Advanced Analytics for Administrative Decision Making
Course #: PADM 590
Credits: 3
Syllabus Version: v012920

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Office Hours: Tuesdays 4-6 PM and by appointment
Term: Spring 2020
Class: Thursdays, 7-9:30 PM

Course Description

*"I visualize a time when we will be to robots what dogs are to humans, and
I'm rooting for the machines"*

-Claude Shannon

This course will serve as an overview of machine learning in healthcare and administrative analytics, briefly describing the current healthcare landscape, machine learning algorithms, and Python and SQL programming languages. The course will allow student to use predictive analytics with administrative healthcare data to improve business processes and healthcare outcomes.

The success of this course relies heavily upon how engaged participants are in the various components of the course. The role of the instructor is to facilitate and guide learning through class discussions, activities, and feedback. The course favors an active role for participants over the more passive role taken in a lecture-oriented format. Be prepared to engage the course material and each other to draw on assigned readings and your experiences working and interacting with healthcare organizations. We will work from the premise that all participants bring important knowledge, skills, experiences and insights to the course that we can draw upon to create a successful collaborative learning experience.

Course Objectives and Competencies

- Discover the connection between machine learning and healthcare processes
- Use SQL and Python to analyze data
- Measure healthcare quality and provider performance
- Identify features and attributes to build successful healthcare models
- Build predictive models using real-world healthcare data
- Develop capacity in predictive modeling with structured clinical data

Course Expectations

Participation & Attendance
The majority of knowledge-transfer will occur between 7-9:30 PM on Thursdays. To accomplish this, students obviously must be both physically and mentally present. There is no 'participation grade' per se, however it will be nearly impossible to receive a satisfactory grade should one miss more than one class. Should you need to miss a class, please email the instructor prior to your absence. It will then be up to you to acquire notes from a classmate or meet with the instructor for content clarification. This course's assignments and exams will be the easiest for those who participate in class discussion (that is, ask questions and make meaningful contributions to class dialogue), take concise notes, and complete the readings.

Take-home Assignments
The take-home assignments serve as an opportunity to demonstrate your knowledge and application of the content covered in class. Combined, the three take-home assignments will account for 75 percent of your total grade. Assignments are due at 7 PM on the date noted on the course schedule below. All assignments should be turned in via UNM Learn.

Machine Learning Interface Presentations
The presentation assignments serve as an opportunity to learn and share with your classmates about a novel machine learning application to administrative analytics. During the first week of class, each student will be responsible for identifying an academic article detailing a machine learning application in administration or policy. Presentations cannot exceed 10 minutes. A timer will note the end of your presentation and you will only be graded on the material that is presented. Copies of the presentation must be emailed to the entire class prior to the presentation. Your presentation will account for 25 percent of your total grade.

Final Grade Composition

Take-home assignments:	75 points
State-of-the-art presentation:	25 points
	100 Total Points

Grading Scale
A+: 99 – 100%
A: 93 – 98%

A-: 90 – 92%
B+: 87 – 89%
B: 83 – 86%
B-: 80 – 82%
C+: 75 – 79%
C: 70 – 74%
C-: 65 – 69%
Fail: Below 65%

Attendance Policy

Regular attendance is required. UNM Pathfinder policies apply, which in part means instructor drops based on non-attendance are possible.

Accommodation Statement

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as he/she are not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information."

Academic Integrity

Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Title IX

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees" by the Department of Education (see pg 15 - http://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf).   This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (oeo.unm.edu). For more information on the campus policy regarding sexual misconduct, see: https://policy.unm.edu/university-policies/2000/2740.html

Library and Tutorial Services

UNM-Main campus provides many library services and some tutorial services for distance students. For library services, go to http://www.unm.edu/libraries/ to link to a specific library or to contact a librarian. For tutorial services, go to http://caps.unm.edu/online to explore UNM's online services.