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BMIS 326.00: Introduction to Data Analytics

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BMIS 326

Introduction to Data Analytics

Fall 2022



Instructor Information

Professor: Dr. Jason Triche
E-mail: jason.triche@umontana.edu (best way to reach me)
Office: GBB 314
Office Hours: T, Th 3:30 – 5:00 pm or by appt.

Course Information

Meeting Place: GBB L26
Meeting Time: Sec 1 T, Th 11:00 – 12:20 pm
Sec 2 T, Th 9:30 – 10:50 am

This course is a 3-credit hour, full-semester offering covering introduction topics in data analytics. This course introduces the terminology and application of big data and data analytics. Students will complete cases in a variety of disciplines as they become acquainted with some of the software, tools, and techniques of data analytics.

Prereq: STAT 216 or equivalent

Textbook

Mayer-Schonberger, V. & K. Cukier. *Big Data: A Revolution That Will Transform How We Live, Work, and Think*. New York, NY: Houghton Mifflin Harcourt Publishing. 2014. (required)

The UM Bookstore has the book. You can get this book on Amazon for about \$10. Here is the link: <http://a.co/1K19Xqj>

Grading Evaluation

| Criterion | Weight |
|---------------------|--------|
| Exam 1 | 20% |
| Exam 2 | 20% |
| Exam 3 | 20% |
| Homework | 15% |
| Data Analysis Paper | 20% |
| Quizzes | 5% |

Letter grades will be based on the following scale:

A 93% and above
A- 90% to 92%

| | |
|----|------------|
| B+ | 87% to 89% |
| B | 83% to 86% |
| B- | 80% to 82% |
| C+ | 77% to 79% |
| C | 73% to 76% |
| C- | 70% to 72% |
| D+ | 67% to 69% |
| D | 63% to 66% |
| D- | 60% to 62% |
| F | Below 60% |

Expected Learning Objectives and Assessment

Students will:

- Understand the terminology used in the Big Data field of study.
- Explore the applications of Big Data in a variety of disciplines.
- Use, at an introductory level, data analytics tools.
- Explain the story told by the output of the data analyses.
- Discuss the issues of privacy and ethics raised by the use of Big Data tools.

Assignments

Homework

Homework will assigned throughout the semester. Some homework will be individual and some homework can be completed in groups. I will specify individual or possible group on each assignment. If done in groups, make sure everyone in the group understands each question and/or task. This will help tremendously on exams. All homework is due as specified in Moodle. *****No late assignments will be accepted and they will be assigned a score of zero (0).*****

Exams

The exams will be a combination of multiple choice, short answer, and essay questions covering the content discussed in class, homework, readings from Moodle, and in-class exercises. No makeup exams will be allowed if the absence is not pre-approved. Missing an exam without pre-approval results in a zero.

Project

There will be a project assigned which will utilize the material and technologies covered in class. The project will be completed in cross-disciplinary teams assigned by the instructor.

Quizzes

Quizzes will be announced and un-announced. There will be no make-up for quizzes unless the absence is an university excused absence. I will drop the two lowest quiz scores.

Policies

Academic Honesty

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. The University of Montana Student Conduct Code specifies definitions and adjudication processes for academic

misconduct and states, "Students at the University of Montana are expected to practice academic honesty at all times. All students need to be familiar with the Student Conduct Code.

<https://www.umt.edu/student-affairs/community-standards/student-code-of-conduct-2021-pdf>

Disability Services for Students

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services. I will work with you and Disability Services to provide an appropriate modification.

Mission Statements and Assurance of Learning

The College of Business at the University of Montana creates transformative, integrated, and student-centric learning experiences, propelling our students to make immediate and sustained impact on business and society. We nurture our students' innate work ethic to develop confident problem solvers and ethical decision makers. We pursue thought leadership and collectively create opportunities for a better life for our students, faculty, and staff.

COB Core Values:

- Students first: We educate the whole person
- Experiential learning: We create experiences that matter
- Thought leadership: We create rigorous and relevant knowledge
- Stewardship: We value people, planet and profit

Learning Goals: As part of our assessment process and assurance-of-learning standards, the COB has adopted the following learning goals for our undergraduate students:

Learning Goal 1: COB graduates will possess fundamental business knowledge in the core disciplines of Accounting, Finance, Management Information Systems, Management and Marketing.

Learning Goal 2: COB graduates will be able to integrate business knowledge.

Learning Goal 3: COB graduates will be effective communicators.

Learning Goal 4: COB graduates will possess problem-solving skills.

Schedule

| Date | Topic |
|-------|---|
| 8/30 | Introduction/Syllabus |
| 9/1 | Introduction to Big Data, Data Analytics, and Business Intelligence |
| 9/6 | Exploring Data – Descriptive Statistics |
| 9/8 | Exploring Data – Dealing with Missing and Incorrect Data and Outliers |
| 9/13 | Relational Databases - ERD |
| 9/15 | Relational Databases – Relational Schemas |
| 9/20 | Database – SQL |
| 9/22 | Database - SQL |
| 9/27 | Database - SQL |
| 9/29 | ***Exam 1*** |
| 10/4 | Introduction to R |
| 10/6 | Imputing missing values, hypotheses testing |
| 10/11 | Hypotheses Testing, T-test and correlation test |
| 10/13 | Simple Regression |
| 10/18 | Multiple Regression |
| 10/20 | ANOVA |
| 10/25 | ***Exam 2*** |
| 10/27 | Classification Trees |
| 11/1 | Classification Trees |
| 11/3 | Clustering |
| 11/8 | Election Day – No Class |
| 11/10 | Association Analysis |
| 11/15 | Data Ethics/Data Visualization |
| 11/17 | Tableau |
| 11/22 | ***Exam 3*** |
| 11/24 | Thanksgiving – No Class |
| 11/29 | In class working session - project |
| 12/1 | In class working session - project |
| 12/6 | In class working session - project |
| 12/8 | In class working session - project |

12/12 Project Due @ **noon**

I will announce all changes to the schedule in class and on Moodle.