University of New Hampshire

COURSE SYLLABUS – Fall 2021

MATH 739/839 – Applied Regression Analysis - 4 Credits

Lecture: MWF: 8:10 am – 9:30 pm, Kingsbury S320 or using Zoom

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INSTRUCTOR: Michelle Capozzoli, Ph.D.

Kingsbury N315D

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Office Hours: Depending on circumstances, office hours can be face to face or virtual using Zoom. Please sign up in myCourses for a time slot that works for you: Monday and Wednesday 1:00 to 2:00 pm and Friday 12:00 to 1:00 pm. If the posted hours conflict with your schedule, please email me to set up an alternative time.

Course Description - Statistical methods for the analysis of relationships between response and input variables: simple linear regression, multiple regression analysis, residual analysis and model selection, multi-collinearity, nonlinear curve fitting, categorical predictors, analysis of variance, analysis of covariance, examination of validity of underlying assumptions, logistic regression analysis. Emphasizes real applications with use of statistical software. Writing intensive.

Prerequisites: MATH 539 or 644

Course Delivery

This class is beginning the semester operating in face-to-face operations with a mask requirement in place. If your health and safety require shifting to additional precautions such as social distancing, the modality and schedule of this course may change. Therefore, students must learn how to access this course in all possible formats.

- Ensure that you have all necessary technology to participate in this course remotely.
- Consult with the instructor and/or with UNH IT for Students with questions.

The expectation is students will attend lectures for the fully alloted time whether face to face or virtually. Because of the need to accommodate potential isolation and quarantine due to the COVID pandemic, all lectures will be recorded and posted in

Media Gallery in myCourses. The recordings may be available for educational use by students enrolled in the class (including both for instruction and as a review tool), the course instructor(s), and other university officials who support course instruction. Your voice or image may be captured on the recordings, and by enrolling in this course you are consenting to such recording for these purposes. The university and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UNH Zoom accounts. You may not share recordings outside of this course. Doing so may results in disciplinary action.

Classroom notes will be available using a link to OneNote found in the Module section of myCourses.

Recommended Texts: There is no required text for this course. Instead, there are several recommended texts. Each text highlights different software, but predominantly R and SAS. There are also free older versions available. Feel free to select the text that best supports your learning.

- Montgomery, D. et al, (2012). *Introduction to Linear Regression Analysis,* 5th Edition. Wiley ISBN: 978-0-470-54281-1
- Weisberg, S. (2014). *Applied Linear Regression,* fourth edition, Hoboken NJ: John Wiley. ISBN 978-1-118-38608-8
- *Linear Models using R*, Faraway, Julian, 2nd Edition(2014) CRC Press. A modified, open resource version, *Practical Regression and ANOVA using R*, is available at OpenIntro.org.

Other Class Materials

- **myCourses** – will function as the course website. myCourses will contain the syllabus, course schedule, announcements, homework assignments, course grades, etc. As a student, you are responsible for the proper submission of your work, checking myCourses daily and confirming your grades when they are posted. If you believe that a grade has been entered incorrectly, please contact me immediately. No grade will be changed after the key is posted.
- **Zoom** – This course maybe taken in person or remotely using Zoom. Zoom is a live web conferencing and virtual classroom software that will allow us to communicate using a real-time learning space. All class sessions are recorded, and the recordings are available to students throughout the semester. To obtain Zoom, go to: http://zoom.unh.edu/ .

Students are free to use the statistical software that they are most comfortable with. During class, I will be demonstrating both JMP and R. However, SAS and Python can also be used.

- **JMP Pro 15** - The software is available on any of the university computer clusters and for download at no extra charge from

https://clusters.unh.edu/services/software/jmp_win.html . If off campus, you will need a VPN client. To establish a VPN client, go to https://networking.unh.edu/vpn .

- **R** – is an open source programming language and environment for statistical computing, graphics and reporting. Relevant R commands will be taught in class. For information on obtaining R and supporting material, please see Course Resources in myCourses.