

BANA 7046 Data Mining I

Section 001

1. Course and Instructor Information:

Title: Data Mining I

Course #: BANA 7046-001

Credit Hours: 2

Term: Spring 2020-2021

Instructor Name: Xiaorui Zhu

Office: Lindner Hall 3372

Email: zhuxr@mail.uc.edu

WebEx: <https://ucincinnati.webex.com/meet/zhuxr>

Discussion in Slack: <https://app.slack.com/client/T01J09CS15E/C01HAE1N4SE>

Meeting Time and Course Delivery Model: Online remote learning.

Office hour: see [weekly announcement](#) and [by appointment](#).

Prerequisites: BANA7052 or BANA7038 or equivalent (linear regression at graduate level); Basic Statistical Computing skills.

Class Communication: We will mainly use email to communicate. I receive a large quantity of email messages, many of which appear, based on the subject line, to be junk mail or spam. I delete these messages without reading them. To make sure that your message is not accidentally deleted as junk, please include 'BANA7046-002' in the email subject line. Also, be sure to identify yourself (full name) in the message. Otherwise, you may not receive a response.

2. Course Materials

All Course materials (including the link to lecture notes) can be found in Canvas.

Textbook (free):

Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani (2014). *An Introduction to Statistical Learning with Applications in R*. Springer New York, ISBN-13: 978-1-4614-7138-7.

(A free eBook is downloadable at

<http://www-bcf.usc.edu/~gareth/ISL/ISLR%20Fourth%20Printing.pdf>)

R Lab Notes:

Downloadable from github (Thanks to many of my current/former PhD students, especially Xiaorui Zhu and Brittany Green) <https://xiaoruizhu.github.io/Data-Mining-R/>

I will also post supplementary lecture notes and case studies.

3. Grading Policies:

Final Individual Case Study	35%
Three Group Homework	30%
Six Individual R Lab Exercises	30%
Instructor's discretion on	5+%
Participation, Presentation, Intragroup Evaluation	

4. Course Objectives

To provide students with a hands-on data analytics experience using various data mining methods and major software to analyze complex real-world data in business and industry.

5. Tentative Course Schedule

Week 1: Overview/Data Mining; KNN; R Lab, Random Sampling, function and loops.

Week 2: Exploratory Data Analysis; Iris Case; Review of Linear Regression.

Week 3: Subset Variable Selection; LASSO Variable Selection.

Week 4: Classification; Logistic regression.

Week 5: ROC; Asymmetric cost; Credit score case study.

Week 6: Cross Validation (cv.glm).

Week 7: Classification and Regression Trees.

Week 8: Summary; Final Individual Case.

6. Withdrawal Policy:

You may withdraw from the class until the official deadline.

7. Attendance:

Since this is an online course, we meet online at my webex per weekly announcement schedule.

8. Syllabus Revision Policy:

The instructor reserves the right to revise the syllabus.

9. Course policies

Academic Integrity:

As with all Lindner College of Business efforts, in this course you will be held to the highest ethical standards, critical to building character. Ensuring your integrity is vital and ultimately is your responsibility. To help ensure the alignments of incentives, the Lindner College of Business has implemented a “Two Strikes Policy” regarding Academic Integrity that supplements the [UC Student Code of Conduct](#).

- All academic programs at the Lindner College of Business use this “Two Strikes Policy”; Any student who has been found responsible for two cases of academic misconduct may be dismissed from the College.
- All cases of academic misconduct (e.g., copying other students’ assignments, failure to adequately cite or reference, cheating, plagiarism, falsification, etc.) will be formally reported by faculty; and
- Students will be afforded due process for allegations as outlined in the policy.

Special Needs Policy:

The University of Cincinnati is committed to providing all students with equal access to learning opportunities. [Accessibility Resources](#) is the official campus office that works to arrange for reasonable accommodations for students with identified physical, psychological, or cognitive disability (learning, ADD/ADHD, psychological, visual, hearing, physical, cognitive, medical condition, etc.). If you have a disability which may influence your performance in this course, you must meet with the [Accessibility Resources Office](#) to arrange for reasonable accommodations to ensure an equitable opportunity to meet all the requirements of this course. If you require accommodations due to disability, please contact Accessibility Resources at (513) 556-6823, Campus Location: 210 University Pavilion,

Counseling Services, Clifton Campus:

Students have access to counseling and mental health care through the [University Health Services](#) (UHS), which can provide both psychotherapy and psychiatric services. In addition, students can receive three free professional counseling sessions upon request through the [Counseling and Psychological Services](#) (CAPS). These sessions are not associated with student’s insurance coverage. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue or concern. After hours, students may call UHS at (513) 556-2564 or CAPS Cares at (513) 556-0648. For urgent physician consultation after-hours students may call (513) 584-7777.

Title IX:

Title IX is a federal civil rights law that prohibits discrimination on the basis of a person’s actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also

addresses instances of sexual violence, dating or domestic violence, and stalking. If a student discloses a Title IX issue to me, I am required to forward that information to the Title IX Office. The Title IX Office will follow up with the student about how the University can take steps to address the impact on the student and the community. They will also inform the student of their rights and direct them to available resources. The priority is to make sure students are safe and successful here at the University of Cincinnati. Students are not required to talk to anyone in the Title IX Office. Students may also directly report any instances of sex or gender-based discrimination, harassment or violence to the Title IX office at (513) 556-3349. Students who wish to know more about their rights and resources on campus can consult the [Title IX website](#) or contact the Title IX office directly at (513) 556-3349.

[Reports may be filed](#) through the Title IX Office website.