

BDAN 310 PREDICTIVE ANALYTICS

SYLLABUS – CREWS (FALL 2023)

Course Description

An introduction to the application of data analytics methods to business issues. Topics include business case studies, data analytic, model building techniques, and communication of results.

Required Text

Business Analytics, 2nd Edition by Jaggia (and 3 co-authors)

ISBN 9781264302802 (ebook)

NOTE: Everyone should have access to the eBook in Blackboard for the first two weeks of class. After those first two weeks, if you are not using Big Red Backpack, you will need to purchase access to the book separately, which you can rent directly from the publisher (McGraw-Hill) at the following link:

<https://www.mheducation.com/highered/product/business-analytics-jaggia-kelly/M9781264302802.html>

Learning Objectives

Upon completion of this course, students should be able to:

- Develop effective models of business scenarios
- Use statistical techniques to analyze business data
- Improve your analytical tool skills for making data-driven business decisions

Instructor Information

Dr. Thad Crews, Grise Hall 227, 270-745-3509

After earning my bachelor's degree from WKU, I began my professional career as a software engineer working for a Fortune 500 company (Electronic Data Systems) developing and maintaining banking software applications. However, my true passion is education, so I went on to get a PhD in computer science from Vanderbilt University which is consistently ranked by U.S. News and World Report as one of the top 5 graduate programs for Education in the United States. I then joined the faculty at Western Kentucky University, and this is my 27th year teaching on the Hill. I have served as National Chair of the Technology in Education Committee for the Association of Information Technology Professionals (AITP), I have written two college textbooks on computer programming, and I have collaborated with two of the largest national education publishers (Pearson and Cengage Learning) to develop innovative digital solutions for higher education. But teaching remains my first love, and I am excited to teach this course this semester. Please feel free to reach out with any questions or comments you have at any time.

Email

My email is thad.crewsii@wku.edu which includes an **ii** (*like Roman numeral 2*) after my last name:

Be sure you email **thad.crewsii** because any other WKU "Thad Crews" email will NOT get to me.

For your emails to be filtered properly and receive my top attention, the subject line of your email should be BDAN 310 – Your Name – Topic of Message (e.g., *BDAN 310 – Ellen Shia – Quiz 2 Question*). Under normal circumstances I will respond to emails within 24 hours to emails with this subject line. Email messages without this subject line may be returned to you or may not be answered promptly.

Calendar, Points and Grades

BDAN 310 Calendar

		Monday	Tuesday	Wednesday	Thursday	Friday
August 21 - August 25	Week 1	Class Begins				Unit 1 Due
August 28 - September 1	Week 2					Unit 2 Due
September 4 - September 8	Week 3	Labor Day				Unit 3 Due
September 11 - September 15	Week 4					Unit 4 Due
September 18 - September 22	Week 5					Unit 5 Due
September 25 - September 29	Week 6					Mid-Semester Review
October 2 - October 6	Week 7	Fall Break	Fall Break			Short Week (TBA)
October 9 - October 13	Week 8					Unit 6 Due
October 16 - October 20	Week 9					Unit 7 Due
October 23 - October 27	Week 10					Unit 8 Due
October 30 - November 3	Week 11					Unit 9 Due
November 6 - November 10	Week 12					Unit 10 Due
November 13 - November 17	Week 13					(Work on Capstone Project)
November 20 - November 24	Week 14			Thanksgiving Break	Thanksgiving Break	Thanksgiving Break
November 27 - December 1	Week 15					Capstone Project Due
December 4 - December 7	Week 16				Final Exam Due	

Points Breakdown

Units	Topics	Points	Units	Concepts Quiz	R code Quiz	"Check Your Work"
Unit 1	Introduction to Business Analytics	60	→	20	20	20
Unit 2	Predictive Analytics (an Executive Overview)	60	→	20	20	20
Unit 3	Summary Measures	60	→	20	20	20
Unit 4	Data Visualization	60	→	20	20	20
Unit 5	Decision Trees	60	→	20	20	20
MidSemester Review and Reflection		50				
Unit 6	Linear Regressions (part 1)	60	→	20	20	20
Unit 7	Linear Regressions (part 2)	60	→	20	20	20
Unit 8	Logistic Regressions	60	→	20	20	20
Unit 9	Artificial Intelligence and Neural Networks	60	→	20	20	20
Unit 10	Unsupervised Learning	60	→	20	20	20
RCode Capstone Project		50				
Concepts Final Exam (Proctored by DLTC)		100				
TOTAL POINTS		800				

Three graded activities per unit allows for steady progress without getting overwhelmed (steps that are too big) or bored (have too many small steps)

Late work might be accepted for half credit, but only within one week of the due date.
Any questions or petitions about grades must be made within one week of grade posting.

A final grade of "A" (90%) requires 720 points.
A final grade of "B" (80%) requires 640 points.
A final grade of "C" (70%) requires 560 points.
A final grade of "D" (60%) requires 480 points.

Unit Quizzes (Concepts and R Code)

Most units will include two quizzes. The concepts quizzes will cover conceptual materials from lecture videos, textbook readings, and other third-party readings or video materials. The R code quizzes will cover the R code training materials provided in the unit. Each quiz is 1 attempt only. Each quiz is open book and open notes.

Unit “Check Your Work” Homework

Most units will include a CHECK-YOUR-WORK activity that allows you to check your work as you go. You can submit each answer one-at-a-time and check to see if your answer is correct. You can submit an unlimited number of times before the due date. This gives you an *EXCELLENT* way to check your understanding as you go. Your highest CHECK-YOUR-WORK score is the one that counts for a grade.

Capstone Project

There will be a capstone project assigned after the last unit. The capstone project will involve using your R coding skills to write code to analyze data. The project will also include explaining the results of your analysis. The capstone project will be turned in before the end of Finals Week.

Final Exam

Three important notes about the Final Exam:

1. **The Final Exam is proctored exam.** In the first or second week of the course, you will receive an email from the **Distance Learning and Testing Centers (DLTC)** with instructions about how to register for the exam.
2. **You can create a single page (front and back) of hand-written notes that you can use during the Final Exam.** Everything on the page must be hand-written. No printed text or printed images are allowed. After you finish your Final Exam, you will give your page of hand-written notes to the proctor. You will NOT get the notes back. Your name should be clearly written on your page of study notes.
3. **The Final Exam will cover the unit concepts materials only.** The final exam format will be like the unit concepts exams, except the final exam will NOT be open book, and the only notes you are allowed to use during the final exam are the single page of hand-written notes you create yourself. If you want to develop your page of hand-written notes unit-by-unit as you cover each new unit, that might be easier than trying to create the study notes all-at-once at the end of the semester.

Academic Integrity

Students are expected to pursue their studies with commitment to intellectual honesty and personal integrity. Cheating, plagiarism, and other acts of academic dishonesty are discussed in the [Academic Requirements and Regulations](#) section of the WKU Undergraduate Catalog. Possible penalties for academic dishonesty include a failing grade in the course without the possibility of withdrawal.

The Gordon Ford Leadership Team wants you to be aware of the following:

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/heretohelpemail.php>. If you need immediate help, please visit the Counseling Center in 409 Potter Hall or call the 24-hour emergency help line at 270745-2548.

Big Red Backpack

The Big Red Backpack program is the title of WKU's partnership with Barnes & Noble College for their First Day Complete initiative. Big Red Backpack is a course materials delivery program that ensures students have their required course materials on the first day of class and may reduce the costs of materials for many of their courses. Enrollment in the program occurs automatically when students register for classes. Students may opt out of the program each semester, as long as they choose to opt out for all of their classes.

Students MUST carefully and completely follow all instructions regarding the Big Red Backpack Program. Those instructions will be provided by:

1. An email to all Topper email addresses from the Big Red Backpack Program one month prior to the start of classes.
2. The Big Red Backpack Program site: <https://www.wku.edu/bigredbackpack/>.

Students should refer to the Big Red Backpack Program site referenced above for opt-out deadlines and any additional details.

The University Leadership Team wants you to visit <http://www.wku.edu/syllabusinfo/> for WKU's most up-to-date information about COVID-19, Title IX Discrimination & Harassment, ADA Accommodation, Regular and Substantive Interaction (Online Courses Only), and various other Things You Should Know.

ADA Accommodations

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.

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.

COVID-19

All students are strongly encouraged to get the COVID-19 vaccine. In accordance with WKU policy, all students must call the WKU COVID-19 Assistance Line at 270-745-2019 within 4 hours of testing positive for COVID-19 or being identified as a close contact to someone who has tested positive. The COVID Assistance Line is available to answer questions regarding any COVID-19 related issue. This guidance is subject to change based on requirements set forth by federal, state, and local public health entities. Please refer to the Healthy on the Hill website for the most current information.

www.wku.edu/healthyonthehill

Please visit <http://www.wku.edu/syllabusinfo/> for more important WKU information you should know.