0</td> <td style="padding-right: 20px;">$90\% \leq X \leq 100\%$</td> <td style="padding-right: 20px;">2.5</td> <td>$60\% \leq X < 69.9\%$</td> </tr> <tr> <td>3.5</td> <td>$80\% \leq X < 89.9\%$</td> <td>2</td> <td>$50\% \leq X < 59.9\%$</td> </tr> <tr> <td>3.0</td> <td>$70\% \leq X < 79.9\%$</td> <td>0.0</td> <td>$0\% \leq X < 50\%$</td> </tr> </table>	4.0	$90\% \leq X \leq 100\%$	2.5	$60\% \leq X < 69.9\%$	3.5	$80\% \leq X < 89.9\%$	2	$50\% \leq X < 59.9\%$	3.0	$70\% \leq X < 79.9\%$	0.0	$0\% \leq X < 50\%$
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RCPD	To arrange for accommodation a student should contact the Resource Center for People with Disabilities at http://www.rcpd.msu.edu/ or 517-353-9642.												
IMPORTANT DATES	01/11/2021 Class begins 01/25/2021 Last day to change to/from CR/NC/Visitor (5:00pm) 01/25/2021 Open adds end (8:00pm) 03/10/2021 Last day to drop with no grade reported (8:00pm) 04/21/2021 Class ends 04/26/2021 Final Exam (12:45pm - 2:45pm)												
LATE WORK POLICY	Late work will not be accepted. However, under exceptional conditions please inform the instructional team before the due date and time so that accommodation can be made accordingly (please provide documented proof for late work). There might be a penalty for late submission.												
ATTENDANCE POLICY	Attendance is mandatory for synchronous online classes like STT864. If a student is unable to attend any sessions, owing to health or other reasons, it is important for you to communicate with the instructor at the earliest to avoid points being deducted for non-participation.												
STUDENT CONTINUITY	In a situation if you are unable to engage in course content for a prolonged period it is critically important for you to communicate with your instructor promptly. We anticipate that some students may encounter interruptions to their studies for any number of reasons (e.g., illness, need to provide medical or childcare, sustained loss of internet, etc.) and have plans in place accordingly. In extreme cases where a student cannot reliably progress through course content for more than one week, they should inform the instructor immediately, and if the student can provide documentation of the obstacle they face, we intend to work hard to accommodate their situation with empathy.												
INSTRUCTOR CONTINUITY	In a situation if the instructor is unable to engage in/deliver the course content for a prolonged period alternate arrangements will be made to maintain the continuity of the course.												