Welcome!

Stephanie Brown

Associate Director of
Graduate Admissions

MENDOZA COLLEGE OF BUSINESS

UNIVERSITY OF NOTRE DAME

MSBA-SA CLASS OF 2024 PROFILE

33 MSBA-SA Students

3.40 Average GPA

315 Average GRE

14 Undergraduate Universities

18 Undergraduate Majors

MENDOZA COLLEGE OF BUSINESS

UNIVERSITY OF NOTRE DAME

14
US States

27%
Women

23%
Diverse Perspectives

60%
Student Athletes

8
Sports

MSBA-SA CLASS OF 2024 DEMOGRAPHICS

MENDOZA COLLEGE
OF BUSINESS

—

UNIVERSITY OF
NOTRE DAME

YOU BELONG HERE

Welcome Class of 2024!

MSBA in Sports Analytics
Corbett Hall
June 7, 2023

Agenda

- Welcome
- Program overview
- Summer schedule
- A look at the future outcome in the real world — what you will learn, what you can apply

Brandon Erlacher

Academic Director, MSBA-SA
Assistant Teaching Professor IT,
Analytics, and Operations

MSBA-SA Program Overview

Summer 2023
Introduction to Statistical Analysis
Data Management
4 CR

Fall 2023
Conveying Visual Data Insights
Predictive Analytics
Data Analysis with Python
Mod 1 — Machine Learning
Mod 1 — Data Acquisition
Mod 2 — Sports Analytics
Mod 2 — Unstructured Data Analytics
15 CR

Spring 2024
Mod 3 — Customer Engagement Analytics
Mod 3 — Digital Transformation
Mod 3 — Network Structures
Mod 4 — Ethics of Data Analytics
Mod 4 — Human Performance Analytics
Analytics Capstone Project
Bridges to Success
13 CR

2023 Summer Schedule

You will hit the ground running next week with Stats and Data Management.

Classes are in Mendoza, room L062 (lower level).

Final Exams will be the last day of class for each course— refer to the syllabi on Canvas.

There will be no class on July 4th.

Last day for the Summer session is July 29th. Classes resume for the Fall on August 22nd.

Master of Science in Business Analytics - Sports Analytics
Schedule of Required Classes

Now Irish
June 7 - 9, 2023

Summer
June 12 - July 29, 2023

Monday	Tuesday	Wednesday	Thursday	Friday
10:00 a.m. - 11:50 a.m. MSSA 70200 Intro to Statistical Analysis Josie Akosa	10:00 a.m. - 11:50 a.m. MSSA 70240 Data Management Yoon Son	10:00 a.m. - 11:50 a.m. MSSA 70200 Intro to Statistical Analysis Josie Akosa	10:00 a.m. - 11:50 a.m. MSSA 70240 Data Management Yoon Son	

Summer 2023 Course List

Course Number	Course Title	Instructor	Credits
MSSA 70200	Intro to Statistical Analysis	Akosa, Josie	2 Credits
MSSA 70240	Data Management	Son, Yoon	2 Credits

August 21, 2023
Fall Classes Begin

Notes: Schedule subject to change

Grow Irish

MSBA-SA Careers in Sports Immersion

- Three days at end of fall semester
  - Dec 5-7, 2023
- Sports Industry focused in Chicago
- Synthesize and apply what you have learned working on "hackathon-style" projects for two different sports organizations.

More information coming your way soon!

NOW IRISH Schedule (Wednesday)

Date	Attire	Time	Event/Session	Location	Speakers/Programming
Wednesday, June 7	Casual	10:45 a.m. - 11:30 a.m.	Check-in	ND Stadium / South Concourse	Stephanie Brown, Associate Director of Admissions | Hermalena Powell, Assistant Director of Student Services
		11:30 a.m. - 1:00 p.m.	Lunch & Academic Director Presentations/Student Intros	ND Stadium eastside / South Landing & Downes Club on 7th floor of Corbett Hall	Brandon Erlacher, MSBA-SA Academic Director and Assistant Teaching Professor of IT, Analytics, and Operations | Stephanie Brown, Associate Director of Admissions | Leigh Wojtkiewicz, Cheif Data & Insights Officer at WMT
		1:15 p.m. - 1:45 p.m.	Mendoza Graduate Programs Welcome	Mendoza Auditorium	Dean Martijn Cremers, Martin J. Gillen Dean and Bernard J. Hank Professor of Finance | Craig Crossland, Sr. Associate Dean for Academic Programs and Professor of Management & Organization | Maria Stutsman y Marquez, Director of Admissions
		1:45 p.m. - 2:30 p.m.	Tender, Strong, and True Leadership	Mendoza Auditorium	Chris Adkins, Associate Teaching Professor, Management & Organization and Academic Director of Leadership Development
		15 min Break			
		2:45 p.m. - 3:30 p.m.	Owning Your Experience	Mendoza Auditorium	Christine Gramhofer, Director of Student Services | Hermalena Powell, Assistant Director of Student Services
		3:30 p.m. - 4:30 p.m.	Belonging @ Mendoza	Mendoza Auditorium	Kristen Collett-Schmitt, Associate Dean for Innovation and Inclusion, and Associate Teaching Professor of Finance
		4:30 p.m. - 5:30 p.m.	Campus Tour	Pick up at Mendoza	
		5:30 p.m. - 7:00 p.m.	NowIrish Opening Picnic	Library Lawn	

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NOW IRISH ☘ Schedule (Thursday & Friday)

Date		Time	Event/Session	Location	Speakers/Programming
Thursday, June 8	Casual	9:00 a.m. - 9:30 a.m.	Intro to Grow Irish	Stayer Commons C	Megan Piersma, Director of Experiential Learning | continental breakfast of coffee and bagels
		9:30 a.m. - 12:00 p.m.	Fundamentals of Computing Workshop	Stayer Commons C	Brandon Erlacher, MSBA-SA Academic Director and Assistant Teaching Professor of IT, Analytics, and Operations
		12:10 p.m. - 1:00 p.m.	Lunch with Faculty	Club Naimoli	Joyce Center overlooking Purcell Pavilion
		1:10 p.m. - 2:00 p.m.	Getting to Know You Game	Mendoza 160	Hermalena Powell, Assistant Director of Student Services
		2:00 p.m. - 2:30 p.m.	Intro to Forever Irish	Mendoza 160	Ryan Retartha, Director of Alumni Relations
Date		Time	Event/Session	Location	Speakers/Programming
Friday, June 9	Business	8:30 a.m. - 9:15 a.m.	Professional Headshots	Mendoza 2nd/3rd floor	Coffee in specialized masters lounge
	Casual	9:15 a.m. - 9:30 a.m.	Group Photo	Mendoza Courtyard	
		9:30 a.m. - 11:25 a.m.	Fundamentals Computing Workshop	Stayer Commons C	Brandon Erlacher, MSBA-SA Academic Director and Assistant Teaching Professor of IT, Analytics, and Operations
		11:35 a.m. - 12:20 p.m.	Lunch	Eck Center	
		12:30 p.m. - 3:30 p.m.	Career Development Workshop	Mendoza 160	Lindsey McIntyre, Associate Director of Career Development
					Claire VeNard, Sr Associate Director Strategic Initiatives and Athletics Director
		5 min Break			
		3:35 p.m. - 4 p.m.	Mendoza Clubs	Mendoza 160	Hermalena Powell, Assistant Director of Student Services
		4:10 p.m. - 6 p.m.	NowIrish Closing Celebration	Heritage Hall at Joyce Center	Nick Farmer, Sr Associate Director and MGP Recruitment & Enrollment

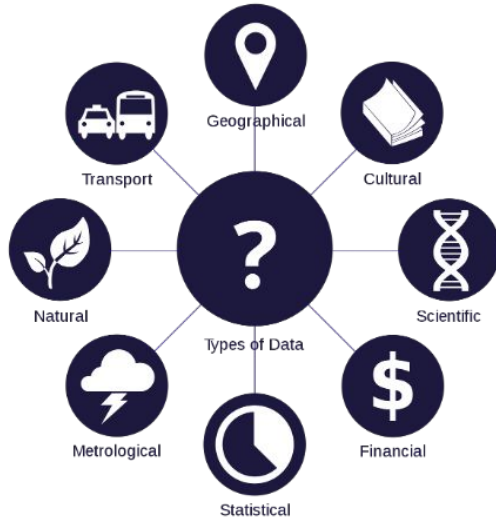UNIVERSITY OF NOTRE DAME | MENDOZA COLLEGE OF BUSINESS

Business analytics serves as the bridge between the worlds of data science and the business.
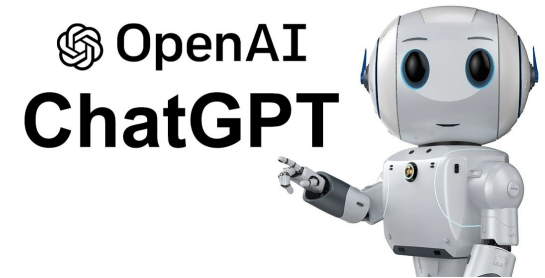
Three Converging Trends

Proliferation of Data
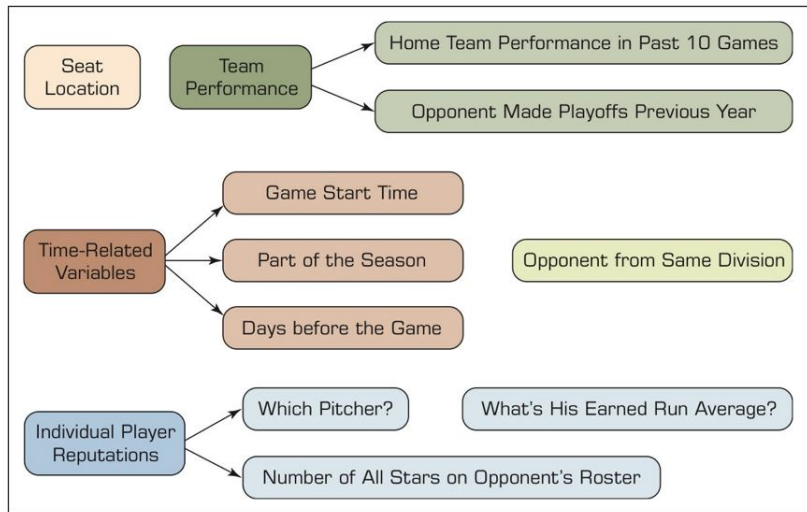
Cheap Storage & "Unlimited" Computational Resources

AI, ML & Natural Language Processing

Systems & Sensor Data in Sports Analytics

Front of House Data for
Dynamic Pricing Model

Sensor Data

FIGURE 1.2   Dynamic Pricing Previous Work—Major League Baseball.   Source: Adapted from C. Kemper and C. Breuer, "How Efficient is Dynamic Pricing for Sports Events? Designing a Dynamic Pricing Model for Bayern Munich", *Intl. Journal of Sports Finance*, 11, pp. 4-25, 2016.
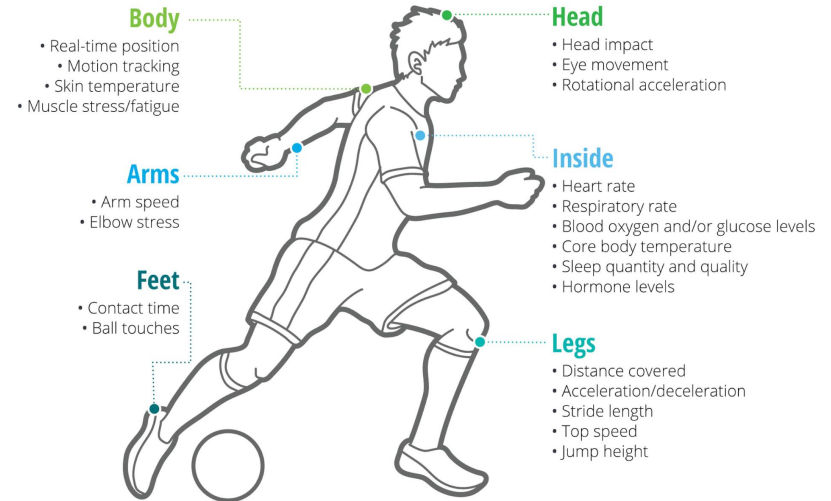
Note: This list is not exhaustive.
Source: Deloitte analysis.

Sports Analytics Early Influence

The **collective wisdom** of baseball insiders (including players, managers, coaches, scouts, and the front office) over the past century was outdated, subjective, and often flawed. Oakland used predictive analytics to gain a competitive advantage.

- Offline analysis
- Predictions
- New KPIs
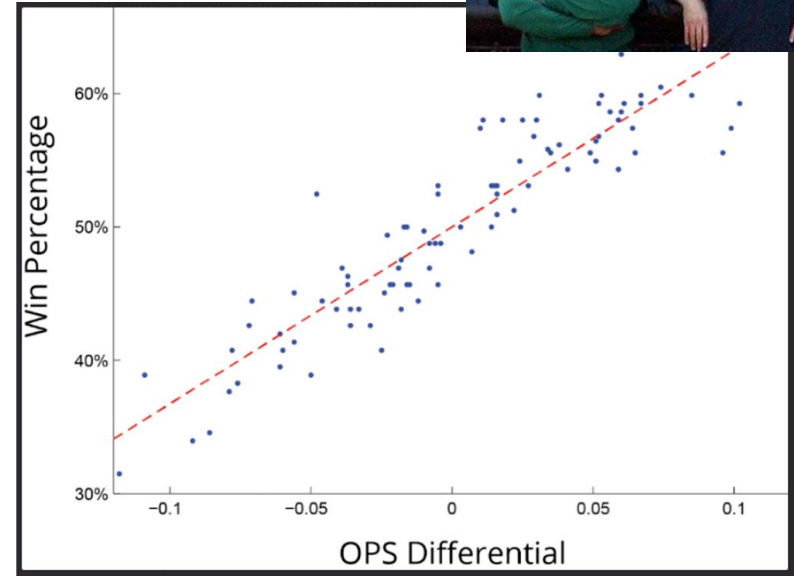
*One of the most famous examples of exploring data relationships was highlighted in the film **Moneyball**. Some surprising factors were strongly correlated with a team's win percentage. One of these was OPS (on-base plus slugging). This adds together a player's on-base percentage, the percentage of time a player gets on base and the average number of bases a player reaches when they come to the plate (slugging).*
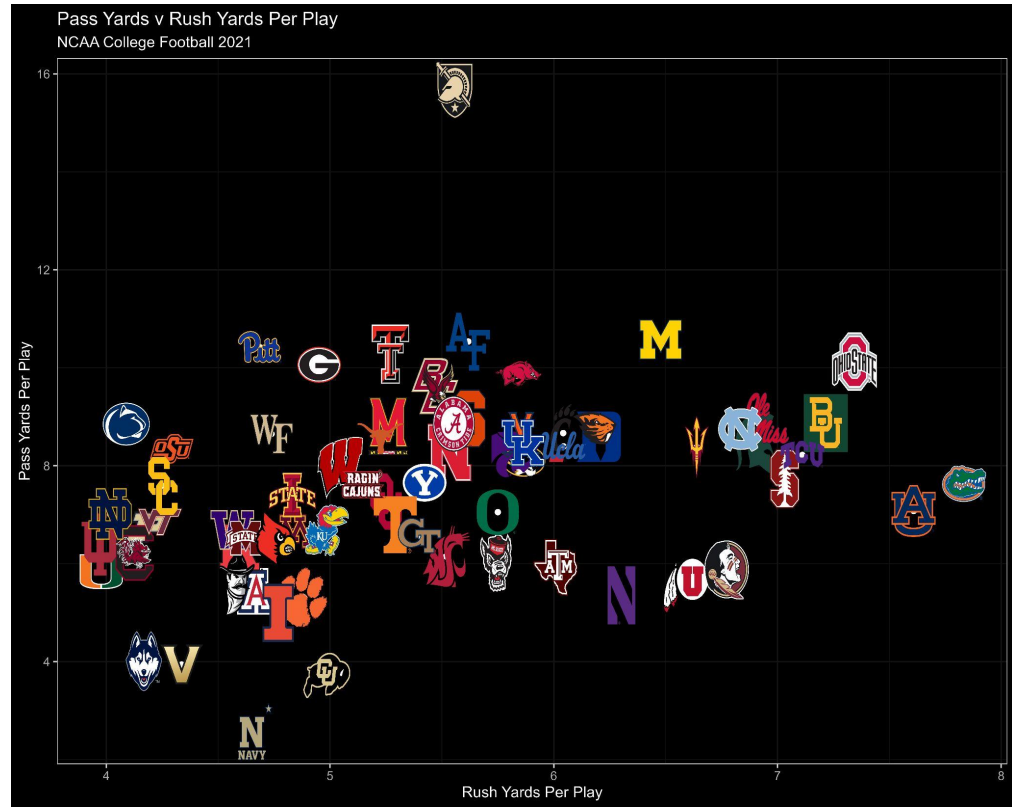
Evolving Sports Analytics

NBA Houston Rockets

Analytics in Practice

A lot of analysis previously was done using box score statistics, such as looking at **rush and pass yards per play**.

However, this can be a misleading statistic and now we have far more advanced methods we can use to measure team strengths and weaknesses such as **Expected Points Added**.

Pass Yards v Rush Yards Per Play
NCAA College Football 2021

Analytics in Practice
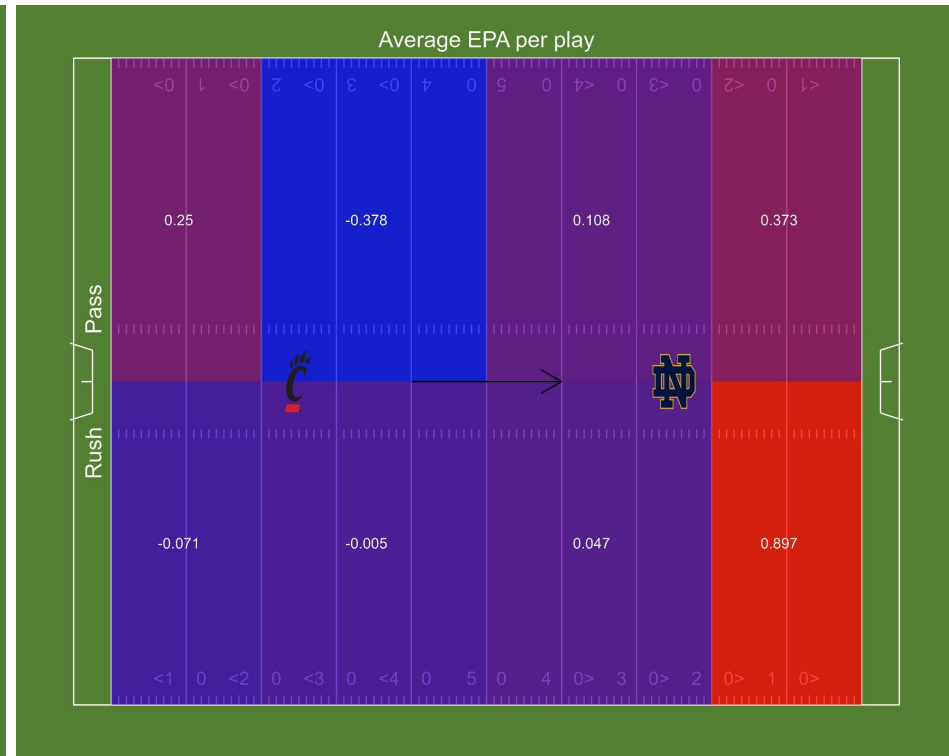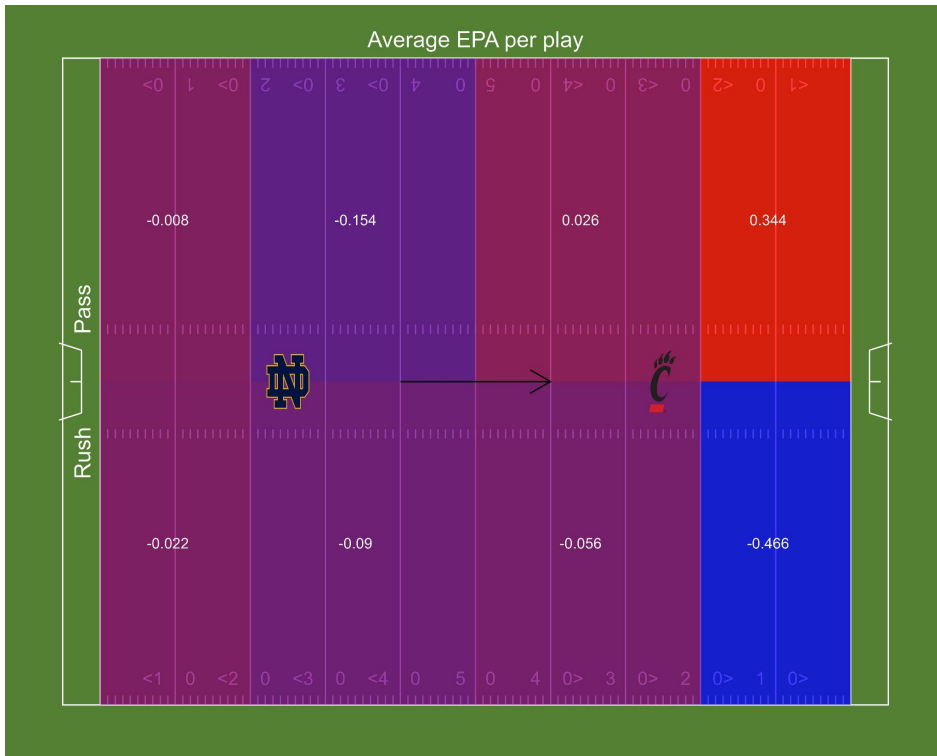
Human Performance

One of the fastest growing areas of sports analytics:

- How can we reduce the number of injuries on our team?

- How can we ensure peak physical readiness for competition?

- How can we ensure optimal player development?

Measuring Human Performance

For measuring fatigue and physical status we can make use of the new advancements monitoring technology:

- **GPS Tracking** - Measure a players on field exertion
- **Sleep Tracking** - For a players level of tiredness
- **Strength and Imbalance Tracking** - Allows a measure of a players physical capacity and muscle imbalances
- **Movement tracking** - Allows a measure of a players range of motion
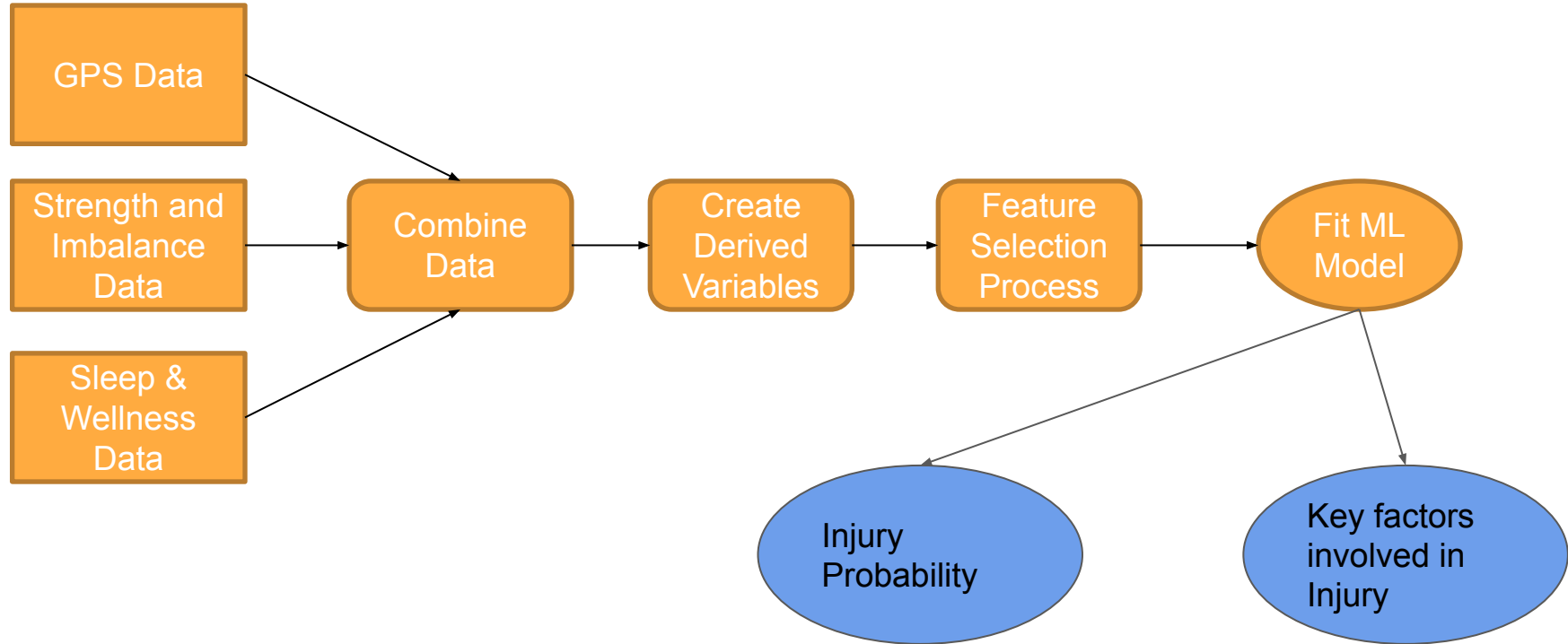
Focusing on the Individual

This requires that the data be considered at an individual level and changes how the questions are posed:

- How has a players total workload changed this week compared to what they did on average in the last month?
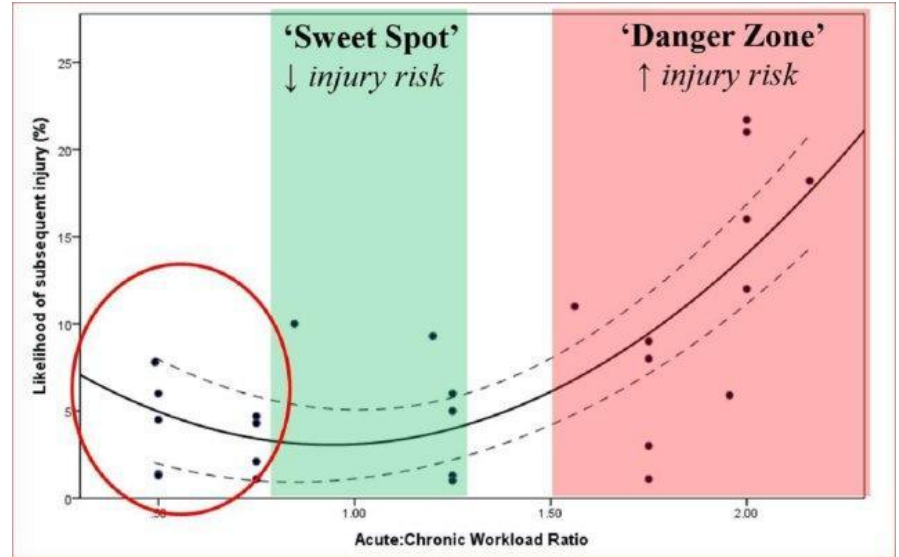
Gabbett, T (2017): Advanced Strength and Conditioning

Injury Modeling

MSBA in Sports Analytics
Program Objectives

1. Convert real world problems, sports and business, into analytical problems
2. Collect and structure data for analysis
3. Devise and implement your own analytics pipeline and process
4. Apply different analytical methods to real data
5. Utilize industry leading tools
6. Interpret, visualize and communicate the results of analysis

Wisdom from those that have done this before…

1. Once in a lifetime opportunity — be present.
   a. In a short 11 months, you will be walking across the stage to receive your diploma
   b. Build relationships
   c. Lean in and learn new knowledge and skills
2. Lever this experience and Notre Dame to enhance your brand **now**.
   a. Journal, blog, be active on social
   b. Document projects
   c. Build your brand
3. Ask for help.
4. It is worth putting the effort in early so you can enjoy the cool things we get to do later.

Guest Speaker

WMT — Chief Data & Insights Officer

Notre Dame Athletics — Associate Athletic Director

Pac-12 Networks — Business Analytics & Data

Paciolan — Business Intelligence & Analytics

Leigh Wojtkiewicz

Chief Data & Insights Officer
WMT

GROW
THE GOOD
IN BUSINESS™