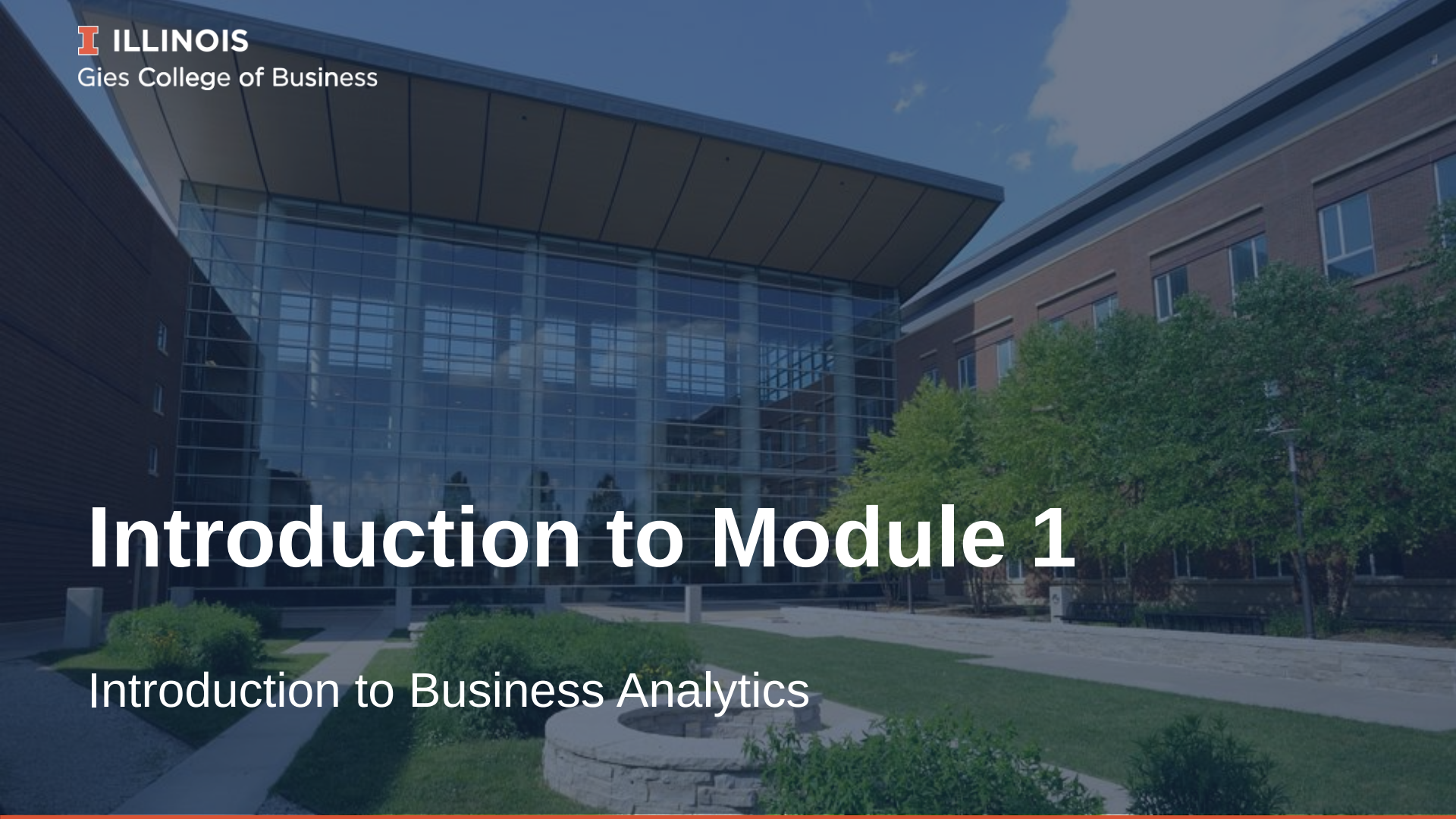
Introduction to Business Analytics

By Ron Guymon



Introduction to Module 1

Introduction to Business Analytics

Module 1 Objectives

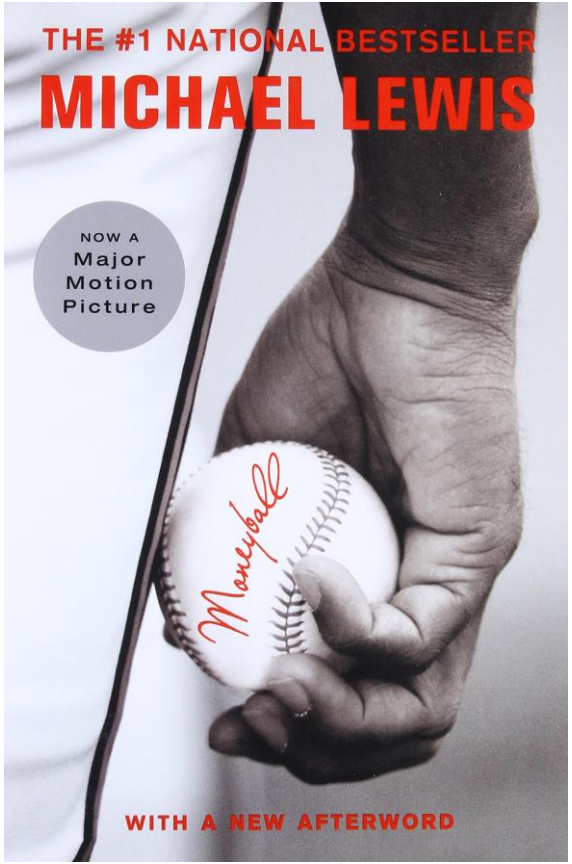
Introduce the role of data analytics in business.

Introduce you to R, RStudio, and simple coding.

Introduce you to working with data in R.

Overview of Business Analytics

Introduction to Business Analytics


THE #1 NATIONAL BESTSELLER
MICHAEL LEWIS
NOW A
Major
Motion
Picture
Moneyball
WITH A NEW AFTERWORD

(Lewis, 2004)

Goal of Business Analytics

Use data to:

- Inform tactical decisions
- Inform strategic decisions
- Help to confirm or disconfirm a hunch
- Help to spot patterns
- Lead us to new questions

How Does Data Inform Business Decisions?

- What happened?
- Why did it happen?
- What is happening now?
- What will happen if there’s no intervention?
- What intervention should be taken to achieve the most desirable outcome?

Examples of Business Analytics

Introduction to Business Analytics

Growing Solar Company

Growing Solar Company

Problem

- Inability to keep track of what is being paid for electrical components

Growing Solar Company

Data Analytic Solution

- R and optical character recognition were used to convert invoice photos to tabular data.
- Excel was used to filter the data to specific parts and invoices for which the company was overcharged.

Growing Solar Company

Result

- The company recouped four times the investment to create the tabular data.

Georgia State University

Georgia State University

Problem

- A large undergraduate population that was financially crunched
- Students were choosing to sacrifice school for immediate needs, like repairing a flat tire.

Georgia State University

Data Analytic Solution

- Gather insight from 10 years of historical data (~2.5 million grades) to identify factors that led to low grades.
- Create an early alert system that triggered meetings between students and counselors.

Georgia State University

Result

- The graduation rate increased by six percentage points.

National Basketball Association (NBA)

National Basketball Association (NBA)

Problem

- Fluidity of the game limits the ability to gather data like that used in baseball.
- Star players were often injured due to the rigorous schedule.

National Basketball Association (NBA)

Data Analytic Solution

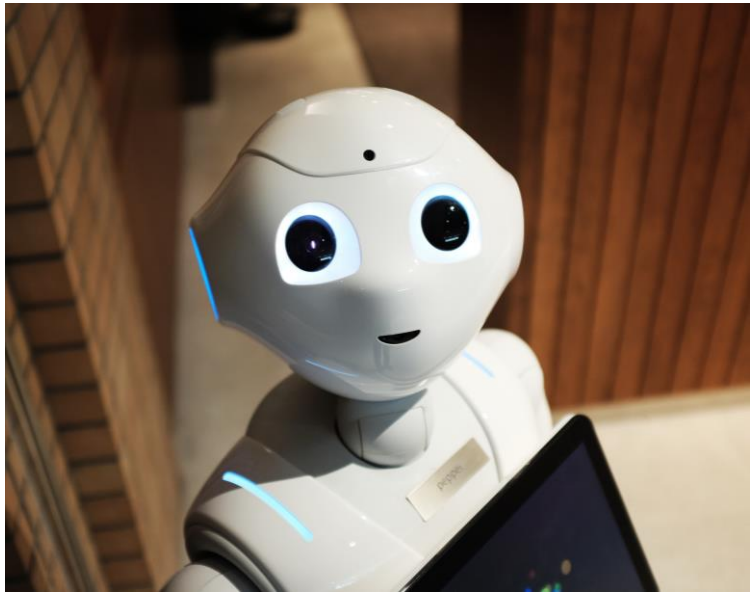
- Install cameras that monitor the location of the players and the ball 25 times per second.
- Use wearables to track players' health.

National Basketball Association (NBA)

Result

- Teams are better able to evaluate an individual’s contribution to defense.
- Start players are rested more often.

Stock Market



Stock Market

Problem

- Inability of individuals to compete with teams of analysts to gather and process large amounts of information for making trades

Stock Market

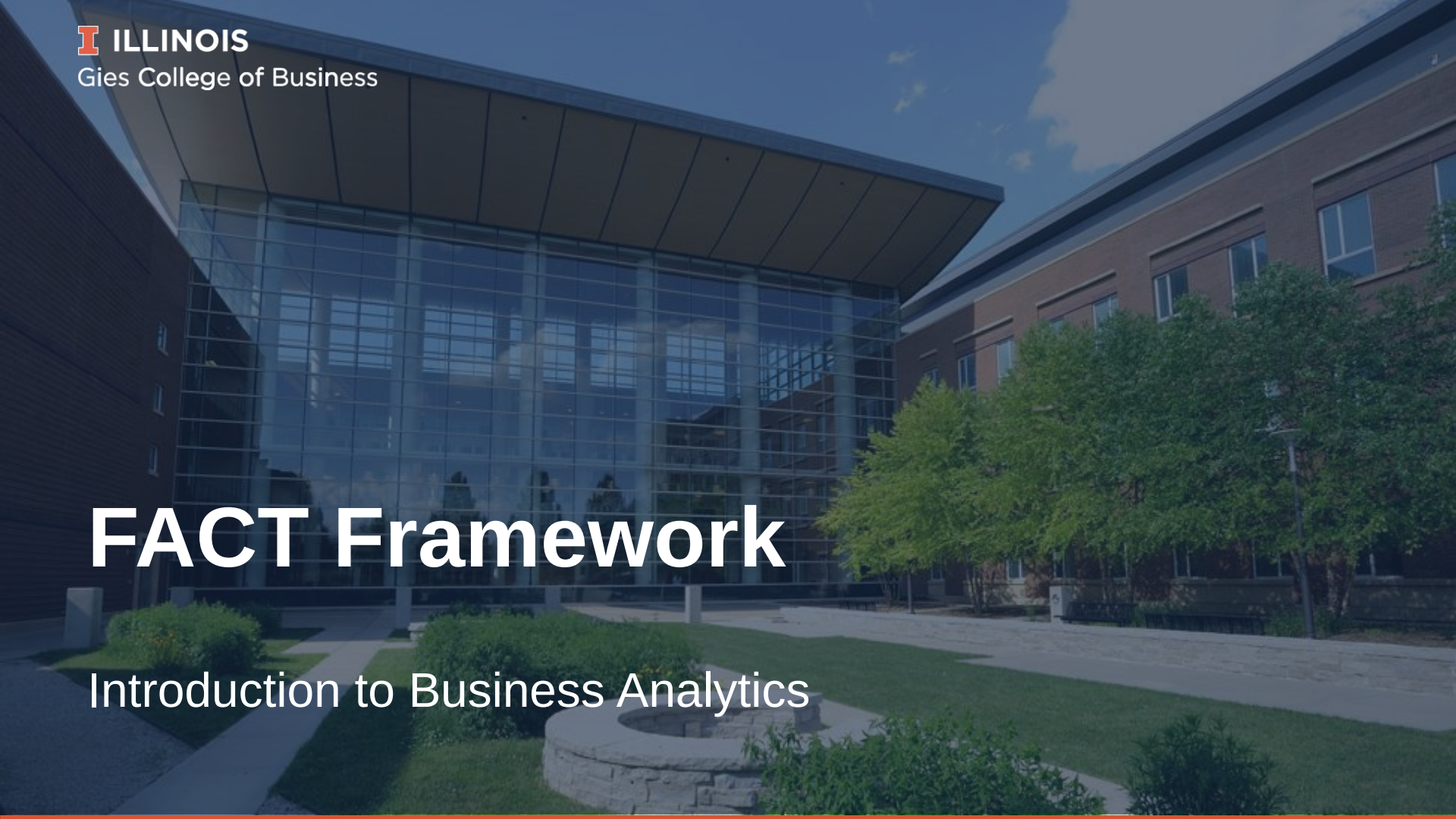
Data Analytic Solution

- Use a program to monitor, aggregate, and interpret information from many locations, and then place trades.

Stock Market

Result

- Make informed trades faster than any human.



FACT Framework

Introduction to Business Analytics

FACT Framework

- **Frame the question**
- **A**ssemble the data
- **C**alculate the results
- **T**ell others the results


28 29 30 31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FACT Framework

- **F**rame the question
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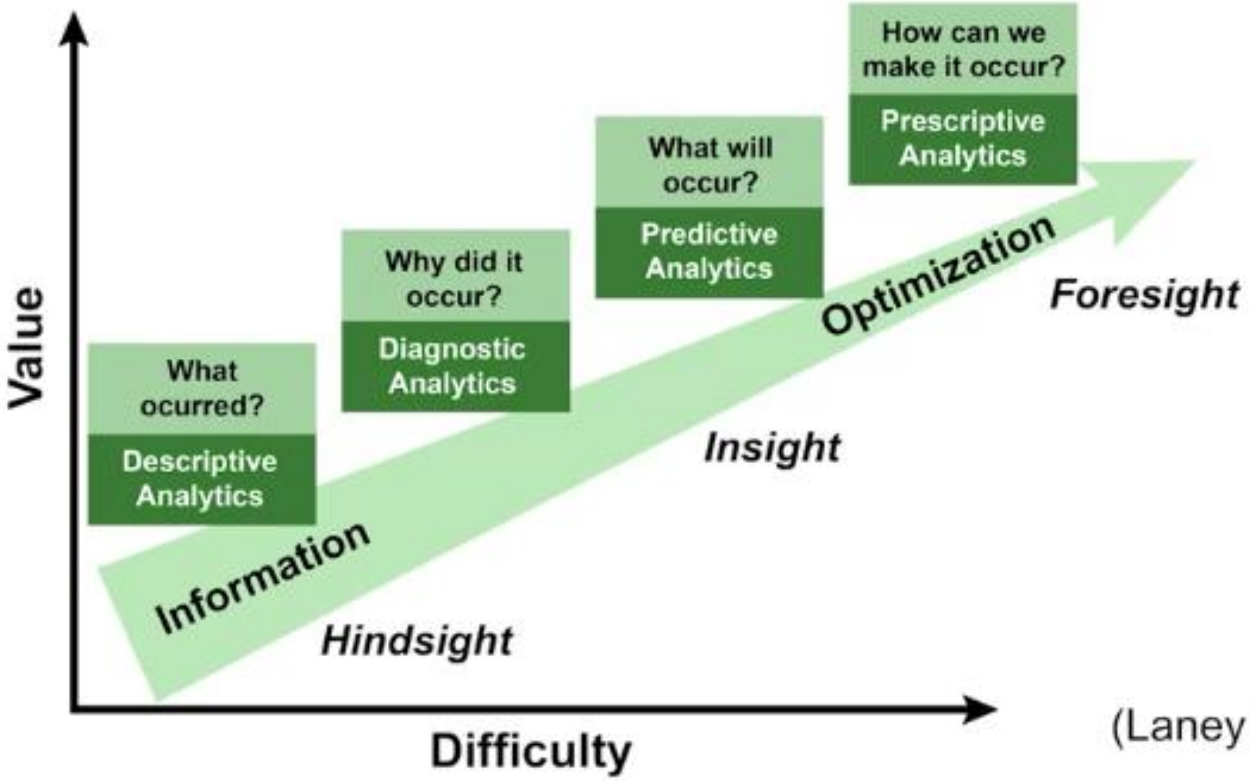
Gartner Analytic Ascendency Model



(Laney 2017)

Introduction to R

Introduction to Business Analytics

Interestingly, R is a different implementation of S, which is another programming language.

Among other purposes, Excel is used as a ledger for simple accounting transactions, such as an address book, a seating chart, a calendar…

Excel is a show-and-tell software.

Artisanal data analysis: skillfully dealing with data using manual, repetitive processes.

Automated data analysis: skillfully dealing with high-volume, high-velocity, and high-variety data using mechanized processes.

R is a tell-and-show software.

Why Learn a Data Analytic Language?

1. Makes it easy to reuse a process and reproduce the results

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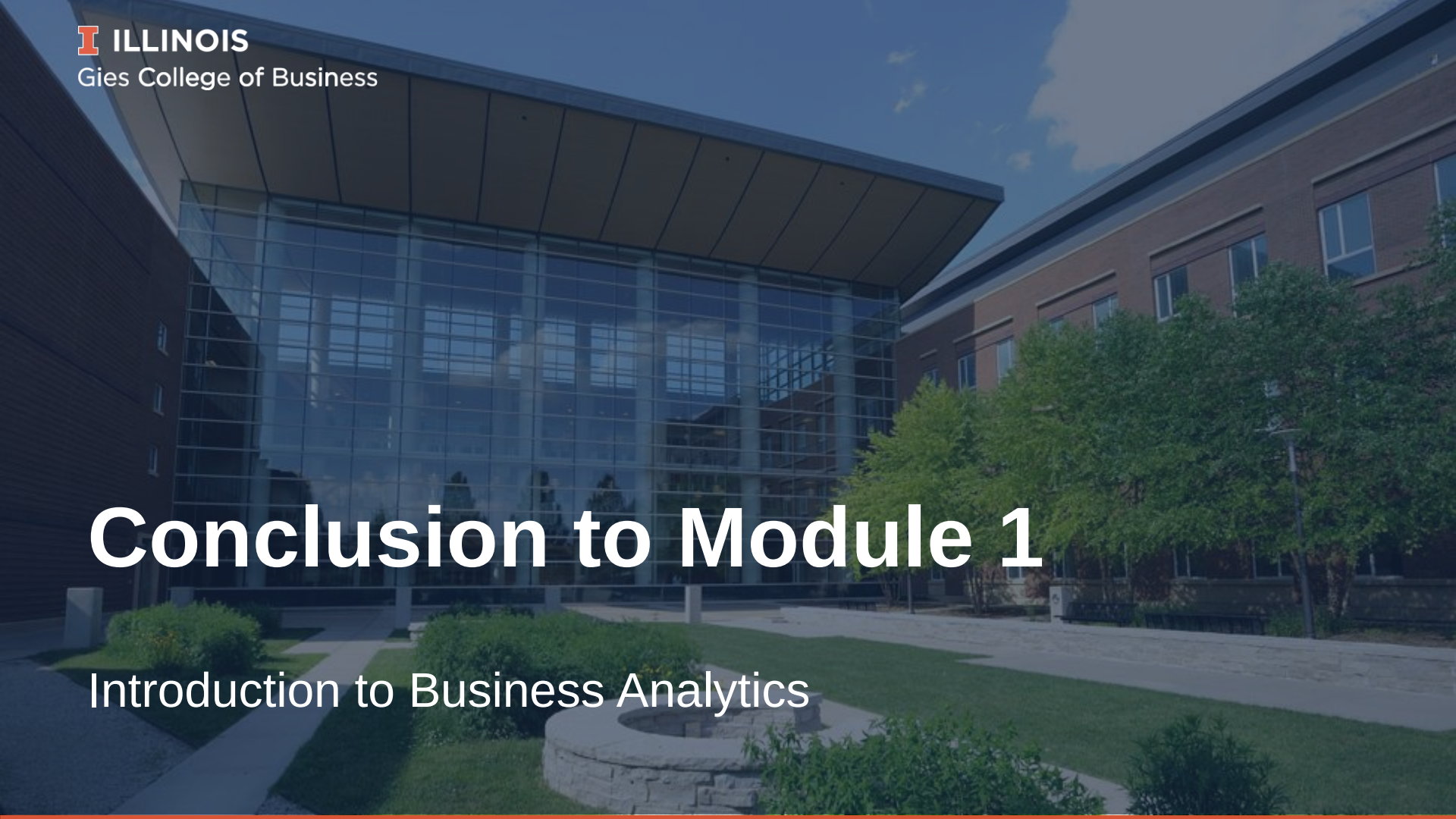
2. Saves time (once you learn how to use it)
3. Open source!
4. Wide variety of graphing capabilities
5. Powerful and simple tools for sharing results



Conclusion to Module 1

Introduction to Business Analytics

How to Move Forward?

1. Remember to use the built-in help in RStudio!
2. Start applying R to a personal project.
3. Take heart, and remember that it’s not uncommon to initially spend an inordinate amount of time on little things