DATA SCIENCE

THE BIG DDD

WHAT IS DDD?

DDD is Data Driven Decision Making!

When making a business decision, what do you use to guide you?

Intuition?

Experience?

An Ouija Board?

What if you started using Data?

ASPECTS OF DATA SCIENCE

THE QUESTION	THE DATA	THE SCIENCE
What am I trying to Solve?	Where is it coming from?	Which statistical methods will best fit?
How will this benefit my institution?	Is it in a usable format?	How will the findings be presented?

HIGHER EDUCATION

Students are continuing to enroll in ENGL 2730, British Literature, but we lose over half of the class by the time the midterm rolls around each semester. What is causing this?

The professors have tried making changes based on their past experiences, but there has not been a change in student retention.

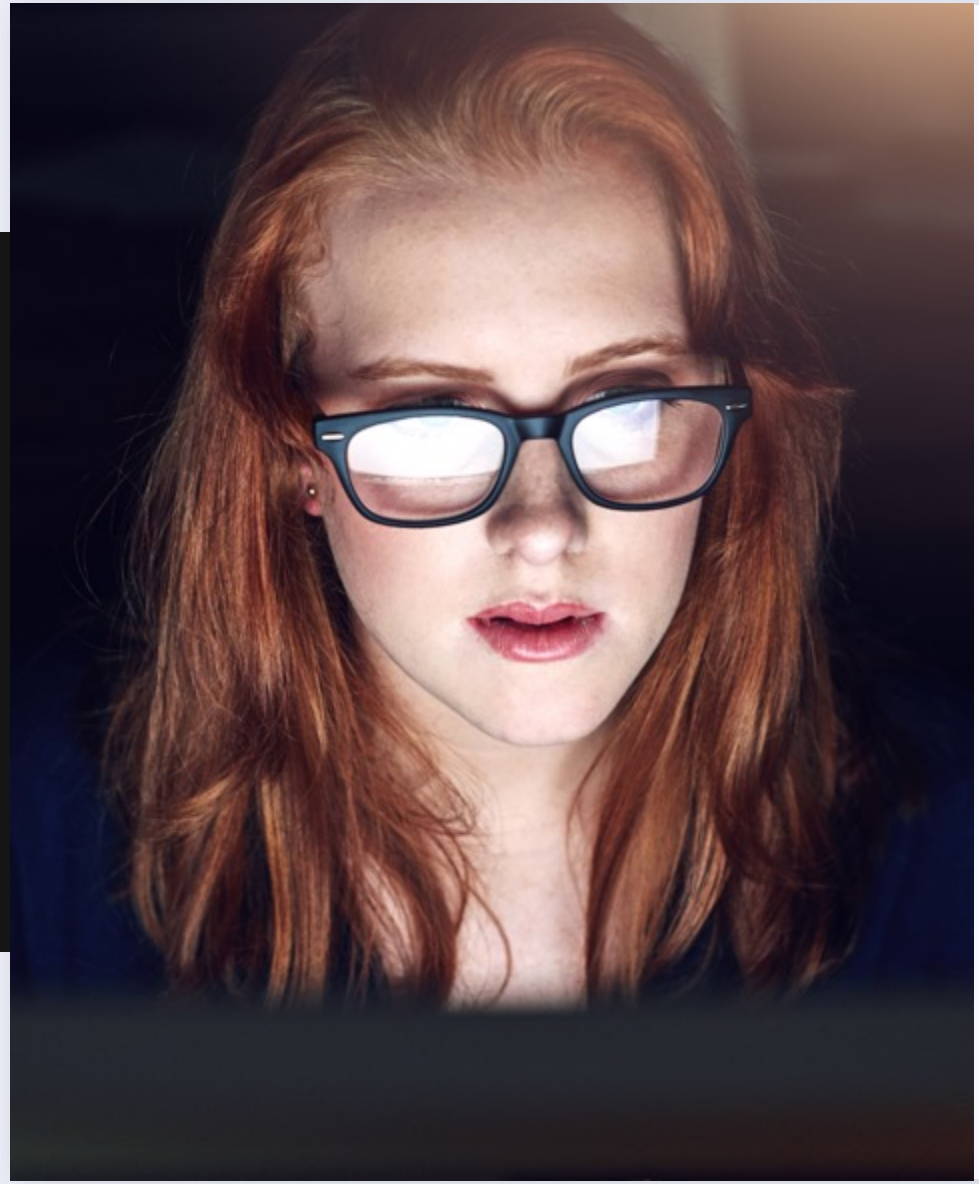
Help! What do we do?

Data Science could shed light on this question so that you could make a ***Data Driven Decision*** (and those are the best kind!)

STEPS TO DATA DRIVEN DECISION MAKING

- What question do you want answered? Which Business decisions do you want to influence with Data?
- Where will your data come from? Will it be in a useable format, or will it need to be updated for your purposes?
- Make sure the data is in a format that can be analyzed.
- Use statistical methods to begin to form answers to your question, and set up data so it is easy to understand for others.
- What does the data tell us? We should be able to use the findings to make a Data Driven Decision.

(Miller)



Back to our example…

Question: How can we retain more students in ENGL 2730?

Data Sources: Student grades, student survey results, SLO (Student Learning Outcome) and PLO (Program Learning Outcome) benchmarks.

Clean the Data: Align student information so that the data can paint a clear picture about how the students are progressing through the course, where they are fumbling, and what they believe their reasons for being unsuccessful are.

Analyze: Look closely at the picture painted and find trends across students.

Make a Decision: Using the data we now know that 68% of students are missing the benchmark for the 2nd course Student Learning Outcome, and we know why they believe this is due to their survey results. Now, an informed decision can be made (a DDD!) so that the instructors can set the students up for success in this course more appropriately.

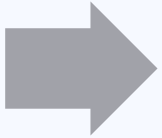
THE QUESTION	THE DATA	THE SCIENCE
Allowed exploration into the specifics of the student experience	Provided insight into the issue that took intuition and experience out of the equation	Provided a sturdy backbone from which to base a decision about the course structure
Was the catalyst to start looking into other questions regarding student success	Also allowed us to see other trends in students that can be explored	Gave us a guideline for how to address future issues in any of the other courses in the program

What does it mean?

Data science is an ever-changing and ever-evolving field. It is broad and can be lead to Data Driven Decisions. "Data Science involves principles, processes, and techniques for understanding the phenomena" (Provost, Foster, & Fawcett, 4). Using these guidelines data scientists can manipulate data to assist in answering questions about a myriad of issues surrounding an industry at any given time.

DDD…

Questions!



Data!

Science!

REFERENCES

Miller, Kelsey. "Data-Driven Decision Making: A Primer for Beginners." *Northeastern University Graduate Programs*, 23 Apr. 2021, www.northeastern.edu/graduate/blog/data-driven-decision-making/.

Provost, Foster, and Tom Fawcett. *Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking*. O'Reilly, 2013.