



COURSE SYLLABUS

BUS 752
 Data Mining Methods for Business Leaders
 Spring 2020

1. COURSE INFORMATION

1.1. Instructor Information

Instructor:	Dr. Nikolaus Butz
Office:	CPS 417
Physical Office Hours:	9:00 – 11:00am TR (also by appt)
Virtual Office Hours:	8:00 – 9:00am TR (also by appt)
Office Telephone:	715-346-3420
E-mail:	nbutz@uwsp.edu
Expected Instructor Response Time:	2 business days

1.2. Course Information

Course Description:	An introduction to data mining in the context of business leadership. Introduces the basic concepts, principles, methods, implementation techniques, and applications of data mining. Students learn to use various data models and analysis techniques to extract meaning from organizational data. Projects involve reviewing case studies and exploring how data mining methods can be used to improve strategic decision making.
Credits:	3
Prerequisites:	N/A

1.3. Textbook & Course Materials

Required Text:	<ol style="list-style-type: none"> 1. Diez, D., Çetinkaya-Rundel, M., & Barr, C. (2019). <i>OpenIntro Statistics</i> (4th ed). Victoria, BC: Leanpub. Retrieved from https://leanpub.com/openintro-statistics [ISBN: 9781943450077] 2. Foreman, J. (2013). <i>Data Smart: Using Data Science to Transform Information into Insight</i>. Indianapolis, IN: Wiley [ISBN: 9781118661468] 3. Saltz, J. S., & Stanton, J. M. (2018). <i>An introduction to data science</i>. Thousand Oaks, CA: Sage. [ISBN: 9781506377537] 4. Wheelan, C. (2014). <i>Naked Statistics: Stripping the dread from the data</i>. New York: Norton. [ISBN: 9780393347777]
Recommended Texts:	N/A

Other Readings:	N/A
Other Required Materials / Applications:	1. Access to a computer with Microsoft Office (Excel, Word, PowerPoint) 2. Minimum of 1 GB of data storage (hard drive, flash drive, or online storage account)

1.4. Course Technology

Course Website:	Canvas
Other Websites:	N/A
Course Delivery:	Hybrid delivery with on-campus and online components

Canvas Support:	<p>Click on the HELP button in the global (left) navigation menu and note the options that appear:</p> <ul style="list-style-type: none"> • Ask Your Instructor a Question <i>Submit a question to your instructor</i> <ul style="list-style-type: none"> ○ Use Ask Your Instructor a Question sparingly; technical questions are best reserved for Canvas personnel and help as detailed below. • Chat with Canvas Support (Student) <i>Live Chat with Canvas Support 24x7!</i> <ul style="list-style-type: none"> ○ Chatting with Canvas Support (Student) will initiate a <i>text chat</i> with Canvas support. Response can be qualified with severity level. • Contact Canvas Support via email <i>Canvas support will email a response</i> <ul style="list-style-type: none"> ○ Contacting Canvas Support via email will allow you to explain in detail or even upload a screenshot to show your difficulty. • Contact Canvas Support via phone <i>Find the phone number for your institution</i> <ul style="list-style-type: none"> ○ Calling the Canvas number will let Canvas know that you're from UWSP; phone option is available 24/7. • Search the Canvas Guides <i>Find answers to common questions</i> <ul style="list-style-type: none"> ○ Searching the Canvas guides connects you to documents that are searchable by issue. You may also opt for Canvas video guides. • Submit a Feature Idea <i>Have an idea to improve Canvas?</i> <ul style="list-style-type: none"> ○ If you have an idea for Canvas that might make instructions or navigation easier, feel free to offer your thoughts through this Submit a Feature Idea avenue.
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Self-train on Canvas through the Self-enrolling/paced Canvas training course: <https://uws.instructure.com/courses/45767>

UWSP Technology Support:

The Office of Information Technology (IT) provides a Service Desk to assist students with connecting to the Campus Network, virus and spyware removal, file recovery, equipment loan, and computer repair. You can contact the Service Desk via email at techhelp@uwsp.edu or at (715) 346-4357 (HELP) or visit: <https://www.uwsp.edu/infotech/Pages/ServiceDesk/default.aspx>

2. LEARNING OUTCOMES

2.1. Course Goals

The main goal of this course is to provide students with the knowledge and skills necessary to implement introductory data mining techniques to influence business decisions and goals. Students will learn to apply commonly used data mining tools, analyze business case studies, and create models to aid in strategic planning. Overall, this course was designed to improve students' knowledge base in data mining as well as improve their ability to apply data mining in the context of business leadership.

2.2. Course Learning Objectives

- Students will implement cluster analysis, regression analysis, ensemble modeling, and forecasting techniques on dataset of at least 20 data points.
- Students will apply data mining tools in R to solve case study problems using at least 4 variables.
- Students will analyze a case study problem using data mining tool and make at least 2 logical recommendations based on their findings.

2.3. Academic Unit

SBE Mission:

The UW-Stevens Point School of Business and Economics creates career ready graduates and leaders through applied learning. We serve the businesses, economy, and people of the greater Central Wisconsin region. We specialize in preparing students for success by providing professional development experiences, access to employers, and in-demand skills.

The SBE achieves its mission by valuing:

- Talent development
- Lifelong learning
- Career preparation
- On the job experiences
- Community outreach
- Regional partnerships
- Continuous improvement

Accreditation Commitment:

SBE is accredited by the Association to Advance Collegiate Schools of Business (AACSB), a designation earned by only 5 percent of world business schools. Accreditation instills a culture of

continuously improving our programs through connections with local business leaders, alumni and the community.

3. COURSE POLICIES

3.1. Attendance

Attendance is not a graded component of this course. As such, attendance decisions are up to each student. It should be noted, however, that students who attend class will be better prepared to complete the coursework, and ultimately learn more, than students who choose to be absent. If you choose to be absent, be sure to consult with students who were present in order to make sure you have all the information you may need from the class.

3.2. Late Work

All in-class and out-of-class assignments/point opportunities are due on the date indicated on the Course Schedule. Should the need for an alternative due date arise, the new due date will be announced in class and/or on Canvas. Most assignments that are to be completed out of class are due online via Canvas no later than the start of class on the due date indicated on the Course Schedule. Some assignments/point opportunities, however, are due at a specific time other than the start of class. Therefore, it is important to always check to Course Schedule to see if a special due date/time applies to a given assignment/point opportunity. Any submission made after the specific time an assignment is due (whether that is the start of class or another time) will be considered one day late, even if it is submitted later on the originally due date.

Permission to hand in late work must be obtained from the instructor via email prior to the start of class on the original due date. If the circumstances are unexpected, making it impossible for the student to inform the instructor beforehand, the student has 48 hours from the start of class on the original due date to contact the instructor and request permission to hand in late work. In such cases the student must provide an explanation as to why he or she wasn't able to inform the instructor of these circumstances beforehand. Barring any circumstances involving the 48 hour grace period, the instructor will deny late work appeals involving assignments for which students had 2 calendar weeks or more to complete the missed assignment/point opportunity. This class rule is supported by the expected that students can manage their time in such a way that 2 weeks provides enough time to make the necessary arrangements to complete assignments with a multiweek time allotment.

Aside from any specific arrangements made with the instructor prior to the due date, all late assignments will receive a 5-point deduction for each day after the original due date. As noted above, submissions made after the specific time an assignment is due on the originally due date are also considered one day late. Please note, this late penalty is also imposed for days that the class does not meet, including weekends. Late submissions will not be accepted if either of following circumstances are true:

1. The assignment/point opportunity has zeroed out, meaning that the cumulative 5-point deductions have become greater than the total points possible.
2. The assignment/point opportunity is more than 1 week late.

3.3. Etiquette/Netiquette

Etiquette/Netiquette is a set of rules for behaving properly during on-campus/online components of a UWSP course. As the instructor, it is my goal to provide a safe and nurturing learning environment for all students. Therefore, breaches of Etiquette/Netiquette are defined as any behaviors that are disruptive to the learning environment. The following examples provide a foundational description of Etiquette/Netiquette and breaches thereof:

- Displaying respect for others is required at all times. It is not required that you share the perspectives of your classmates, but rather that you do not discredit their right to have their own opinion. Expressing alternate viewpoints is important, but this should be done in a collegial manner.
- Side discussions (on-campus or online), listening to head phones, sleeping in class, and abusive language is considered disruptive behavior.
- No shouting, no profane language, no verbal or physical threats, no intimidation of any kind.
- Not arriving to class under the influence of any alcohol or drugs.
- Please come to class on time. Students should inform the instructor via email prior to class if he or she must arrive late or leave early.
- Cell phones, tablets, laptops, or any other electronic devices, while permitted in class, must be used in a way that is not disruptive to the class. Electronic devices are to be used only for note taking and to participate in class. Texting, checking social media, email, etc. is not permitted. If you are using technology inappropriately, you will be asked to put your device away for the remainder of the class session. If you or those around you appear severely distracted by an electronic device at any time, the instructor may ask you to show the content of your screen or to leave the classroom.

The instructor reserves the right to ask students to leave the class or to issue grade penalties for misconduct. Grade penalties are not given lightly and not without clear and justifiable cause. Grade penalties will only be applied in cases where the student has, without question, diminished the learning environment for others. Students will always be notified via email, without delay, if they incur a grade penalty of any kind. Any continued disruptive behavior may result in a referral to the Dean of Students office.

4. GRADING

4.1. Grading Scheme

Point Range (x = your score)					Letter Grade	Percentage Range (x = your score)					
372	≤	x	≤	400	points	A	93.0%	≤	x	≤	100.0% (or other max)
360	≤	x	≤	371	points	A-	90.0%	≤	x	≤	92.9%
348	≤	x	≤	359	points	B+	87.0%	≤	x	≤	89.9%
332	≤	x	≤	347	points	B	83.0%	≤	x	≤	86.9%
320	≤	x	≤	331	points	B-	80.0%	≤	x	≤	82.9%
308	≤	x	≤	319	points	C+	77.0%	≤	x	≤	79.9%
292	≤	x	≤	307	points	C	73.0%	≤	x	≤	76.9%
280	≤	x	≤	291	points	C-	70.0%	≤	x	≤	72.9%

268	≤	x	≤	279	points	D+	67.0%	≤	x	≤	69.9%
240	≤	x	≤	267	points	D	60.0%	≤	x	≤	66.9%
0	≤	x	≤	239	points	F	0.0%	≤	x	≤	59.9%

4.2. Points Available

Points	Percent	Item	Category	Category Percent
20	5%	Week 1 Quiz	Quizzes	40%
20	5%	Week 2 Quiz		
20	5%	Week 3 Quiz		
20	5%	Week 4 Quiz		
20	5%	Week 5 Quiz		
20	5%	Week 6 Quiz		
20	5%	Week 7 Quiz		
20	5%	Week 8 Quiz		
50	13%	Cluster Analysis Project	Projects	50%
50	13%	Regression Project		
50	13%	R Project		
50	13%	Forecasting Project		
10	10%	Final Exam	Final Exam	10%
500	100%	TOTALS		100%

5. COURSEWORK

5.1. Exams

The only exam in this course is the Final Exam. It consists of two parts: an online multiple-choice exam and an application project. The multiple-choice and application components are comprehensive, requiring you to draw upon material from the first through the final week of the course. The multiple-choice part of the exam is timed, and you are allowed only one attempt. The application component is to be completed outside of class and submitted online. Additional guidelines describing both the multiple-choice exam and the application project are available on Canvas.

5.2. Quizzes

Each week students will complete a 20-question quiz covering that week's course content. The quizzes are generally available the day following that week's class session and must be taken no later than 11:59 p.m. Sunday. All quizzes are timed, and you are allowed only one attempt.

5.3. Assignments

Assignments give students the opportunity to practice the skills covered in the course. Aside from the first week, students will submit one assignment per week. There are two types of assignments:

Cases/Chapter Challenge and Hands-on assignments. Additional guidelines describing the content and format requirements of these assignments are available on Canvas.

6. SCHEDULE

6.1. *Dates and Deadlines*

The instructor will provide a tentative course schedule in a supplementary file. All provided course schedules are organized by week number in accordance with the official UWSP Academic calendar. A direct link to the UWSP Academic calendar can be found here:

<https://www.uwsp.edu/acadaff/Pages/AcademicCalendar.aspx>

7. OTHER ADMINISTRATIVE DETAILS

7.1. *ADA / Equal Access for Students with Disabilities*

The American Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP's policies, see: <https://www.uwsp.edu/datc/Pages/uw-legal-policy-info.aspx>

UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities. The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.

If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center to complete an Accommodations Request form. The Disability and Assistive Technology Center is located on the 6th Floor of Albertson Hall. For more information, call 715-346-3365 or visit: <https://www.uwsp.edu/datc/Pages/default.aspx>

7.2. *Inclusivity/Nondiscrimination Statement*

It is the responsibility of the instructor to present materials and activities that are respectful of diversity, such that students from all diverse backgrounds and perspectives be well-served by this course. No person shall be discriminated against because of race, ethnicity, color, age, religion, creed, gender, gender identity, sexuality, disability, nationality, culture, genetic information, socioeconomic status, marital status, veteran's status, or political belief or affiliation and equal opportunity and access to facilities shall be available to all. To address concerns regarding any of these issues please call 715-346-2606 or visit:

<http://www.uwsp.edu/hr/Pages/Affirmative%20Action/About-EAA.aspx>

7.3. *Religious Beliefs Accommodation*

It is UW System policy (UWS 22) to reasonably accommodate your sincerely held religious beliefs with respect to all examinations and other academic requirements. A direct link to this policy can be found here: https://docs.legis.wisconsin.gov/code/admin_code/uws/22

7.4. Help Resources

The Tutoring and Learning Center helps with Study Skills, Writing, Technology, Math, & Science. The Tutoring and Learning Center is located at 018 Albertson Hall. For more information, call 715-346-3568 or visit: <https://www.uwsp.edu/tlc/Pages/default.aspx>

If you need healthcare, UWSP Student Health Service provides student-centered healthcare that empowers and promotes wellness for all UWSP students. Student Health Service is located on the 1st floor of Delzell Hall. For more information, call 715-346-4646 or visit: <http://www.uwsp.edu/stuhealth/Pages/default.aspx>

The UWSP Counseling Center is staffed with licensed mental health professionals dedicated to assisting students as they navigate difficult circumstances or resolve personal concerns. Therapy and consultation services are free of charge for registered students. The UWSP Counseling Center is located on the 3rd Floor of Delzell Hall. For more information, call 715-346-3553 or visit: <http://www.uwsp.edu/counseling/Pages/default.aspx>

In addition to the support services provided by Student Health Service and the UWSP Counseling, there are also professional support services available to students through the Dean of Students. The Office of the Dean of Students supports the campus community by reaching out and providing resources in areas where a student may be struggling or experiencing barriers to their success. Faculty and staff are asked to be proactive, supportive, and involved in facilitating the success of our students through early detection, reporting, and intervention. As such, an instructor may contact the Office of the Dean of Students if he or she senses that a student is in need of additional support beyond what the instructor is able to provide. For more additional information, please go to <http://www.uwsp.edu/dos/Pages/default.aspx>

UWSP students may also share a concern directly if they or another member of our campus community needs support, is distressed, or exhibits concerning behavior that is interfering with the academic or personal success and/or the safety of others. Please report any concerns of this nature at <https://www.uwsp.edu/dos/Pages/Anonymous-Report.aspx>

7.5. Emergency Response Guide

In the event of an emergency, follow UWSP's emergency response procedures. For details on all emergency response procedures, please go to <http://www.uwsp.edu/rmgt/Pages/em/procedures>

7.6. UWSP Community Bill of Rights and Responsibilities

UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, a set of expectations has been developed for all students, staff, and faculty. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. For more information, go to:

<https://catalog.uwsp.edu/content.php?catoid=10&navoid=422#section-1-communal-bill-of-rights-and-responsibilities>

7.7. University Attendance Policy

In addition to the course attendance policies determined by the instructor (noted above if applicable), the university provide standard guidelines by which students are to abide. All exceptions to the course attendance policy or the university guidelines should be documented in writing. A link to the university's attendance guidelines can be found at:

<https://www.uwsp.edu/regrec/Pages/Attendance-Policy.aspx>

7.8. University Drop Policy

You are expected to complete the courses for which you register. If you decide you do not want to take a course, you must follow the procedures established by the university to officially drop the course. If you never attend or stop attending a course and fail to officially drop, you will receive an F in the course at end of the semester. A link to the university's drop policy can be found at:

https://catalog.uwsp.edu/content.php?catoid=11&navoid=431&hl=add%2Fdrop&returnto=search#Drop/Add/Withdrawal_Procedures

7.9. Academic Honesty

UW System policy (UWS 14) states that students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students suspected of academic misconduct will be asked to meet with the instructor to discuss the concerns. If academic misconduct is evident, procedures for determining disciplinary sanctions will be followed as outlined in UWS 14. A direct link to this policy can be found here: https://docs.legis.wisconsin.gov/code/admin_code/uws/14

7.10. Grade Reviews/Appeals

A formal grade appeal, also known as a Grade Review, can be requested in instances when the student feels that he or she was not provided a syllabus with a grading scale in a timely manner (i.e., the end of the second week of classes) and/or the instructor did not stick with the grading scale published in the syllabus. Questions of whether or not the instructor appropriately graded one or more of the course assignments, quizzes, exams, etc. are not matters to be decided by a formal grade appeal, but rather should be taken up with the instructor directly. Information on grade reviews can be found in the University Handbook, Chapter 7, Section 5. A link to the university's policies on non-academic misconduct can be found at

<https://www.uwsp.edu/acadaff/Pages/gradeReview.aspx>

7.11. Non-Academic Misconduct

Information on non-academic misconduct can be found in Chapters 17 and 18 of the Student Rights and Responsibilities Document. A link to the university's policies on non-academic misconduct can be found at <https://www.uwsp.edu/dos/Pages/stu-conduct.aspx>.

7.12. Confidentiality

Learning requires risk-taking and sharing ideas. Please keep your classmates' ideas and experiences confidential outside the classroom unless permission has been granted to share them.

This course may require students to post their work online using applications or services that have not been approved by UW-system. In this situation, the students work will only be viewable only by his or her classmates. None of the work submitted online will be shared publicly. Some assignments require account creation for online programs. The instructor of this course will not share your academic records (grades, student IDs). Confidentiality of student work is imperative, so you should not share the work of your peers publicly without their permission. By participating in these assignments, you are giving consent to sharing of your work with others in this class and you recognize there is a small risk of your work being shared online beyond the purposes of this course. Examples of additional risks include data mining by the company providing the service, selling of your email to third parties, and release of ownership of data shared through the tool. Please contact your instructor prior to the due date if you wish not to participate in these online assignments due to confidentiality concerns.

It is important for students to understand that faculty are required to report any incidents of maltreatment, discrimination, self-harm, or sexual violence they become aware of, even if those incidents occurred in the past, off campus, or are disclosed as part of a class assignment. This does not mean an investigation will occur if the student does not want that, but it does allow the university to provide resources to help the student continue to be successful.

7.13. Sample Coursework Permission

The instructor may wish to use a sample of your work or some of the feedback you provide on the course in future teaching or research activities. Examples: showing students an example of a well-done assignment; analyzing student responses on a particular question; discussing teaching techniques at a conference. If your coursework or feedback is used, your identity will be concealed. If you prefer not to have your work included in any future projects, please send the instructor an e-mail indicating that you are opting out of this course feature. Otherwise, your participation in the class will be taken as consent to have portions of your coursework or feedback used for teaching or research purposes.

7.14. Revision Clause

This syllabus, the provided schedule, and all aforementioned coursework, are subject to change. It is the student's responsibility to check the course website for corrections or updates to the syllabus. Any changes will be clearly noted in a course announcement or through email.