

SYLLABUS SPRING 2024

PREDICTIVE BUSINESS ANALYTICS - OMIS 482 (Section 1)

3 Credit Units

INSTRUCTOR INFORMATION:

INSTRUCTOR: Biagio Palese, PhD

PHONE: 815-753-2174 (preferred way of communication: Microsoft Teams)

E-Mail: bpalese@niu.edu (preferred way of communication: Microsoft Teams)

OFFICE: Barsema Hall 328R

CLASS TIME: Tuesday & Thursday 11:00AM - 12:15PM

CLASSROOM: BARSEMA HALL 333

VIRTUAL OFFICE HOURS: By appointment only (virtual or in-person depending on professor's availability)

TA: Venkata Surya Vineel Nekkanti

COURSE DESCRIPTION AND INTENDED LEARNING OUTCOMES:

Study of advanced topics in predictive business analytics. Topics include data manipulations, data visualizations, and data modeling. Emphasis is on using and mastering powerful predictive analytics software such as R. Students enrolled in this class are expected to learn and efficiently code without supervision. Moreover, they will learn how to apply predictive modelling techniques on case studies to see the important real-world implications of predictive analytics in business.

COURSE RESOURCES:

All the materials and resources required to learn the topics covered in class will be uploaded by the instructor on Blackboard. Students are responsible for regularly checking the course Blackboard page and study the materials uploaded or the resources linked in it. The course will also have a class forum, hosted on Microsoft Teams¹, to foster interactions and enhance engagement among students and between students and the instructor. Instructions on how to access and use Microsoft Teams will be provided during the first class.

WEIGHTING OF ASSESSMENTS

Assignments	Weighted Percentage	Points available
SKILL TESTS (3)	35%	35
PRACTICE ASSIGNMENTS (2)	10%	10
EXAMS (2)	27%	27
FINAL EXAM	18%	18
PARTICIPATION*	10%	10
TOTAL	100%	100

* Includes different components such as interactions, contributions, engagement, and student professionalism in class, on Microsoft Teams, during office hours, and the completion of surveys, polls, assignments, exercises, and activities.

GRADING SCALE: Grades will be determined by total percentage. The total percentage is equal to the weighted average of the grades you will receive in the above assignments.

POINTS	LETTER GRADE
92%-100%	A
89.5%-<92%	A-
87%-<89.5%	B+
82%-<87%	B
79.5%-<82%	B-
77%-<79.5%	C+
69.5%-<77%	C
59.5%-<69.5%	D
Below 59.5%	F

¹ I reserve the right to switch to a different tool at any time during the semester if I believe that Microsoft Teams is not meeting the class needs.

EXAMS AND FINAL EXAM:

- There are 3 exams:
 - Exam 1: Manipulations & Visualizations (12 points)
 - Exam 2: Modeling (15 points)
 - Final Exam: Comprehensive of all materials (18 points)
- All exams are given using Respondus Lockdown Browser during class time and in class as specified in the schedule below. Respondus will require your camera to be on during the entire exam to discourage and monitor any possible form of cheating. Notes, books, phones, and other devices are prohibited during the tests. It is also necessary that you keep your eyes as much as possible to the screen or that you don't look for long period time away from it. All suspicious activities detected by Respondus will be reported. Please do not put me in the position of reporting cheating behaviors in this class.
- Exams can be theoretical, computational, or a combination of both. The focus is not on mere memorization but mainly on understanding of the materials covered.
- You have the option to replace your final exam with the **AVERAGE** score of your other exams. This should be motivation to really do well on the first two exams. If you do well in them and you like your average score, you will not have to take the final and you can simply use the average score of the two exams as your final score!
- No make ups for exams will be granted if the students do not provide a valid and documented excuse for the absence.

PRACTICE ASSIGNMENTS:

There are 2 practice assignments with the objective of testing your knowledge on the materials covered and to offer you a simulation of the exams' settings and structures.

- All practice assignments are given using Respondus Lockdown Browser during the week specified in the schedule below. Respondus will require your camera to be on during their entire duration to discourage and monitor any possible form of cheating. It is critical for you to show your entire environment before starting the practice. Your pre-exam video should not be rushed and offer a 360 view of your desk and your surroundings. Notes, books, phones, and other devices are prohibited during the tests. It is also necessary that you keep your eyes as much as possible to the screen or that you don't look for long period time away from it. All suspicious activities detected by Respondus will be reported (if your pre-exam video doesn't not clearly show all your surroundings). Please do not put me in the position of reporting cheating behaviors in this class. Finally, no extensions or exceptions will be awarded unless the student will prove (e.g., with pictures, please remember not to use the phone unless necessary to show a system failure) that some issues happened during the test.
- Practice assignments will receive a 10% deduction for each day they are late.

SKILL TESTS:

There are 3 skill tests throughout the semester, and they will all be completed during class time and in class. The objective of the skill tests is to test your ability to use the software to complete tasks (based on materials covered in class) on real life datasets.

More specifically:

- The first skill test will focus on manipulations (10 points)
- The second skill test will focus on visualizations (10 points)
- The third skill test will focus on modeling (15 points)

ATTENDANCE:

Attendance will be taken for all the in-person classes (count towards number of absences). Failure to attend will result in deductions to your overall grade. This is not a negotiable policy and enforced at a OMIS department level. Grades will be adjusted according to the following attendance policy.

Number of Absences	Penalty
0-3 absences	None
4-6 absences	1 letter grade reduction
7-9 absences	2 letter grade reductions
10-12 absences	3 letter grade reductions
13+ absences	Automatic F

However, please keep in mind that in this class we will strictly follow the NIU students' attendance and safety guidelines. Please review them here: <https://www.niu.edu/external-programs/community-school-arts/attendance-safety.shtml>

Your education, health and safety are my number one priority. We are all members of the Huskie community, and we owe it to each other to protect ourselves and each other. Thus, I expect you to monitor your health and wellbeing. Throughout the duration the semester please follow the below in-class mask rules:

1. If you are fully healthy, it is your choice of wearing/not wearing the mask but please be respectful of the other class members that are wearing it; [If you are in this group, feel free to make your own choice]
2. If you have just a cold or sore throat, you should always wear the mask in class and try to distance yourself from other class members (if you forgot your mask, I will provide one for you); [If you are in this group, you should wear a mask]
3. If you experience more than one Covid-19 or other severe illness symptoms, please do not come to class and reach out to me in private; [If you are in this group, you should not come to class]

While I know some of you are tired of wearing masks and that other professors may elect to apply different rules in their teaching spaces, I hope that all of you will be understanding and respectful in following the above rules.

PARTICIPATION:

Participation in class will consist in professionalism, engagement, interactions and completion of assignments, exercises and activities. Outside class it will consist in using Microsoft Teams as our communication tool. Students are responsible to check Microsoft Teams regularly (download the app and make sure that notifications are ON) and keep personal email to the minimum, and only for personal reasons or emergencies (if needed feel free to send personal messages to me in Microsoft Teams). It is your responsibility to monitor often the General channel created for this class and make sure you receive all the notifications. The channel is designed to provide you support and help from myself, the TA, and your classmates. Rather than emailing questions to me, post your questions on Microsoft Teams in the appropriate tab (the MS Teams channel tabs are explained below).

- **General channel (Posts):** This tab will be used for generic communications/questions related to the class and not specific to the software used in it (e.g., post invitation to office hours, post schedule for group meetings etc.).
- **Random channel (Posts):** This tab is used to share content (e.g., resources, links) related to our class but not required to pass the class.
- **RStudio Forum channel (Posts):** This tab is the place where all the communications/questions related to RStudio will be posted. Please make sure to write your questions in the Posts tab and to tag me so that I will receive notification for them.

Keep in mind that all answers and questions on Microsoft Teams will be reviewed by me and all interactions will be used to assign you points in the Participation section of the grade (if you never interact in Microsoft Teams do not expect high grade in your participation portion of the class). Please be professional and respectful in all your Microsoft Teams interactions. There are no stupid questions, and I will not accept unpolite or disrespectful answers to mine or your classmates' posts. The objective this semester is to leverage Microsoft Teams and to reduce personal emails so that all of you can benefit from the content and information shared among us. Finally, also the completion of surveys, pools, tests and exercises will contribute to your participation grade even if they will not be formally graded by me.

TECHNOLOGY REQUIREMENT:

- You are highly encouraged to use R and RStudio (free installation) also on your computer. If you do not have a laptop or R and RStudio do not work correctly on your computer, this will not work as an excuse in this class. Please contact me in private immediately if you have any issues in accessing the two software.

ACCESSIBILITY STATEMENT

If you need an accommodation for this class, please contact the Disability Resource Center (DRC) as soon as possible. The DRC coordinates accommodations for students with disabilities. DRC is located in the Campus Life Building, Suite 180, and can be reached at 815-753-1303 or drc@niu.edu. Also, please contact me privately as soon as possible so we can discuss your accommodations. Please note that you will not be required to disclose your disability, only your accommodations. The sooner you let me know your needs, the sooner I can assist you in achieving your learning goals in this course.

ACADEMIC INTEGRITY

Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated

if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else (including AI). Students are guilty of plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students guilty of, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.

FINAL NOTES:

1. This syllabus is a guide, and every attempt is made to provide an accurate overview of the course and its requirements. However, certain circumstances may make it necessary for me to modify the syllabus during the semester for your benefit and the changes may depend, in part, on course progress and our needs. I will announce any change to the syllabus as early as possible so that you can adjust your schedule. The department/ school will also be notified of any change. Students are responsible for any such changes.
2. I will try to review and address all Microsoft Teams interactions within one business day (weekend excluded). In case you need to email me, please make sure to include a clear object in your email. Again, I encourage to share course related questions on Microsoft Teams and use email only for personal communications or emergencies. In Microsoft Teams, some of your questions/doubts might have already been addressed or some of your colleagues might know the answer to your question and reply in a timelier manner than me (especially in the weekends). Furthermore, participating on Microsoft Teams will also be rewarded with higher grade in the Participation portion of this class. Please be professional and respectful in all your Microsoft Teams interactions, I will deduct points if I believe you are not properly interacting on it.
3. After grades are posted for assignments, skill tests or exams, you have one week to review the grades and discuss with me about any issue you have with them. After one week, those grades are permanent.
4. Various homework/activities will be available during the semester, while you will not receive a grade for them (other than participation if completed by the deadline), they are critical for you to make sure that you are understanding and mastering the skills covered. I highly recommend to you to complete them at pace. Remember practice makes perfect! Moreover, if you are having troubles in solving them you should use Microsoft Teams and get help from me or your classmates.
5. Lastly, please do not ask for any special treatment with grades as I don't believe in exceptions. I think exceptions are not fair to the other students in this class. However, given the current circumstances, if you are directly affected by Covid-19 or have other severe health issues reach out to me in private.

Tentative Course Schedule

Weeks	What is planned?	What is due?
Week 1 (1/16-1/22) Course Introduction & Getting started	Class 1: I will give you an introduction of the class and go over the syllabus. Class 2: Getting started.	<ol style="list-style-type: none"> 1. Attend the two classes. 2. Access OMIS 482 class Team and his channels on Microsoft Teams by the end of Week 1. 3. Complete the Preliminary Survey available on Blackboard Welcome module. 4. Practice the materials covered in class.
Week 2 (1/23-1/29) Basic Manipulations	Class 1 & Class 2: Basic manipulations.	<ol style="list-style-type: none"> 1. Attend the two classes. 2. Practice the materials covered in class. 3. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 3 (1/30-2/5) Intermediate Manipulations	Class 1 & Class 2: Intermediate manipulations.	<ol style="list-style-type: none"> 1. Attend the two classes. 2. Practice the materials covered in class. 3. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 4 (2/6-2/12) Intermediate Manipulations P2 & First Review	Class 1 Intermediate manipulations part 2 Class 1 First review	<ol style="list-style-type: none"> 1. Attend the two classes. 2. Complete the Technology test as soon as possible and before taking Practice 1 next week. 3. Prepare by practicing the materials covered in previous classes. 4. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 5 (2/13-2/19) Practice 1 & First Skill test & Basic Visualizations P1	Class 1 First skill test Class 2: Basic visualizations part 1 Practice 1 will be completed directly on Blackboard (no software required). <ul style="list-style-type: none"> • Practice 1 includes 20 multiple-choice, essay or true or false questions. • Practice 1 will test you only on the materials covered up to Week 5 (weeks 1 to 4)! • Practice 1 will be available on Blackboard at 9:30 am of February 13th. • You have until the end of Week 5 to complete Practice 1 (11:59pm of February 19th). • While you have freedom in when completing Practice 3. Keep in mind that Practice 3 is a timed exam with a duration of 40 minutes. Your grade will be based on the one and only one attempt you have to complete the practice. Do not start your practice attempt unless you are ready to complete the full practice. Take screenshots in case Blackboard software crashes during the practice and email them to me. There will not be extension or extra attempts if screenshots are not provided.	<ol style="list-style-type: none"> 1. Attend the two classes. 2. Practice the materials covered in class. 3. Complete the Practice 1 assignment by the deadline. 4. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 6 (2/20-2/26) Basic Visualizations P2 & Intermediate Visualizations P1	Class 1: Basic visualizations part 2 Class 2: Intermediate visualizations part 1	<ol style="list-style-type: none"> 1. Attend the two classes. 2. You have the entire week to go over the materials uploaded on Blackboard.

		<ol style="list-style-type: none"> Practice the materials covered in class. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 7 (2/27-3/4) Intermediate Visualizations P2 & Second Review	Class 1: Intermediate visualizations part 2 Class 2: Second review.	<ol style="list-style-type: none"> Attend the two classes. Prepare by practicing the materials covered in previous classes. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 8 (3/5-3/11) Second Skill Test & First Exam	Class 1 Second skill test. Class 2: First exam. First Exam (Exam 1) will be completed directly in Blackboard (no software required). <ul style="list-style-type: none"> Exam 1 includes 30 multiple-choice, essay or true or false questions. Exam 1 will test you on the materials covered up to Week 8 (weeks 1 to 7)! Keep in mind that Exam 1 is a timed exam with a duration of 60 minutes. 	<ol style="list-style-type: none"> Attend the two classes. Prepare by practicing the materials covered in previous classes. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 9 (3/12-3/18) Spring Recess Closure	No class meetings	Enjoy your spring break
Week 10 (3/19-3/25) Basic Modeling Part 1	Class 1 & 2 Basic modeling part 1.	<ol style="list-style-type: none"> Attend the two classes. Practice the materials covered in class. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 11 (3/26-4/1) Basic Modeling Part 2	Class 1 & Class 2: Basic modeling part 2.	<ol style="list-style-type: none"> Attend the two classes. Practice the materials covered in class. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 12 (4/2-4/8) Intermediate modeling Part 1	Class 1 & 2: Intermediate modeling part 1.	<ol style="list-style-type: none"> Attend the two classes. Use Microsoft Teams to ask questions or answer classmates' questions. Make sure to go over this week materials.
Week 13 (4/9-4/15) Intermediate modeling part 2 & Practice 2	Class 1 & Class 2: Intermediate modeling part 2. Practice 2 will be completed directly on Blackboard (no software required). <ul style="list-style-type: none"> Practice 2 includes 20 multiple-choice, essay or true or false questions. Practice 2 will test you only on the materials covered in class up to Week 11 (weeks 10 and 11)! Practice 2 will be available on Blackboard at 9:30 am of April 9th. You have until the end of Week 5 to complete Practice 1 (11:59pm of April 15th). While you have freedom in when completing Practice 2. Keep in mind that Practice 2 is a timed exam with a duration of 40 minutes. Your grade will be based on the one and only one attempt you have to complete the practice. Do not start your practice attempt unless you are ready to complete the full practice. Take screenshots in case Blackboard software crashes during the practice and email them to me. There will not be extension or extra attempts if screenshots are not provided.	<ol style="list-style-type: none"> Attend the two classes. Complete Practice 2 by the deadline. Prepare by practicing the materials covered in previous classes. Practice the materials covered in class. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 14 (4/16-4/22)	Class 1 & 2: A predictive modeling case study.	<ol style="list-style-type: none"> Attend the two classes.

A Predictive Modeling Case Study		<ol style="list-style-type: none"> Practice the materials covered in previous classes. Use Microsoft Teams to ask questions or answer classmates' questions. Make sure to go over this week materials.
Week 15 (4/23-4/29) Third Review & Third Skill Test	Class 1: Third review. Class 2: Third skill test.	<ol style="list-style-type: none"> Attend the two classes. Prepare by practicing the materials covered in previous classes. Use Microsoft Teams to ask questions or answer classmates' questions.
Week 16 (4/30-5/6) Communication & Exam 2	Class 1: Communication Class 2: Second Exam (Exam 2) Exam 2 will be completed directly in Blackboard (no software required). <ul style="list-style-type: none"> Exam 2 includes 30 multiple-choice, essay or true or false questions. Exam 2 will test you on the materials covered up to Week 14 (Week 10 to 14)! Keep in mind that Exam 3 is a timed exam with a duration of 60 minutes. 	<ol style="list-style-type: none"> Attend the two classes. Prepare by practicing the materials covered in previous classes. Use Microsoft Teams to ask questions or answer classmates' questions. Make sure to go over this week materials.
Final Exam2: May 7th	The Final exam3 will be completed directly in Blackboard (no software required). <ul style="list-style-type: none"> The Final Exam includes 40 multiple-choice, essay or true or false questions. The Final Exam will test you on all the materials covered during the semester! To give you more flexibility, in comparison to university allocated time, the Final Exam will be available on Blackboard on the university allocated final day (9:30 am of TBA day). You have until the end of the university allocated final day to complete the Final Exam (11:59pm of TBA day). While you have freedom in when completing the Final Exam on May 7th day. Keep in mind that the Final Exam is a timed exam with a duration of 80 minutes. Your grade will be based on the one and only one attempt you have to complete the exam. Do not start your exam attempt unless you are ready to complete the full exam. Take screenshots in case Blackboard software crashes during the exam and email them to me. There will not be extension or extra attempts if screenshots are not provided.	<ol style="list-style-type: none"> Complete the Final Exam by the deadline.