

# Introduction to Business Analytics

## Lecture 1: Introduction

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# Agenda

1. Introduction
2. Syllabus & course roadmap
3. What Is Business Analytics?
4. Homework

# 1. Introduction

# About me

Hello! My name is [legor](#).

- Assistant Professor ([link](#)), Woosong University
- Ph.D. (Public Policy), KDIS (ROK, 2022)
- M.A. (Public Policy), KDIS (ROK, 2014)
- M.A. (International Economics), KNEU (Ukraine, 2009)
- B.A. (International Economics and Management), KNEU (Ukraine, 2008)
- Background: international finance & central banking
- Research interests: banking and central banking, computational data science

Some Info:

- email: [ievysh@wsu.ac.kr](mailto:ievysh@wsu.ac.kr)
- office: W19 #223
- [Google Scholar](#)
- [Linkedin](#)
- [ResearchGate](#)
- [GitHub](#)

# About you

- What's your preferred name?
- Where are you from?
- Background survey [link](#)
- Expectation survey [link](#)

# General things

- **Our Goals:**
  - to look through concepts and tools of BA to further apply in real-life practice
  - a **smart consumer** of data science
  - an **informed producer** of elementary data science product
  - see that Data Science is *fun* :-)
  - ~~become an R/Python/etc expert~~
- **Our Principle:**
  - learning by doing
  - mutual respect
  - put one's efforts
- **My role:** to guide you through the course
- Your suggestions are welcomed (through **KSS** survey, etc.)!

# Our communication

- Feel free to approach me before or after class
- **Office hours:** *Sec 1* (Tuesday 10-11 am); *Sec 2* (Tuesday 11 am -12 pm) or by appointment. You are welcome to discuss course-related issues and questions, career plans, etc.
- Check / use **LMS** (incl. messages in-there)
- **Emailing policy:** email me to set up a one-to-one meeting or in the case of some urgent issues.
  - Please indicate the course name / section in the subject line and the issue (e.g., *[Introduction to Business Analytics (Sec 1/2)] Meeting request*)
  - Please write at least two times when you would like to meet and a brief description (1-2 sentence) why you want to meet up with me
  - I may not reply on time (so email me in advance)

## 2. Syllabus & course roadmap



# The course in a nutshell

1. Business Analytics basics
2. Business Analytics tools:
  - Software (Excel, Tableau, SQL, R, Python)
  - Functional (data collection, visualization, analysis, etc.)
3. Practical implication (class assignments and a project)

# Broad coverage

- **Formal side:**

- Concepts
- Understanding
- Real-life cases
- Problem-solving
- Application

- **Hidden side:**

- Values
- Communication
- Cooperation
- Discussions
- Standards

# Logistics & materials

- Check out the syllabus
- A typical class will focus on concepts, tool and technique overviews, and practical exercises
- The lecture notes will be made available at least one or two days beforehand

## Course materials:

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

See the instruction about GitHub account there

# Study Suggestions

1. Reading materials before class
2. Attend lectures (20% of your grade)
3. Be active in class (perform in-class activities)
4. "The best way to learn ... is to stay on top of it as you go along. The worst way is to cram the night before exams." (c)
5. Do "homework"

# Typical failer profiles

1. Couldn't care less
2. Struggle with English
3. Personal issues
4. Data science (computer) PTSD

# 1. Couldn't care less

- Great indifference
- Missing lectures
- Coming/leaving late/early
- No homework
- Doing something else in class
- Cheating / free riding

**DROP IT**

## 2. Struggle with English

- Trouble with listening/reading comprehension
- Poor vocabulary
- Hard time with new terminology

**It's okay, just push harder**

### 3. Personal issues

- Health
- Family
- Job
- Universe against you

Come talk to me asap



## 4. Data science (computer) PTSD

- Traumatic data science experiences
- Mental blocked
- Electrical appliances turn off all around you

Just patience & work harder

### **3. What Is Business Analytics?**

# Purposes

A [MicroStrategy](#) survey found that businesses around the world are utilizing data to

- Improve efficiency and productivity (64 %)
- Achieve more effective decision-making (56 %)
- Drive better financial performance (51 %)

# Concepts

- *Data science* is an interdisciplinary field that uses scientific methods, processes, algorithms and systems to extract or extrapolate knowledge and insights from noisy, structured and unstructured data, and apply knowledge from data across a broad range of application domains. Data science is related to data mining, machine learning and big data ([Wiki](#))
- *Data analytics* (a subfield of data science) is the science of analyzing raw data to make conclusions about that information ([Invest](#))
- **Business analytics** is the process of using quantitative methods to derive meaning from data to make informed business decisions (the Harvard Business School [Online](#))

# Business Analytics vs. Data Science

- The difference between business analytics and data science lies in **how data is used**
- Business analytics is concerned with extracting meaningful insights from and visualizing data to facilitate the decision-making process, whereas data science is focused on making sense of raw data using algorithms, statistical models, and computer programming
- Despite their differences, **both business analytics and data science glean insights from data to inform business decisions**

# Business Analytics vs. Data analytics

- Data analytics does not have to be used in pursuit of business goals or insights. It is a broader practice that includes business analytics
- BA involves using data analytics tools in pursuit of business insights. However, because it's a general term, data analytics is sometimes used interchangeably with business analytics

# Business Analytics methods

1. *Descriptive*: The interpretation of historical data to identify trends and patterns
2. *Diagnostic*: The interpretation of historical data to determine why something has happened
3. *Predictive*: The use of statistics to forecast future outcomes
4. *Prescriptive*: The application of testing and other techniques to determine which outcome will yield the best result in a given scenario

# Business Analytics tools

- Open Source Tools:

- R and Python
- Apache Spark
- SQL

- Famous Tools:

- Excel
- Power BI
- Tableau
- SAS
- Microstrategy



# The benefits of Business Analytics

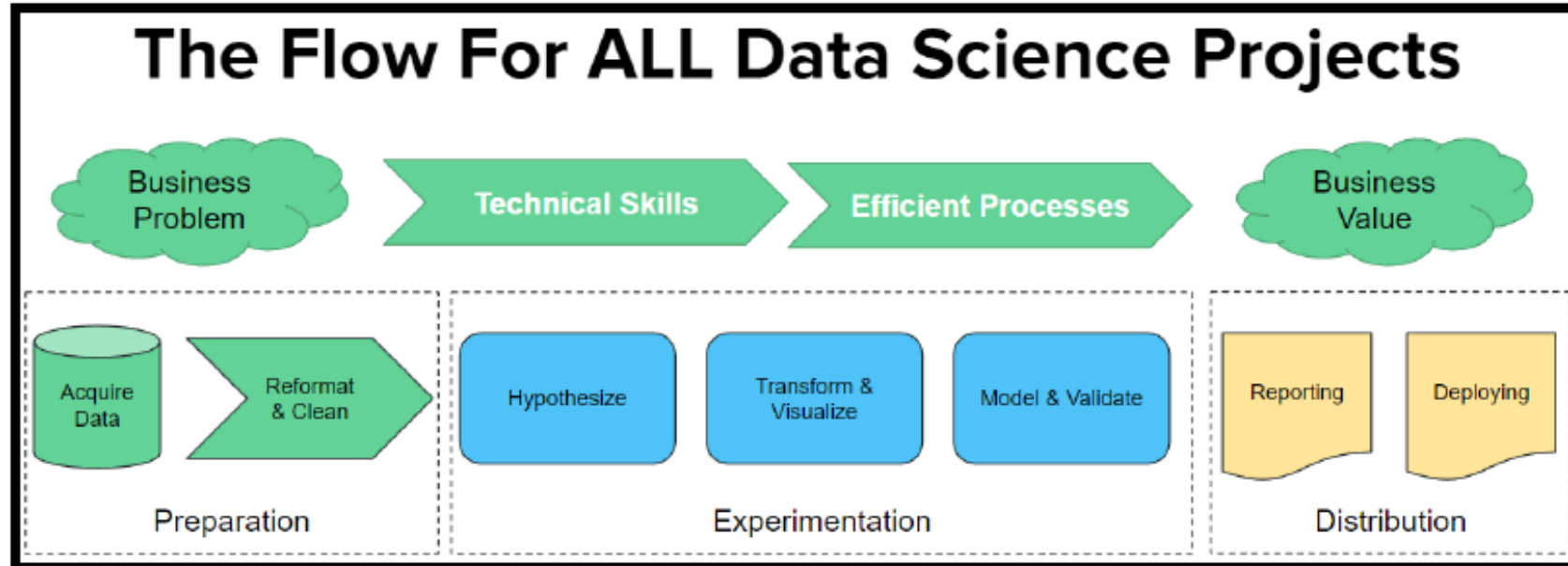
1. More informed decision-making
2. Greater revenue
3. Improved operational efficiency

# Typical problems in Business Analytics

1. Too many data sources [link](#)
2. Lack of skills
3. Data storage limitations
4. A lack of understanding from the business side of the benefits and actual power of data science

# Data Science workflow

Matt Dancho. Everything You Should Already Know About Data Science.



# Main focus



**Learning  
Data Science**



**Learning how to  
solve business  
problems**

- Instead of learning data science
- Study learning **how to solve problems** via some tools application

[source link](#)

# Example

**Step 1:** Start with a problem.

*Example.* One person enjoys drinking beer, specifically *Corona Extra* (who doesn't?). But he had a tough time finding new ones to try.

**Step 2:** critically think about the problem. Can I find data? Yes, he found a CSV of beers with all sorts of data like alcohol content, type of beer (lager, ipa, wheat, etc)

What would solve this problem? -> An easy-to-use app that recommended 10 beers to try.

**Step 3.** Research & build.

*Example.* He built a small web app that recommends 10 beers based on user preferences.

How did he get started? -> He researched...

What it takes to make a web app. How to make product recommendations. How to do it in R

## 4. Homework

# Please do the following before the next class:

- Read the Pochiraju and Seshadri (2019): Ch 2
- Install R and RStudio [link](#)