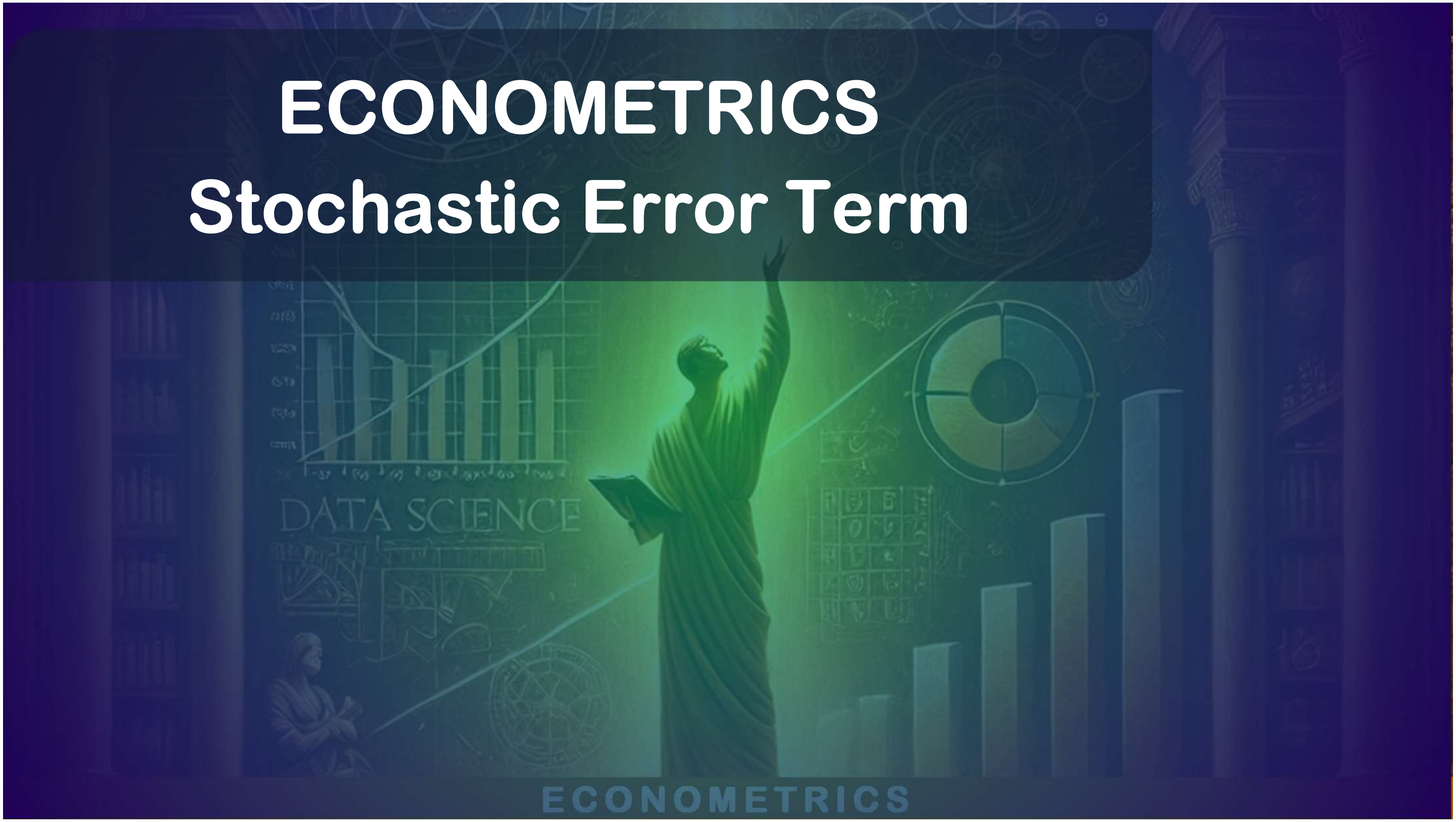
ECONOMETRICS
Stochastic Error Term
DATA SCIENCE
ECONOMETRICS

Lesson Goal

- Learn the significance of the error term in econometric models.

Stochastic Error Term

- An econometric model:

$$Y = \beta_1 + \beta_2 X + u$$

Unobserved factors

Error or Disturbance term

Significance of Error Term

Why include the error term?

1. Vagueness of theory
   - Economic theory may be incomplete or vague.
   - In consumption theory, we may be ignorant or unsure of other variables that can affect consumption.

Significance of Error Term

Why include the error term?

2. Unavailability of data

- Data may not be enough or simply not available.

Significance of Error Term

Why include the error term?

3. Core variables versus peripheral variables

- **Consumption-income model (religion may be a factor but difficult to measure)**
- **Omit a variable whose information may not be available.**

Significance of Error Term

Why include the error term?

4. Intrinsic randomness in human behavior.

- Human error or biasness in measurement

Significance of Error Term

Why include the error term?

5. Poor proxy variables

- Not enough information on a proxy (or substitute) variable.
- Examine IQ on wages, but IQ is difficult to measure so you replace it with scores on mathematics.

Significance of Error Term

Why include the error term?

6. Principle of parsimony

- Exclude irrelevant variables from the model

Significance of Error Term

Why include the error term?

7. Wrong functional form

- Misspecification of econometric models.
- Use log-log model instead of the usual linear model.

THANK YOU!

Next Lesson: Two Variable Regression (linearity, expectation, etc…)