ANLY 545-<*insert section>*-<*insert A or B track>* Analytical Methods II (Categorical Data)

<*insert semester(fall, late fall, etc…)* Semester <*insert year>*

**Course Information**

**Instructor:** <*insert instructor name>*

**Office:** <*insert instructor office number>*

**Office Hours:** <*insert your office hours; give students plenty of ways to contact you>*

**Office Phone:** <*insert office phone>*

**E-mail:** <*insert instructor e-mail>*

**Online Sessions:** <*insert weekly online class day and time, make sure you note the time zone is Eastern>*

**Executive Sessions:** <*insert the three Executive Sessions, day, time and room, denote times are Eastern time zone #>*

**Semester Duration:** <*insert the beginning and ending dates of the semester>*

**Prerequisites**

ANLY 502

**Course Materials**

*Software:*

We will use RStudio extensively.

*Canvas* is going to be our platform for many course activities. Adobe Connect will be the online classroom platform used to meet in each *<insert day here>*. There will be a link to Adobe Connect on *Canvas*.

*Required Textbook:*

The textbook information is below. This text is required.

*Discrete Data Analysis with R Visualization and Modeling Techniques for Categorical and Count Data*. 2015. Michael Friendly and David Meyer. CRC Press Taylor & Francis Group.

ISBN 978149872583

You can order the text from the publisher’s website: <https://www.crcpress.com/Discrete-Data-Analysis-with-R-Visualization-and-Modeling-Techniques-for/Friendly-Meyer/p/book/9781498725835>

**Course Description**

This course provides students with exposure to discrete distributions such as Poisson, binomial, negative binomial, geometric, and logarithmic series distributions. These distributions lay the foundation of the generalized linear model. Analysis of categorical data in the form of contingency tables are studied. Measures computed from these contingency tables such as odds, odds ratio, Chi-square, and Cochran Mantel Haenszel statistics are studied. Techniques for visually displaying data in contingency tables will be examined. Particular attention is paid to analytics relevant to disciplines in the social sciences.

**How to Succeed in this Course**

* Read the entire chapter **before class**.
* **Come to class**.
* Do the book’s Lab Exercises with me **during class**.
* Re-read the entire chapter **after class**.

**Course Learning Outcomes**

* Evaluate categorical data through exploration, statistical testing, and model building.
* Design different types of models for categorical data.
* Interpret and communicate the results of a categorical data test and/or model.

**Curiculam Learning Outcomes**

* Identify and assess the objectives, scope, and methodological limitations for domain-specific problems.
* Design and execute insightful analyses.
* Work effectively in a team to develop analytic solutions.
* Communicate effectively to a variety of audiences.

**Course Calendar**

* I reserve the right to adjust the exact days to meet the needs of the class

*<There are seven modules in the course spread across 14 presentations. Please align them for your semester. Weekends will need to be shuffled to where they go.>*

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Dates** | **Due** | **Topics** |
| Weekend |  |  | Some Presentation + Capstone Project Example |
| Weekend |  |  | Student Presentations: Concept Presentation |
| Weekend |  |  | Student Presentations: Final Presentation |
|  |  |  | Introduction |
|  |  |  | Working with Categorical Data (1 of 2) |
|  |  |  | Working with Categorical Data (2 of 2) |
|  |  |  | Fitting Discrete Distributions (1 of 2) |
|  |  |  | Fitting Discrete Distributions (2 of 2) |
|  |  |  | Contingency Tables (1 of 2) |
|  |  |  | Contingency Tables (2 of 2) |
|  |  |  | Mosaic Displays (1 of 2) |
|  |  |  | Mosaic Displays (2 of 2) |
|  |  |  | Logistic Regression (1 of 2) |
|  |  |  | Logistic Regression (2 of 2) |
|  |  |  | More Regression (1 of 2) |
|  |  |  | More Regression (2 of 2) \* |
|  |  |  | The Art of Data Science (1 of 2) \* |
|  |  |  | The Art of Data Science (2 of 2) \* |

\* The full class will be focused on an example

**Grading**

This class utilizes a weighted average to calculate your final grade. Below are the graded assignments that will make up your final grade.

|  |  |
| --- | --- |
| **Homework / Discussion** | **Percentage of Final Grade** |
| Module 1 – Homework + Discussion | 01% |
| Module 2 – Homework + Discussion | 15% |
| Module 3 – Homework + Discussion | 15% |
| Module 4 – Homework + Discussion | 15% |
| Module 5 – Homework + Discussion | 15% |
| Module 6 – Homework + Discussion | 15% |
| Capstone Project – Presentation + Report | 24% |

Your final grade will be calculated using the grading scale below.

|  |  |
| --- | --- |
| **Percentage** | **Final Grade** |
| 90 – 100% | A |
| 80-89.9% | B |
| 70-79.9% | C |
| <69.9% | F |

**Class Format**

The class is broken down into the below parts.

* Review of common issues from the homework that was due the **day before**.
* Lecture describing the **concept behind** the categorical technique.
* Set expectations for the homework due **next week**.

Homework

* Students will have a short homework assigned **every week**.
* The homework is due the **night before** the next class at **11:59 PM EST**.
* The homework must be submitted using the **Canvas** submission feature.
* The homework must be completed **individually**.
* Any work submitted through a different system will **NOT** be accepted.
* Each homework is worth **100 points**.
* There may be **more than one** homework per module that contributes to the overall grade noted above.
* Assignments submitted **after** the due date in **Canvas** will receive a zero.

Discussion

* Students will have a discussion topic assigned **every week**.
* The comment is due the **night before** the next class at **11:59 PM EST.**
* The discussion will take place using the **Canvas** discussion feature.
* Any work submitted through a different system will **NOT** be accepted.
* Each discussion topic is worth **2 points**.
* There may be **more than one** discussion topic per module that contributes to the overall grade noted above.
* Assignments submitted **after** the due date in **Canvas** will receive a zero.

Capstone Project

* Students will have a capstone project assigned **once a semester**.
* The capstone project contains **two parts**: concept presentation and final presentation.
* The concept presentation is due and will be presented during the **second executive session**.
* The final presentation will be presented during the **third executive session**.
* Each presentation **must be presented** to be considered for formal grading.
* The presentation must be submitted through the **Canvas** submission feature for formal grading.
* The capstone project may be completed **individually or as a group** of up to three. Groups must organize themselves and, once formed, may not change during the semester. Choose wisely.
* Each presentation is worth **100 points**.
* The **group leader** must submit both presentations for the entire group.
* Assignments submitted **after** the due date in **Canvas** will receive a zero.

Extensions / Late Work / Missing Work / Consideration

* Assignments (homework / discussion / capstone project) are **due on-time** as noted in **Canvas**.
* Assignments submitted **after** the due date in **Canvas** will receive a zero.
* Students that miss assignments due to a **documented medical condition** or documented emergency should reach out to [gradstudentservices@harrisburgu.edu](mailto:gradstudentservices@harrisburgu.edu) with the documentation as soon as possible.
* Students missing work for **any other reason** may also reach out to [gradstudentservices@harrisburgu.edu](mailto:gradstudentservices@harrisburgu.edu) to explain your situation to student services.
* It is the student’s responsibility to **advocate for themselves**. If they need help they must be the one to reach out to [gradstudentservices@harrisburgu.edu](mailto:gradstudentservices@harrisburgu.edu).

**Extra Credit**

* Students who find material errors in the slides/examples/homeworks will receive +5 points to the module where they found the error. These bonus points may raise the total above 100% for the module.

**Executive Session Attendance Policy**

* Attendance during each of the three executive sessions is mandatory. You need to fill out the attendance sheet in person.
* If you need an excused absence, you can explain your situation to student services. They can then provide me with a recommendation as to whether the absence may be excused.

**Statement on Academic Integrity**

According to the University’s Student Handbook: Academic integrity is the pursuit of scholarly activity free from fraud and deception and is the educational objective of this institution. Academic dishonesty includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be thoroughly investigated, and where warranted, punitive action will be taken. Students should be aware that standards for documentation and intellectual contribution may depend on the course content and method of teaching and should consult the instructor for guidance in this area.

***Honor Code -*** We as members of Harrisburg University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work. As a Community of Learners, we honor and uphold the ***HU Honor Code***.

* If you are caught cheating, you will receive a grade of 0 for the assignment.
* If you believe this to be in error, you can explain your situation to student services. They can then provide me with a recommendation as to whether the grade may be reverted.