

The Joy of Data: *Explanations using Lower Division Core Topics*

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"The first principle is that you must not fool yourself. And you are the easiest one to fool."

---Richard Feynman (1918-1988)

Introduction:

Lower Division is really the wrong name. "Lower" means the first two years of college, as compared to "Upper" which means that second two years of college. "Lower" should really be thought of a "Foundational". The material learned in those key courses is, of course, preparation for "Upper" division course but should really be thought of "persistent". By "persistent", I mean you never leave the topics and the topics never leave you. More technically, these ideas are called "first principles". You'll use these topics all through your business career, in many different scenarios, and most certainly when you are analyzing data. The best explanations come from the rigorous and relevant use of "first principles": this applies to the design of key questions, the appropriate analytical methods, and the interpretations of results.

The following are examples of key topics from "foundational" courses common in business analytics.

Financial Accounting:

Financial Statements; Reporting consistency/verifiability; Time Value of Money; Ratios

Management Accounting:

Differences in various costs; break-even; capital expenditures; relevant decision-making

Microeconomics:

Opportunity cost; Comparative advantage; supply/demand; average/marginal costs

Macroeconomics:

GDP; investments; inflation; interest rates; Federal Reserve; shocks; international exchange

Business Law:

Contracts; torts; liability; mitigation; misrepresentation; criminal/civil; damages

Business Statistics:

Uncertainty/Variation; Probability; Summary statistics; Samples; Distributions; p -values