WOOSONG UNIVERSITY
ENDICOTT COLLEGE OF INTERNATIONAL STUDIES

Introduction to Business Analytics

Spring 2023 **Section: 001/002**

Professor: Iegor Vyshnevskyi
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Class hours and location:
Section 001: Monday 1-4 pm, W19 Room 105
Section 002: Tuesday 1-4 pm, W19 Room 105
Office Hours:
Section 001: Tuesday 10-11 am, W19 Room 223
Section 002: Tuesday 11 am -12 pm, W19 Room 223

COURSE DESCRIPTION

Business analytics (BA) is the process of creating decisions or suggestions for actions that may be put into practice based on data-driven insights. Businesses are using data analytics more frequently to assess and enhance business decisions. For current business students, it is essential to have the ability to gather, evaluate, and use data to support vital decisions. Students will learn about the expanding use of big data in business and quantitative approaches to problem-solving in this course. The purpose of this course is to introduce students to real-world uses of analytics to solve problems in the fields of accounting, economics, finance, hospitality, management, and marketing through the analysis of business instances where data has assisted firms in making better decisions.

COURSE OBJECTIVES

Students who complete this course will have a basic understanding of business analytics, its function in modern businesses, and its connection to business intelligence, as well as the fundamental methodology, processes, and tools that enable it.

In addition, the course is entitled to develop necessary labor market skills like presenting information, teamwork, information collection, and analytical thinking. It helps boost confidence while also providing some fun.

COURSE LOGISTICS

This course focuses on the factors that influence business decision-makers performance as well as the data management and analysis techniques that are useful to them. As such, the course consists of lectures, in-class activities, and demonstrations that emphasize hands-on, practical tasks that give students the chance to put what they have learned to the test and improve their skills. Software is used to assist in how the information is presented.

Students finish readings that have been assigned before the class, work on group projects, and take part in activities.

Access to the internet and a computer are required.

All the materials will be posted on SMART. Students are expected to regularly check their message box and notice board on SMART.

You will have an access link to the KSS survey. There will be only 3 questions there (What should I **K**eep / **S**tart / **S**top doing during class?) This is the way to get your feedback and suggestions on classes and make some adjustments if needed and possible. It is completely voluntary and anonymous.

Until March 31st, the classes will be delivered in hybrid mode to allow students who have any delays with coming to Korea to participate. Only students who are outside of Korea are allowed to participate online.

COURSE MATERIALS

A selection from

- Bhimasankaram Pochiraju & Sridhar Seshadri (2019). Essentials of Business Analytics
- Abhay Singh (2022). R for Data Analytics
- Wes McKinney (2022). Python for Data Analysis
- Garrett Grolemund and Hadley Wickham (2016). R for Data Science
- Joel Grus (2020). Data Science from Scratch

In addition, please see GitHub repository https://github.com/Iegor-Vyshnevskyi/Woosong-IBA

COURSE REQUIREMENT AND ASSESSMENT

The final grade for the course will be comprised of the following elements:

Class Attendance	20%
In-class assignments	50%
Final Examination (Week 15)	30%
Total	100

A. Class Attendance: 20%

This class requires active engagement from students which means you are required to actively participate in class activities. Effective participation involves the following aspects:

Attendance. You cannot engage in activities if you are not in class. As such, 100% attendance is expected and lesser attendance will affect your overall grade. Students will be using the Woosong Attendance App. Students are solely responsible for the make-up of any missed classes and for obtaining any class materials or assignments which they miss. The instructor may fail any student on the grounds of unacceptable attendance. Please note, that the following will be recorded as partial absences equivalent to one or more recording periods:

- Unexcused late arrivals to class

- Unexcused lengthy absence during class
- Unexcused frequent exits and entries from the class
- Unexcused early departures
- Sleeping in Class

Effective Listening and Contribution. Effective listening is an important managerial skill and it is expected of students that they will demonstrate this skill in class. When the instructor or anybody else is talking, the rest of the class is expected to be silent, considerate and respectful. You can only contribute to a discussion in a meaningful way if you have listened carefully to what has been said, identified key points and respond accordingly. A good-quality comment or contribution is one which is relevant and which adds to the learning of the class. A bigger part of my grading system is class participation, I expect that everybody will participate in the regular class activities.
If there are some unclear topics, it is very important that students ask for clarification.

Please note, that disruptive and disrespectful behaviour in the lectures can easily undermine, diminish, or even destroy a potentially excellent activity and will, because of this, affect your learning and contribution in the lectures. Disruptive or disrespectful behaviour will not be tolerated in class and the instructor reserves the right to discipline any student who has repeatedly disrupted the class or has exhibited disrespectful behaviour in class.

B. In-class assignments: 50%

Around 12 in-class assignments will be given during the course. These are likely to cover the following topics.

(i) Data collection / Database management / Descriptive Statistics
(ii) Excel / Tableau / SQL / R / Python Applications
(iii) Data Visualization
(iv) Linear Regression
(v) Text Mining / Sentiment Analysis
(vi) Forecasting Modeling
(vii) Machine Learning: CART (Classification & Regression Trees)

All assignments must be submitted online via the LMS system by the end of particular class. No AI application is allowed.

Any students failing to submit assignments on time will receive either a reduced grade or a zero for that. Please note that if you experience any technical difficulties whilst trying to submit your assignment, please immediately email your assignment to ievysh@wsu.ac.kr (this way I can check the timestamp of submission).

C. Final Examination: Group project report (Week 15): 30%

A group project report including the application of analytics principles and methods to a business issue will be required of the students. You are free to choose any related issue and tool (covered through the course though). A 20-minute PPT presentation and also provide the questions for a 15- minute discussion on the topic. Students must send their PPT to the course instructor for evaluation after the presentation session. Students will be allocated to teams by the instructor (up to 5 people in a group). No AI application is allowed.

ACADEMIC INTEGRITY

Plagiarism and copying. Plagiarism is the act of taking another person's (author, theorist, piece of work) ideas or work and representing it as your own. This includes copying another student's work. Woosong University / Endicott / SolBridge consider plagiarism as a serious breach of academic and professional ethics. Plagiarism, in any form, will NOT be tolerated. Penalties can be as severe as expulsion.

Free riding. A situation in which someone benefits without having to make a fair contribution. Any form of it will not be tolerated.

Cheating. Cheating undermines the reputation of Woosong University / Endicott / SolBridge as well as undermines the values of the degrees earned at these institutions. Therefore, cheating is severely punished. Cheating includes (but is not limited to):

- Copying somebody else's work.
- Eliciting answers from somebody else.
- Changing an answer (or answers) on an assignment or exam for re-grade.
- Misrepresenting a family or personal situation in order to get an extension.
- Using prohibited resources during a test or other academic work.
- Falsifying data or claiming to have done research that you did not do yourself.
- Assisting another student in doing any of the above.

Consequences of Unethical Academic Conduct:

- All instances will be reported to the Woosong University / Endicott / SolBridge disciplinary officer.
- The first instance will result in a "zero" for the assignment in question.
- The second instance will result in a failing grade ("F") for the entire course.
- The third cumulative instance will result in institutional-level disciplinary action which could include expulsion from the schools.

BEHAVIOR AND EXPECTATIONS

When sending an email. In both business and academia environments, it is imperative that you show respect when sending an email (especially when submitting an assignment or exam). This looks like the following:

- Including a subject line (e.g., [Introduction to Business Analytics (Section 00*)] Meeting request).
- Address the professor: "Dear Professor"
- Who are you and which class do you come from? I am _____, my student ID is _____ and I am from *** class Section 00*.
- Explain why you are sending this email. DO NOT attach something with an empty body in the email.
- If you disagree about your grade, respectfully explain why. Please note that you are not entitled to an "A" in virtue of having completed the task correctly – this is a minimum requirement.
- Make sure to name your attachment correctly and double-check that it is the right attachment.
- Do not expect immediate replies. It usually takes 24 - 48 ours on weekdays and longer on weekends.

- I may not reply on time (so email me in advance).

Grading (technical details). Proper grading takes time, expect grading to take anywhere from 7 – 14 days. Do not expect thorough feedback for every answer – this is impossible to do. Refer to the general comments on your work. If you want to discuss the grades, please visit me during my office hours or contact me to arrange a meeting.

COURSE SCEDULE

The following schedule is not written in stone and is thus subject to change, tailoring the proper understanding of materials.

Week	***Coverage***
1	Overview of the course and logistics: Introduction and Overview. Reading: Course Syllabus; the course surveys; Lecture notes #1
2	Data Collection and Mining. Reading: Pochiraju and Seshadri (2019): Ch 2; Lecture notes #2
3	Data & Big Data management. SQL. Reading: Pochiraju and Seshadri (2019): Ch 3 – 4; Lecture notes #3
4	Data Exploration: Preprocessing, Transformation. MS Excel and R Reading: Singh (2022): Ch 4; Lecture notes #4
5	Data Visualization. Tableau Reading: Pochiraju and Seshadri (2019): Ch 5; Lecture notes #5
6	Data Visualization. R Reading: Singh (2022): Ch 5 – 6; Lecture notes #6
7	Statistical Methods: inferences and regressions Reading: Pochiraju and Seshadri (2019): Ch 6 - 7 Reading: Singh (2022): Ch 7 – 9; Lecture notes #7
8	Text Analytics. R Reading: Pochiraju and Seshadri (2019): Ch 9 Reading: Singh (2022): Ch 17; Lecture notes #8
9	Technical Analysis. R Reading: Singh (2022): Ch 10; Lecture notes #9
10	Forecasting analytics. VaR Forecasting and GARCH models Reading: Pochiraju and Seshadri (2019): Ch 12 Reading: Singh (2022): Ch 11; Lecture notes #10
11	Survival Analysis

	Reading: Pochiraju and Seshadri (2019): Ch 14; Lecture notes #11
12	Machine Learning (Unsupervised). R / Python Reading: Pochiraju and Seshadri (2019): Ch 15; Lecture notes #12
13	Machine Learning (Supervised). R / Python Reading: Pochiraju and Seshadri (2019): Ch 14; Lecture notes #13
14	AI Basics and Applications Lecture notes
15	Final exam Final exam

Note: All assignments, quizzes, and homework will be stipulated in class.
PS: if you find any mistakes / typos, please let me know. Thanks!