MIS 776-001: Business Intelligence
UNIVERSITY OF NEVADA LAS VEGAS
Management, Entrepreneurship, and Technology
Fall 2023

Item	Detail(s)
Instructor Name	Richard Young, M.S..
Time(s):	Online
Class Location	Online
Office Hours:	By appointment
Office Phone:	
WebCampus:	https://webcampus.unlv.edu
Email:	ryoung@unlv.edu

Note: The instructor reserves the right to change the syllabus regarding how the course is administered.

Course Description

Skills, technologies, applications, and practices to leverage the organizations' internal and external information assets for making intelligent business decisions in data-rich organizations. This course illuminates the relevance of information technology (IT) in organizational problem-solving and/or decision-making. Topics include decision-making, decision support systems, text/data mining, data warehousing, and business performance management.

Course Prerequisite(s):

MIS 761 (MIS 740 or MIS 768) and MIS 766
DA621 and DA 651 or equivalent

Learning Outcomes/Course Objectives

1. Understand the role of business intelligence in today's data-driven organizational environment to enable students to understand techniques for storing and processing large amounts of structured and unstructured data.
2. Understand basic concepts/technologies/techniques underlying business intelligence and human/organizational decision-making to enable students to apply concepts and principles from science and business to analyze and interpret using analytic and computer-based techniques.
3. Apply/Implement business intelligence concepts using one or more tool(s).
4. To enable students to effectively interpret and communicate their ideas through written and oral reports.

Required Texts

Title: The Data Warehouse Lifecycle Toolkit – 2nd Edition
Author: Ralph Kimball
Publisher: Wiley; 2nd Edition
ISBN: 978-0470149775

Title: Hands-on Predictive Analytics with Python
Author: Alvaro Fuentes
Publisher: Packt Publishing December 2018
ISBN: 978-1789138719

Evaluation Methods

There are two options for this course. A traditional path that includes exams and a group project, and a research path that waives the exams and project replaced by a substantive research project in Information Systems which implements analytical methods or explores areas of analytics beyond our course material. The two paths have a different point allocation, but the grading scale based on percentages will be the same for both.

Students wishing to take advantage of the research path should understand that, even though there are fewer deliverables, this is not necessarily the easier path. I will be conducting seminars during the semester that focus on academic research processes and deliverables. Attendance at these seminars is a required part of this path. The project that results from this path **must** be submitted for presentation to the UNLV Graduate Research Symposium. It is also highly recommended that the project is submitted to an external conference such as the Americas Conference on Information Systems (AMCIS), which will be held in Panama City, Panama August 10-12, 2023. More information about conferences and funding sources will be discussed in the seminars. Research projects will also be presented in class on the same day as the group presentations.

The decision as to which path you plan to take must be made by the second week of class. Once you have determined the path that you wish to take, it is binding, and you cannot switch to the other path. One research seminar will be held before you make this decision, which will hopefully give you the information that you need to make a well-informed choice.

Traditional Path

Item	Value (points)	Individual / Group
5 Class Assignments at 20 points each	100 points	Individual
1 Group Case project	50	Group
1 Midterm Exam	100 points	Individual
1 Group Term Project	100 points	Group
1 Final Exam	100 points	Individual
Total:	**450 points**	

Research Path

Item	Value (points)	Individual / Group
5 Class Assignments at 20 points each	100 points	Individual
1 Group Case project	50	Group
1 Research Project Midterm Assessment, including Research Seminar attendance	100 points	Individual
1 Final Research Project	200 points	Individual
Total:	**450 points**	

Grading Scale

A   94 – 100
A-   90 – 93.99
B+   87 – 89.99
B   84 – 86.99
B-   80 – 83.99
C+   77 – 79.99
C   74 – 76.99
C-   70 – 73.99
D+   67 – 69.99
D   64 – 66.99
D-   60 – 63.99
F   00 – 59.99

Course Procedures

Web Campus

The course will use the web campus portal. This portal will have the resources related to the course, e.g., PowerPoints, reading materials, posted syllabus, assignments etc. You will be required to log in to this portal to access your course.

Class Attendance

Class attendance is essential and will be a critical factor for doing well in this course. Given that this course is heavily hands-on, class attendance is critical. Although attendance will not be explicitly graded, students are responsible for all information covered in class. This information may be required to complete assignments or exams successfully.

Class Assignments

- Class assignments need to be turned in individually
- You can consult resources while doing the assignments
- The assignments will vary in structure. Details about assignments will be provided when they are assigned.

Do not miss any assignments. If you miss an assignment without a valid excuse, then your grade in that assignment will be zero. If an assignment is missed, it is the student's responsibility to (a) contact the professor as soon as possible via email, telephone or in person, (b) produce a document describing the valid reason for having missed the assignment. Examples of valid excuses are serious illness and participation in University sponsored events. If you miss an assignment due to illness, a written excuse from a doctor is necessary. When you have to miss an assignment due to participation in a University sponsored event, you must inform me prior to the assignment and submit appropriate documentation to verify your claim. When you miss an assignment for a valid reason, contact your professor with valid documentation within 7 days of the missed assignment. No late work will be accepted past the due date without valid excuse.

Exams and Exam Policy

There will be 2 exams in the traditional path:

- The midterm will cover the first half of the class related to Data Warehousing and analytics covering concepts
- The final will cover **all content** in the class

Do not miss an exam. If you miss an exam without a valid excuse, then your grade on that exam will be zero. If an exam is missed, the student must (a) contact the professor as soon as possible via email, telephone, or in person, (b) produce a document describing the valid reason for missing the exam. Examples of valid excuses are serious illness and participation in University

sponsored events. If you miss any exam due to illness, a written excuse from a doctor is necessary. When you have to miss an exam due to participation in a University sponsored event, you must inform me prior to the exam and submit appropriate documentation to verify your claim. When you miss any exam for a valid reason, contact your professor with valid documentation within 7 days of the missed test to arrange for a make-up. No make-up exams will be given after 7 days.

Group Projects

There will be two group projects in this course. The first is a case analysis that everyone must participate in, and the second is a semester project for stuidents on the traditional path. Both groups will be randomly populated by the instructor in order to promote optimal diversity within groups. Please note the following:

- Once chosen, groups cannot be changed without the instructor's permission.
- Please make sure you are aware of your groups and your group members. It is your responsibility to communicate effectively with your groups.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the Libraries' Research Consultation website, https://guides.library.unlv.edu/appointments/librarian. You can also ask the library staff questions via chat and text message at https://ask.library.unlv.edu/.

A few librarians specialize in material related to this class. It is often vital to work with a librarian to find resources.

Patrick Griffis, (Business)
patrick.griffis@unlv.edu

Sue Wainscott, (Engineering)
sue.wainscott@unlv.edu

Alyssa Renteria (Data Guide)
https://guides.library.unlv.edu/prf.php?account_id=343426

University Policies

All instructors are required to include the academic policies listed below in the syllabi for their courses, perhaps under a section entitled University Policies. This document is posted on the University Policies webpage, https://www.unlv.edu/policies/additional, in the Executive Vice President and Provost section, under Academic Semester Memos.

Please address questions to Kate Korgan, Senior Vice Provost for Academic Affairs, via email at SVPAA@unlv.edu or (702) 895-5950.

Public Health Directives

Face coverings are currently optional for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at Health Requirements for Returning to Campus, https://www.unlv.edu/coronavirus/health-requirements. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the UNLV Student Conduct Code, https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the Student Conduct Code, https://www.unlv.edu/studentconduct/student-conduct.

Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused

from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of devices such as cellular phones and pagers, or other potentially disruptive activities are only permitted with the prior explicit consent of the instructor.

Students are specifically prohibited to record classes without instructor authorization, including online/remote classes (either audio only, or video and audio). The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Since the COVID-19 pandemic forced some instruction to be delivered remotely starting in Spring 2020, numerous students have asked instructors to record their synchronous classes, so that they can access them at their convenience. Instructors who agree to record their classes (audio only, or video and audio) should inform students in advance. Recorded lectures may not be broadly released to anyone, but made available exclusively to those students enrolled in the class during the particular academic term. Recorded lectures must be stored securely, and are subject to the Nevada System of Higher Education's Records Retention Policy, meaning that the recordings can only be deleted 120 days after the end of class (i.e., after grades are posted). Once this requirement is met, the recordings should be deleted. Class recordings are protected from disclosure, as they are deemed part of an educational record under the Family Educational Rights and Privacy Act (FERPA).

Copyright

The University requires all members of the University Community to familiarize themselves with and follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for student or employee violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional copyright policy information is available at https://www.unlv.edu/provost/copyright.

Disability Resource Center (DRC)

The UNLV Disability Resource Center (Campus Resource Center (CRC), across Harmon from the Lied Library, https://www.unlv.edu/drc, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to a permanent disability, temporary or permanent medical need, or

academic support due to pregnancy are encouraged to contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. Students who are already registered with the DRC should request their accommodations online each semester, and make an appointment to discuss their accommodations with their instructors.

Final Examinations and Study Week

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The general schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the Final Exam Schedule, https://www.unlv.edu/registrar/calendars.

Identity Verification and Online Course Requirements

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the Student Academic Misconduct Policy, https://www.unlv.edu/studentconduct/misconduct/policy, which states that "acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment" is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy. UNLV students enrolled in online courses are also expected to read and adhere to the Acceptable Use of Computing and Information Technology Resources Policy, https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy, which prohibits sharing university accounts with other persons without authorization. To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

Incomplete Grades

The grade of "I" (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student's control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of

"F" will be recorded, and the student's GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the "I" grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the Libraries' Research Consultation website, https://guides.library.unlv.edu/appointments/librarian. You can also ask the library staff questions via chat and text message at https://ask.library.unlv.edu/.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the Academic Policies webpage, https://catalog.unlv.edu/content.php?catoid=39&navoid=10666.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a "Drop one" option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate's policy, and an infringement on the student's right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV's official email system for students and by University policy, instructors and staff should only send emails to students' Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Sending emails within WebCampus-Canvas is also acceptable.

Title IX

UNLV is committed to providing an environment free of all forms of unlawful discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you, or someone you know, has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available. To learn more or to report an incident, please visit the Office of Equal Employment and Title IX website at https://www.unlv.edu/compliance. Please be aware that as an instructor, I am not a confidential resource, and I will need to report incidents of sexual misconduct to UNLV's Title IX Coordinator. You can also report concerns directly using the online reporting form, at https://cm.maxient.com/reportingform.php?UnivofNevadaLasVegas&layout_id=18, or via email at titleixcoordinator@unlv.edu or 702-895-4055. For confidential support in matters of sexual violence, relationship/family violence, or stalking, contact the Care Center at https://www.unlv.edu/carecenter or 702-895- 0602.

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the ASC website, https://www.unlv.edu/asc, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the

Writing Center, https://writingcenter.unlv.edu/, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

988 FREE 24/7 SUICIDE & CRISIS LIFELINE

In addition to campus resources such as the Counseling and Psychological Services (CAPS) website at https://www.unlv.edu/caps, visiting the YOU@UNLV website at https://you.unlv.edu/, and Early Alert (for graduate students, at https://www.unlv.edu/graduatecollege/academy/early-alert), you may now call or text 988 or chat at 988lifeline.org if you or someone you know is in crisis and in need of support.

Diversity Statement

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to cultivating a campus environment that values diversity, practices inclusion, and actively promotes equitable experiences and outcomes. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see University Statements and Compliance, https://www.unlv.edu/about/statements-compliance.

A successful learning experience requires mutual respect and trust between the students and the instructor. Accordingly, the instructor asks that students be willing to listen to one another's points of view, acknowledging that there may be disagreements, keep discussion and comments on topic, and use first person, positive language when expressing their perspectives.

UNLV Land Acknowledgement

UNLV is situated on the traditional homelands of Indigenous groups, including the Nuwu or Nuwuvi, Southern Paiute People, descendants of the Tudinu, or Desert People. We honor and offer gratitude for those who have stewarded the land; for the land itself; and for the opportunity to cultivate a thriving, diverse, inclusive, and just scholarly community here today that works for a better tomorrow for all.

Instructor Policies

The emergence of large language models (LLM), and other advanced machine learning tools (GitHub Coplot) has started revolutionizing business processes, programming, and learning. It is vital that students understand what these tools can accomplish and the related pitfalls.

In this class, you are allowed and encouraged to use these tools as long as you informally cite them (the tool used) on each project or assignment.

An example would be:

*Code assistance by ChatGPT 4.
*Writing assignments help by https://bard.google.com/
*CoPilot helped with sql code

Failure to cite assistance AI/ML tools will result in a 0 for that assignment.

It is important to note that while this class encourages students to use AI/ML to solve problems, other classes, projects, and professors each have their own policies; it is essential to check with each professor regarding their expirations regarding AI/ML tools.

It is also essential to understand that most output generated by AI/ML is considered public domain, if you are working on projects that require confidential data or may have privacy concerns (SSN numbers, HIPPA Data), do not use any AI/ML process without approval.

If you have questions, ask. It is better to ask for clarification than to receive a zero on your assignment.

Course Overview

Block	Appx Week	Individual / Group
1 – SQL, Basic Visual, Tools	2- 3	Individual
2 – ETL, Data Exploration, Basic Stats	4 - 6	
Mid-term	7	Individual
3 – ML Methods	8 - 12	Individual
4 – Decision Support	13 - 15	
5 - PPT		
6 - Final	16	

Weekly Plan

Professor Expectations

1 to 1:30 Hours of Lecture – (Released Monday)

30 Minute Demo (shared code) – Released Monday

30 Minutes of Industry Reading (Articles from News / Medium / YouTube / Etc)

Student Expectations

30 Minutes write-up to reading. (Due Friday 8pm)

Response (Sat / Sun) – extra credit?

1 to 2 hours to complete homework. (Due Sunday 11pm)

Course Agenda/Schedule

Session	Date:	Topic	Material/Assignments
1	28-Aug	Introduction What is BI? Introduction to Microsoft SQL Server Relational Database Review	Kimball Chapter 1
2	4-Sep	Multidimensional Database Design Creating the Data Warehouse / Mart	Kimball Chapter 6 & 7
3	11-Sep	Extract / Transform / Load (ETL)	Kimball Chapters 8 & 9 Assignment 1 Due: Transitioning from Relational to Multidimensional Design
4	18-Sep	Data Visualization, Dashboards, and Search-Driven Analytics	
5	25-Sep	Introduction to Analytics Introduction to Python for Analytics	Fuentes Chapter 1 & 2 Assignment 2 Due: Tableau / ThoughtSpot
6	2-Oct	Exploratory Data Analytics	Fuentes Chapter 3
7	9-Oct	Midterm Exam	
8	16-Oct	Predicting Numeric (Continuous) Values	Fuentes Chapter 4 Assignment Due: Group Case Writeup
9	23-Oct	Predicting Categories (Classification)	Fuentes Chapter 5 Assignment 3 Due: Numeric Prediction with Python

Session	Date:	Topic	Material/Assignments
10	30-Oct	Clustering Analysis	Handouts TBA Assignment 4 Due: Classification with Python
11	6-Nov	Association Rule Mining	Handouts TBA Assignment 5 Due: Clustering with Python
12	13-Nov	Model Optimization and Tuning	Read Chapters 7 and 8 for background on optimization and tuning.
13	20-Nov	Neural Network Models	Fuentes Chapter 6 ** Note: I will be out of town this week, so there will be no in-person class. Instead, I will provide videos with the content and will make myself available for online discussions as needed.
14	27-Nov	Image Processing with Convolutional Neural Networks	Fuentes Chapters 7 & 8
15	4-Dec	Project Presentations	
16	11-Dec	Take-home Final Exam Due	