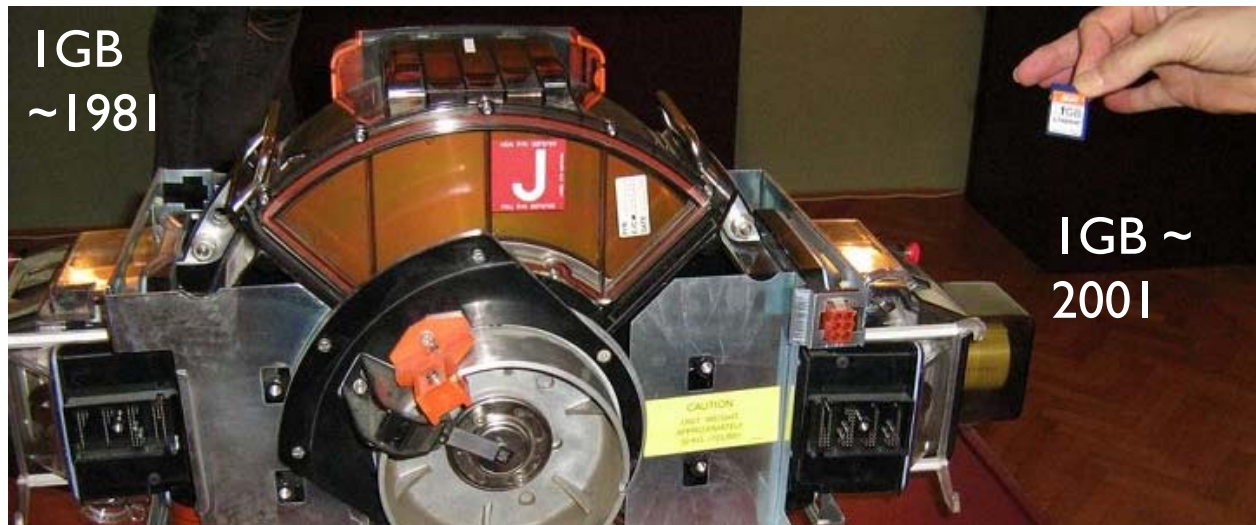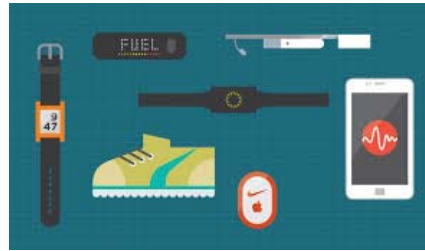# Clarkson University Masters Program in Analytics

Program Development Team:
- Business - **Boris Jukic**, Bebonchu Atems, John Milne
- Arts & Sciences - **Joseph Skufca**, Sumona Mondal
- Engineering – **Daqing Hou**, Brian Helenbrook

Data Analytics?

Tools, methods, and skills to conduct and manage the acquisition, storage, use, interpretation and **value extraction** of ever increasing amounts of ubiquitous data.
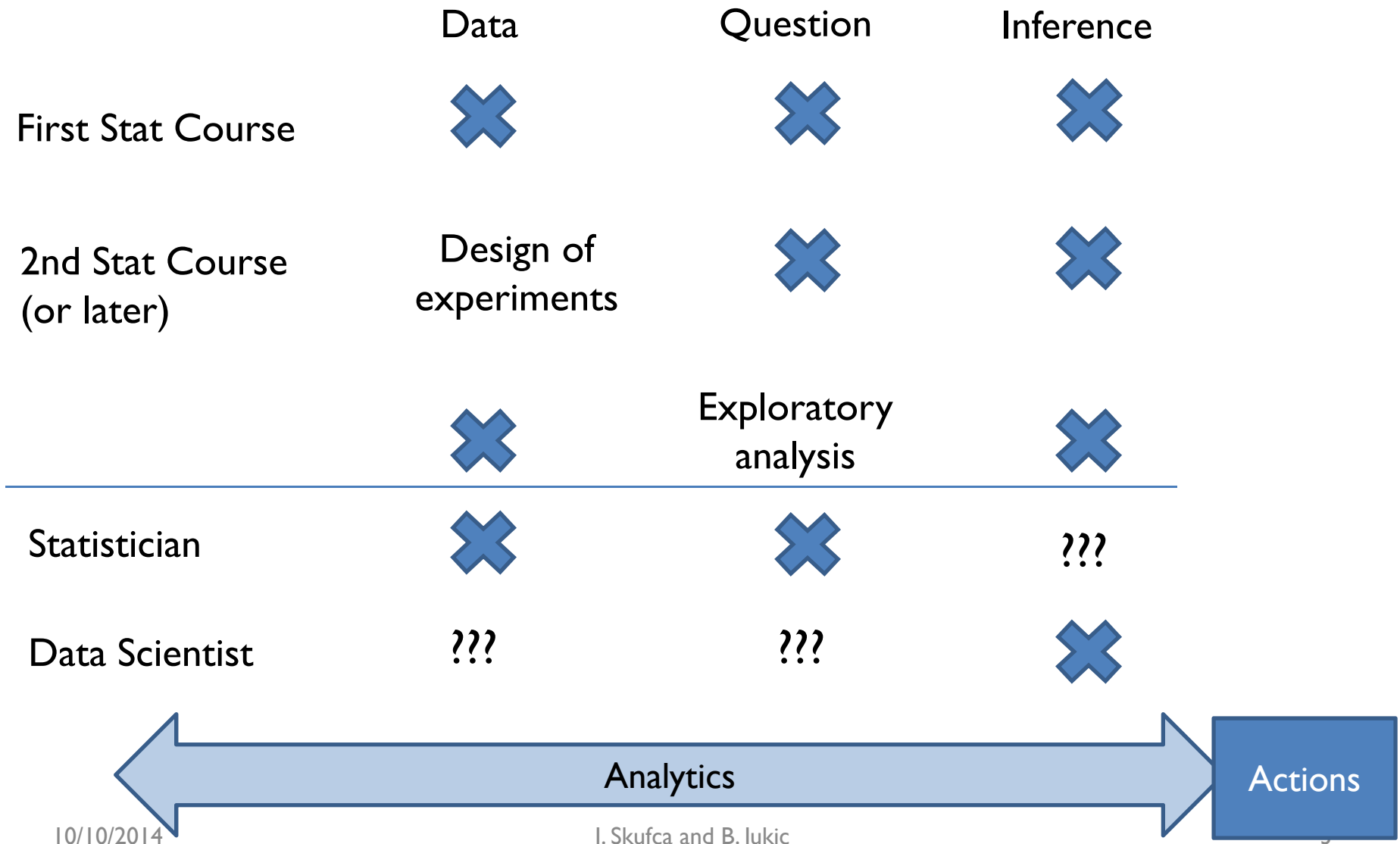
1GB
~1981

1GB ~
2001

Statistics is learned and applied at multiple levels of sophistication

	Data	Question	Inference
First Stat Course	✖	✖	✖
2nd Stat Course (or later)	Design of experiments	✖	✖
	✖	Exploratory analysis	✖
Statistician	✖	✖	???
Data Scientist	???	???	✖

← Analytics → **Actions**

Pedagogy to deliver a "Common" Analytics skill set

Foundation Skills

- Probability and Statistics
- Data Modeling and SQL
- Optimization Methods
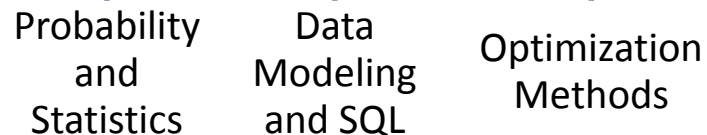
Developed by collective agreement of the program committee

Most common professional skills

- Data Mining (Machine Learning)
- Data Visualization
- DB design and management, Data Warehousing — Dealing with "Big Data"
- Spreadsheet Modeling

- Benchmarked against other programs
- Evaluated against job requirements
- In consult with academia, national labs, industry

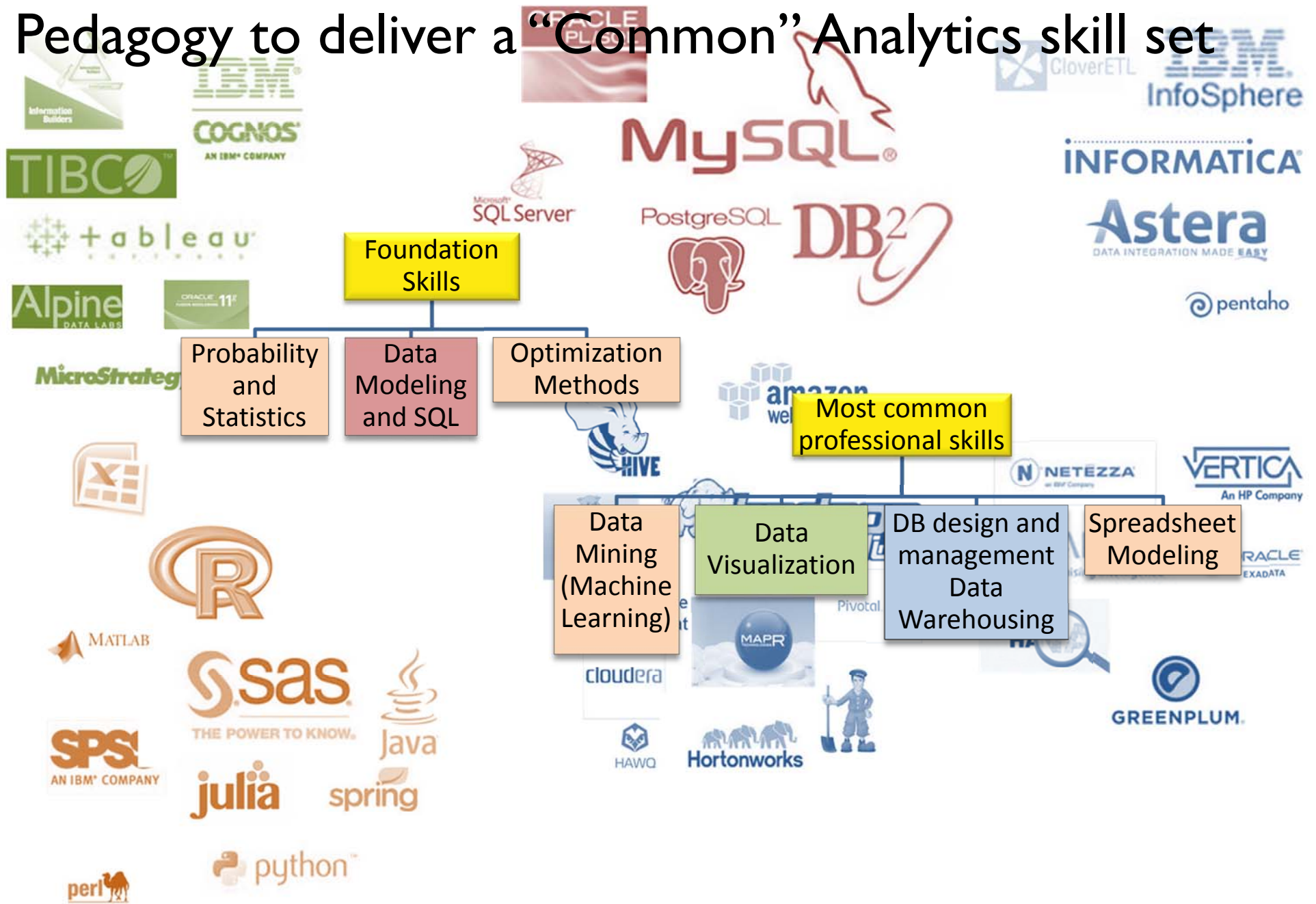# Pedagogy to deliver a "Common" Analytics skill set

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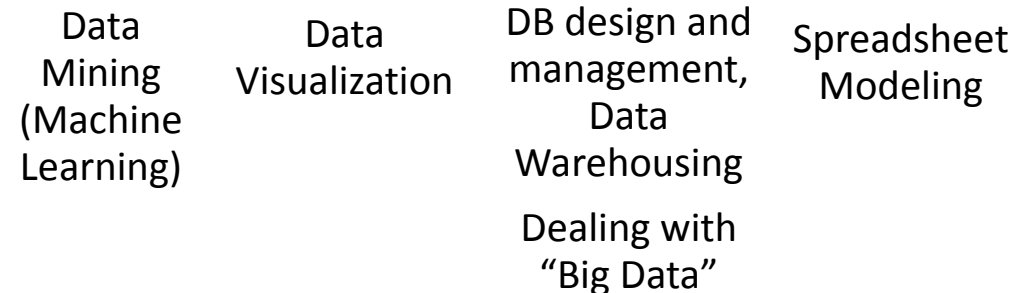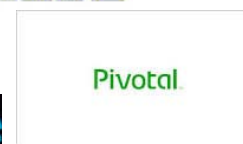
Program Curriculum

Core
- IA 510 - Database Modeling, Design and Implementation
- IA 520 - Optimization Methods for Analytics
- IA 530 - Probability and Statistics for Analytics
- IA 640 - Information Visualization
- IA 650 - Data Mining

Program Electives
- IA 605 - Data Warehousing and Big Data Management
- IA 505 – Tabular Data Analytics
- IA 630 - Modeling for Insight
- IA 670 - Geospatial Systems

Existing Electives (a sampling)
- CS 549 - Computational/Machine Learning
- CS 551 - Artificial Intelligence
- CS 559 - Human Computer Interaction
- EC 611- Econometrics
- EE 501 - Digital Signal processing
- ES 505 - Design of Experiments and Analysis of Data
- EE 574 - Pattern Recognition
- ME 529 - Stochastic Processes for Engineers
- MK 696 -Marketing Research Methods
- OM 680 - Strategic Project Management

- One year / Nine Courses (Fall/Spring)
- Industry Sponsored Capstone – 6 credits (Summer)