Syllabus

DR. LILY POPOVA ZHUHADAR

Email: Lily.popova.zhuhadar@wku.edu

Office Locations: Center for Applied Data Analytics, Grise Hall, First Floor, GH 128.

OPENING REMARKS

Guidelines for Requesting Zoom Sessions in CONTEMPORARY ANALYTICS Course

Dear Students,

As you are aware, our CONTEMPORARY ANALYTICS course is conducted entirely **online**, and there are **no in-person meetings**. To ensure you have the support you need throughout the semester, I am available for Zoom sessions to discuss any course-related issues you may encounter.

Please follow the steps below to request a Zoom meeting:

1. Send your request via email to Lily.popova.zhuhadar@wku.edu.

2. Use the following format for the subject line of your email: " **CONTEMPORARY ANALYTICS - Request for Zoom Meeting**".

3. In the body of your email, clearly outline the reason for your request, providing as much detail as possible to assist in addressing your concerns promptly.

I strive to respond to all student requests within 24 hours. To ensure timely assistance, especially with homework-related inquiries, please send your request at least three days before the assignment's due date. Each homework assignment is designed with a minimum of one week to complete, giving you ample time to reach out for help if necessary.

Thank you for your attention to this process, and I look forward to assisting you in achieving a successful semester.

EMPOWERING YOUR FUTURE: COURSE COMPLETION OPENS DOORS TO ADVANCED CERTIFICATES AND DEGREE OPPORTUNITIES

I'd like to illuminate a pathway of academic and professional growth that becomes accessible to you upon completion of this course. Specifically, this course serves as a steppingstone to three advanced educational programs that can significantly enhance your knowledge base and future career prospects:

1. **Data Analytics Graduate Certificate (12-hour)**: link - With the completion of just three additional courses after this one, you could earn this prestigious certificate. The requisite courses include:

   - BDAN 515: Data Management
   - BDAN 517: Predictive Analytics
   - BDAN 519: Visualization and Decision Making

2. **Cybersecurity Data Analytics Graduate Certificate (12-hour)**: link - Like the previous program, this certificate also requires three additional courses. The required courses for this program include:

   - CYSA 520: Principles of Cybersecurity for Data Analytics
   - CYSA 522: Cybersecurity Risk and Compliance
   - CYSA 524: Cybersecurity Orchestration Using Data Analytics

3. **Master of Science in Cybersecurity Data Analytics (30-hour) :** link - If your aspirations aim towards a Master's Degree, you will need to complete six additional core courses along with three electives after this current course.

Each of these programs presents a unique opportunity to build upon your existing knowledge, deepening your expertise and heightening your career potential. I encourage you to explore these options and consider the value they could add to your academic journey and beyond.

For more information regarding this program, please contact the Cybersecurity Program Director, Dr. Mark Ciampa, at mark.ciampa@wku.edu.

COURSE WEBSITE

The course homepage will be hosted on Blackboard®. This is where class notes, assignments, and announcements will be posted (though some announcements will also be sent to students' WKU emails). It is expected that students will check Blackboard® for notes and assignments on a daily basis.

COURSE DESCRIPTION

This course offers a comprehensive introduction and practical experience in data analytics, visual analytics, and visual data storytelling. It presents learners with design principles for creating meaningful displays of both quantitative and qualitative data to facilitate managerial decision-making in the field of business analytics. With many organizations leveraging analytics and visualization to enhance decision-making and improve customer and shareholder value, these skills are considered critical in today's business environment.

Within this course, learners explore how to use data analytics and visualization to communicate the business-relevant implications of analyses. Modules are organized around concepts, tools, and applications, covering the data analytics process from start to finish—from collecting, preparing, and analyzing data to creating analytical visualizations, dashboards, and stories that share critical business insights. The course leverages the analytical capabilities of tools such as Tableau, the industry-leading visualization tool, aiming to equip students to be competent users of this technology.

Please note: This course is hands-on and requires the use of appropriate software to practice and apply the concepts learned. Students should be prepared to spend time utilizing provided resources and engage in independent learning to complement the software instruction provided via the Blackboard content management system.

COURSE LEARNING GOALS

- Students will learn how to use data to summarize, visualize, and develop insights.
- They will be able to effectively use machine learning algorithms to support decision-making in the presence of numerous alternatives and business constraints.
- Students will acquire skills to identify, evaluate, and capture business analytic opportunities that create value.
- They will comprehend and explain data visualization principles and guidelines for effective analysis and presentation.
- Students will develop and interpret a wide range of visualizations and predictive models.
- Finally, homework assignments will be assigned and are due by the date and time specified by the instructor.

These assignments are designed to be an integral part of the course, aiming to provide a comprehensive understanding of data analysis and visualization.

- Through a wide range of homework assignments, students will gain the opportunity to deeply analyze effective techniques and juxtapose them with less efficient methods.
  This comparative exercise is expected to cultivate an analytical mindset, enabling students to differentiate between high-quality and mediocre approaches within the field of data analysis.
- Beyond critiquing, the assignments will also push the students to learn how to develop and improve upon existing data visualizations. They will be exposed to good and bad

examples of data analysis and visualizations, and this critical comparison will assist them in honing their skills. It will equip them with a nuanced understanding of what makes a visualization compelling and effective, as well as the common pitfalls to avoid in data representation.

- Further, they will be challenged to create and recreate various data analysis and visualizations using multiple sets of data. This hands-on approach will not only allow students to apply their theoretical knowledge but also foster creativity and problem-solving skills in working with data. This practical experience with varied datasets will also offer insights into how different types of data can be visualized and interpreted effectively, further enhancing their competence in the field.

- The goal of these assignments is not only to enhance students' technical skills but also to develop their critical thinking capabilities in the realm of data analysis and visualization. By the end of the course, they should be equipped with the skills to not only create visually appealing and informative data visualizations but also critically analyze and improve upon the work of others.

COURSE PREREQUISITE

Before enrolling in this course, students should possess a personal computer with the capacity to install necessary software packages. This is a requirement for completing assignments throughout the semester.

Course TEXTBOOK - No Textbook is required.

SUGGESTED READING (NOT REQUIRED)

- Business Intelligence, Analytics, and Data Science: A Managerial Perspective by Ramesh Sharda; Dursun Delen; Efraim Turban (2018)

- The Visual Display of Quantitative Information, Edward Tufte, Graphics Press, 2nd Ed.
- The Big Book Dashboards: Visualizing Your Data Using Real-World Business Scenarios, Steve Wexler, Jeffrey Shaffer, Andy Cotgreave, Wiley (2017)

TECHNICAL REQUIREMENTS

- A significant portion of the time that students dedicate to completing their assignments will involve the use of software applications, with instruction provided through Blackboard.
- Students will have the opportunity to learn the basic features of one or more of these software programs through training videos posted on Blackboard, self-directed studies, or by utilizing available online resources.

PROCEDURES, TECHNIQUES, AND METHODS

This course will employ a variety of techniques to cater to different learning styles. Besides video lectures, the course will utilize discussions, brainstorming sessions, case studies, hands-on activities, and presentations. The course will rely heavily on computer use. Students are required to use the course website on Blackboard for lecture notes, handouts, assignments, and links to other learning resources. The majority of the classes will focus on real-world situations and cases to explain, illustrate, and demonstrate the concepts and techniques of contemporary business.

STUDENT OUTCOMES

Upon completion of this course, students should possess the skills to collect and process data, create interactive visualizations, and use these visualizations to illuminate problems, situations, or phenomena. They should also have foundational knowledge that enables them to critique various visualizations, both effective and ineffective, and to identify design principles that contribute to successful visualizations. Students are expected to gain a basic understanding of the challenges involved in making data comprehensible to a diverse array of audiences. Lastly, they will have the opportunity to demonstrate their skills by identifying a visualization that can be improved, undertaking their own design and/or analysis of the underlying data, and striving to publish or encourage acceptance of their presentation.

METHODS OF EVALUATION AND GRADING

Students are expected to prepare and participate by:
- Engaging with course content and submitting scheduled assignments each week
- Participating in the Week 1 discussion (posted on Blackboard)
- Completing the assigned homework projects by the specified due dates
- Completing each test, exam, homework, and all other assignments independently.

Submissions must represent the student's individual work. Citations must be provided where content from other sources is referenced. Also, the reuse of a data set from one project to another is not permitted; a completely new data set must be used each time.

E-MAIL ETIQUETTE

- Each student is required to have a WKU email address and Blackboard account for participation. Email and Blackboard are regarded as official communication tools for the course. Consequently, announcements and reminders are frequently posted or sent and are directed only to the official WKU email addresses. If a student utilizes a different email address, it is necessary to ensure that their WKU email is forwarded correctly.
- The responsibility of regularly checking the WKU email and Blackboard for any reminders and announcements lies with the student.
- Generally, emailing is considered the most effective way to establish contact with the instructor. During standard business hours, responses to emails tend to be prompt. However, students should note that the response time might be slower during the evenings, weekends, and holidays. Email should be treated as a means of professional correspondence, implying the importance of using correct grammar, punctuation, and capitalization. When a student initiates contact with the instructor via email, they should ensure to include 'BA-513' along with their last name in the subject line of the email.

STUDENT EXPECTATIONS

- It is expected that students will read the scheduled assignments, complete the assigned homework, and take quizzes posted on Blackboard by the specified due dates.
- Any student committing an act of academic dishonesty will receive a failing grade, F, in the course from the instructor. This rule is applied to any act involving cheating or plagiarism.
- Cheating will not be tolerated. It's important to note that cheating can involve, but is not limited to, actions such as plagiarism. To present written work taken from another source as one's own is considered plagiarism. Plagiarism is a serious offense. A student's academic work

must be their own. Any source material borrowed from an author must be properly credited. Lifting content directly from a source without giving credit is a flagrant act and presenting a borrowed passage without reference to the source, even after changing a few words, also constitutes plagiarism. For more details, please refer to the following link.

- Any issues with Blackboard should be reported immediately to Information Technology Services at (270) 745-7000.
- Students should not email their assignments unless specifically instructed to do so.
- Assignments are due and must be uploaded to the appropriate location by the announced due date. To receive a grade, assignments must be uploaded correctly.
- A malfunctioning computer is not a valid excuse for failing to complete an assignment on time.
- Checking the site to confirm the upload of an assignment is a responsibility of the student.
- Each semester, students might experience personal illnesses, family crises, work schedule issues, automobile troubles, and other "life" situations. These are not typically considered unusual circumstances and thus do not warrant exceptions to course policies. Students are advised to plan well and take proactive steps to avoid many of the problems that can arise from these situations.

GRADED WORK

- Grades will be posted online. The online gradebook should be considered as a courtesy to the students, subject to errors due to various upgrades and shifts in the software. The instructor reserves the right to make corrections to the gradebook to keep it consistent with the syllabus, ensuring that students' grades reflect their true performance and not any software or user errors.

- **Course grades will be determined as follows:**

Homework	70%
Final Project	30%
Total	100%

GRADING SCALE
A [89.5%, 100%]
B [79.5%, 89.4%]
C [69.5%, 79.4%]
D [59.5%, 69.4%]
F [0%, 59.4%]

DISCLAIMER - ADJUSTMENTS TO ASSIGNMENTS, SCHEDULE, AND SYLLABUS
The syllabus is subject to change at the discretion of the instructor. The scope, timing, and due date/time of any assignments, projects, homework, exams, or any other required work may be adjusted by the instructor as needed to maximize learning opportunities for students and/or better serve the goals of the course. Modifications to the syllabus may be made at the instructor's discretion. Any adjustments will be clearly communicated via email and/or on Blackboard.

ASSIGNMENT EVALUATION RUBRIC

Criteria	10 – Outstanding	9 – Proficient	8 – Basic	7 (or lower) - Below Expectations
OBJECTIVE				
Completed assignment per requirements	All portions of the assignment, including presentations, data preparation, and visualizations were attempted and submitted.	This is a pass / fail component. All or no points are awarded.		
The analysis is appropriate and sufficient	The data analysis used is appropriate, correct, and sufficient to support the findings.	The data analysis is appropriate but minor issues may be present or enhancements may be needed.	The data analysis is related but not sufficient to support the findings, or significant data analysis issues prevent a clear reading of the results.	The data analysis has little or no relation to the topic being explored, errors will lead to incorrect conclusions, and/or data issues make the findings unusable.
Headers, directions, citations, and visual cues are given as guides	A clear direction is provided. Citations are consistently and correctly employed to inform and guide.	Headers, footers, and instructions are present, but visual cues may be missing or could be improved.	The user must self-discover functionality. Headers and footers may be missing. Difficult to know what to do.	The user has little or no indication of how to engage. Directions are missing on clear. Missing headers and footers for context and meaning.
SUBJECTIVE				
Analysis & Viz are clean, clear, concise, captivating	The data analysis & data Viz used are well represented; the visualization is clear, clean, concise, and captivating.	Aspects of data analysis & data Viz are apparent; opportunity exists for further enhancement.	Multiple aspects of data analysis & data Viz are missing, or have not been well addressed in the visualization.	Significant or complete disregard for the guidance present in the lectures, resulting in poor data analysis & visualization.
Attractiveness and attention to design and details of craft	Proper grammar and spelling are used, and choice of position, size, and emphasis integrate elements into a visually appealing and engaging whole.	The visualization shows thought and planning, and most aspects work in harmony. May exhibit minor issues with spelling, alignment, or sizing mismatched with importance.	Visualization appears sloppy and may be difficult to understand as a coherent whole. Multiple issues with spelling, font consistency, positioning, or other distracting characteristics.	Little or no apparent thought or given and visualization comes across as disorganized. May be visible through numerous spelling or grammar issues.
The visualization is usable and actionable	The visualization is targeted to the audience, the story is evident, and the conclusion or action required is clearly apparent. No additional interpretation is needed.	There is a clear message or story conveyed, but the action or conclusion that should be drawn is not definitive. May require interpretation.	The visualization suggests some possibilities but does not lead to clarity of understanding and therefore action is not possible.	No apparent message or relevancy to the user; no actions can nor should be taken based on the analysis.
Quality, integrity, and impact of the findings and analysis	The analysis shows a level of quality, integrity, and competency that makes the data analysis & data viz impactful, generating a high level of trust.	The overall conclusions of the analysis seem to be sound, with support by anecdotes or additional evidence.	The analysis shows a trend or suggests a result, but is not trustworthy because of errors in the process, omission, or scope.	The analysis appears to be poorly conducted, greatly compromising the integrity of some or all of the data analysis & visualization.
The overall effectiveness of communication and presentation	The presentation is delivered in a convincing way that demonstrates confidence, competency, and thoroughness.	Delivery provides a strong argument and is well supported; minor details should be vetted and affirmed.	The presentation and communication leave concerns or lingering lack of clarity. Work required to review and confirm.	The communication and presentation result in confusion and a low level of confidence in the analysis, requiring a significant or complete re-do.

ADA COMPLIANCE

In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, Room 1074. The SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu. Please DO NOT request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from the Student Accessibility Resource Center. Students with an FNL should NOT email the FNL to the instructor requesting a signature. Instead, students must first meet with the instructor during scheduled office hours to discuss how the accommodations requested will be served in this course. The Blackboard Ally tool has been enabled within the Blackboard course site that allows you to have access to different formats of course files, including HTML, readable PDF, electronic braille, ePub, and audio (mp3). You may review the Ally for Students video regarding how to access these alternative formats.

RESEARCH APPOINTMENTS WITH YOUR PERSONAL LIBRARIAN

At WKU Libraries, a personal librarian is available for every program on campus, plus Special Collection librarians and archivists. Our goal is to save you time and help you be successful on term papers and research projects by showing you what you need to know to get started and be successful. Start your research by scheduling an appointment with your Personal Librarian (you can find them listed online here) through email or by calling (270)745-6125.

WRITING CENTER ASSISTANCE

The Writing Center on the Bowling Green campus will have writing tutors available to offer advice to current WKU students on any stage of their writing projects. In-person tutoring is available in Cherry Hall 123 from 10:00 AM to 4:00 PM Monday through Friday and in the Cravens Commons (at the horseshoe-shaped reference desk) from 5:00 PM to 9:00 PM on Sunday through Thursday evenings. Making appointments, as well as instructions and how-to videos are available through the website. Walk-in feedback may be available, and students may also request feedback on their writing via email or arrange a real-time Zoom conference to discuss a paper. Students may also get short writing questions answered via email line sent to writingcenter@wku.edu by entering Quick Question in the subject line. The WKU START Centers will be offering writing tutoring sessions via Zoom as well as in person in their Glasgow and Elizabethtown locations. More information is available at WKU Start Center.

WKU COUNSELING AND TESTING CENTER

The university experience should be challenging, but not overwhelming. To this end, the WKU Counseling Center provides a variety of services to help strengthen students' capacity to tolerate distress, form healthy relationships, and seek healthy expressions of their ideals and values. If you would like to speak with someone, you may contact WKU's Counseling and Testing Center at 270-745-3159 or use their Here To Help service at https://www.wku.edu/heretohelp/.

PEER TUTORING SERVICES

The Learning Center (TLC) provides free tutoring services helps students enhance their academic performance and sharpen their skills to be successful WKU graduates.

MENTAL HEALTH SUPPORT GROUP

A Free Support/Recovery Group for current WKU students struggling with anxiety, depression, or other mental health issues is available. This is an opportunity for students to support, connect with, and encourage others struggling with mental health issues and is led by two National Alliance on Mental Illness (NAMI) certified facilitators who are in mental health recovery themselves. This group has the support of the WKU Counseling and Testing Center and is a not a substitute (rather a supplement) for therapy or medication. No formal mental health diagnosis is required for students to attend. The group is sponsored by the NAMI-Bowling Green Chapter.

TITLE IX/ DISCRIMINATION & HARASSMENT

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Sex and Gender-Based Discrimination, Harassment, and Retaliation (#0.070) and Discrimination and Harassment Policy (#0.2040). Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Executive Director, Office of Institutional Equity/Title IX Coordinator, Ena Demir, 270-745-6867 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121. Please note that while you may report an incident of sex/gender-based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

REGULAR AND SUBSTANTIVE INTERACTION

In the pursuit of excellence and in accordance with the stipulations set forth by the U.S. Department of Education, all distance education courses, including this one, are designed to foster regular and meaningful interaction between students and faculty. These interactions play a crucial role in not only enhancing your learning experience but also ensuring that you have the requisite support and guidance throughout the course. For a comprehensive understanding of the concept of 'Regular and Substantive Interaction' in the context of distance learning at Western Kentucky University (WKU), we invite you to visit the dedicated webpage titled 'Regular and Substantive Interaction in Online and Distance Learning'. This course is constructed with this principle at its core, ensuring an interactive learning environment that supports your academic growth and progress. Throughout the term, you will have ample opportunities to connect, collaborate, and communicate with faculty and peers. Details regarding the structure, frequency, and modes of interaction for this course will be available on our Blackboard site, allowing you to prepare for and participate fully in these important aspects of your learning experience.