NUS Business School

Department of Analytics & Operations

Business Analytics Specialisation

The Objectives

With increasing availability of computing power, decision making has undergone an evolutionary change, resulting in more use of data at all levels within an organization. The use of analytics to drive business decisions represents the future of best practices for tomorrow's business leaders. The Business Analytics (BA) Specialisation is designed to develop BBA graduates to be ***analytics enablers*** who can identify business opportunities and make better-informed decisions by championing business analytics initiatives in their organisations.

The BA Specialisation in the NUS BBA curriculum goes beyond being a tools-only concentration suitable for the technically inclined NUS students. It is designed for students to pursue the data dimension of decision making from the perspective of an organization's C-suite of Chief Officers, where graduates will be expected to have mastered the likes of *R* and *Python* programming languages for performing the dual roles of the convincing data scientist and the discerning data artist.

In particular, we expect our BBA graduates with the BA Specialisation to be

- skilful in deriving *insights from data,* and technically proficient in using the latest analytics tools, such as R and Python, in managing, visualising, analysing and modelling data;
- innovative *data-driven problem solvers* who approach business challenges in an objective and creative manner to open up new opportunities, find new directions, or nurture new cultures; and
- persuasive *communicators with data,* able to communicate responsively and congenially with technical colleagues and senior management alike, in the pursuit of analytics solutions.

The Curriculum

All BBA students acquire the knowledge and basic skills in spreadsheet modelling and programming, from instructions in the online Academic Orientation Module BPM1702 Microsoft Excel Skills for Business, at the beginning of their first year, as well as the core modules DAO1704 Decision Analytics using Spreadsheets and DAO2702 Programming for Business Analytics. Building on these, BA Specialisation students will take three Required modules and select three Elective modules as detailed in the followings.

Business Analytics Specialisation Required Modules

DBA3702	Descriptive Analytics with R
DBA3803	Predictive Analytics in Business
IT3010	Data Management for Business Analytics

Business Analytics Specialisation Elective Modules
(Choose any 3 BA Specialisation elective modules from the list below)

DBA3701	Introduction to Optimisation
DBA3711	Stochastic Models in Management
DBA3712	Dynamic Pricing & Revenue Management

DOS3811	Technology and Business Innovation
DBA4711	Advanced Analytics
DBA4712	Statistical Learning for Managerial Decision
DBA4761	Seminars in Analytics
DBA4811	Analytical Tools for Consulting
DOS4811	Data Visualisation & Actionable Intelligence
MKT3811	Marketing Analysis and Decision Making
MKT4812	Marketing Analytics
IS3221	Enterprise Resource Planning Systems
BT4212	Search Engine Optimisation and Analytics
BT4222	Mining Web Data for Business Insights

The BA Specialisation curriculum is designed to develop BBA students in three aspects of Business Analytics: tools, methodology, and applications, as shown in the figure below:

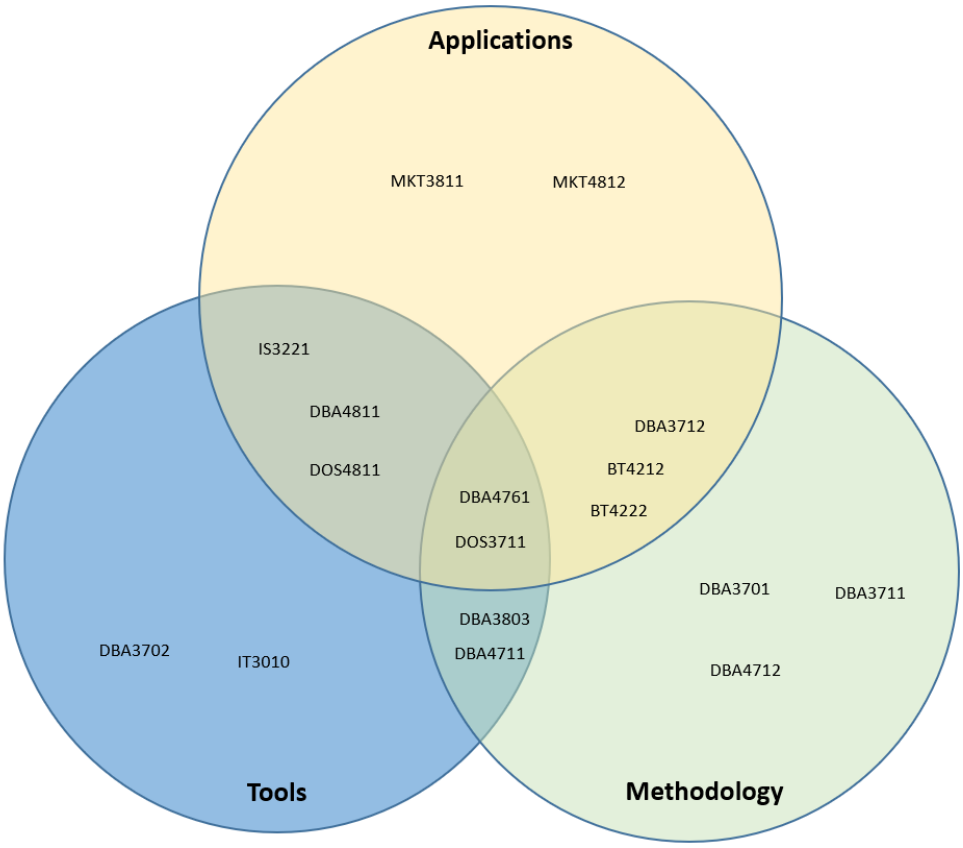

Figure 1. Design Framework of BA Specialisation

Business Insights Make the Difference

We expect students completing the BA Specialisation to be both technically proficient and professionally persuasive. Indeed, soft skills are often known to triumph over elegant solutions. Building on the BBA core, the BA Specialisation particularly equips students, both in the quantitative and social domains, for the complex data-analytic economy.

Because BBA students can leverage on their contextual business insights, they will also be especially well prepared for the likes of client-facing management consulting, where they become analytics advocates for their clients' organizations. Integrating their knowledge of finance, marketing, HR, operations, etc., they will expertly recommend appropriate analytical devices to identify, monitor and

improve organizational performance issues, and then effect optimal data-driven managerial implementations.

As analytics specialists are playing increasingly important roles in almost every business function, a solid training in business analytics will enrich students' capabilities in their respective business disciplines as illustrated in the diagram below.

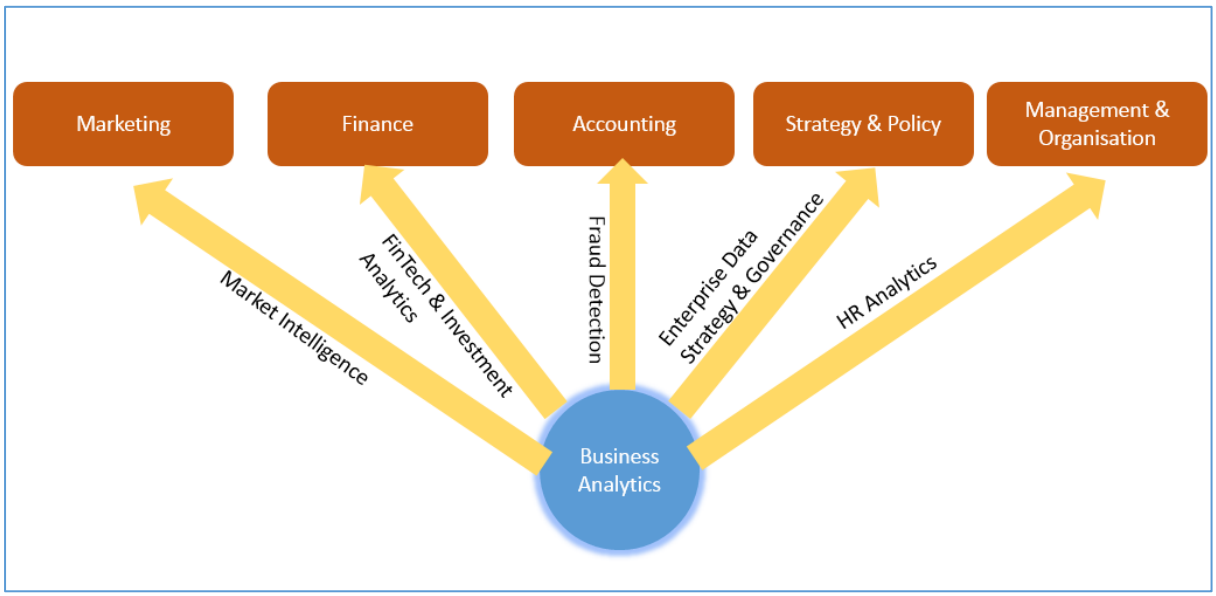

Figure 2. BA is supporting other disciplines in the business domain

Progress Path

The following diagram shows the hierarchy and schedule of all the core modules and elective modules of the BA Specialisation.

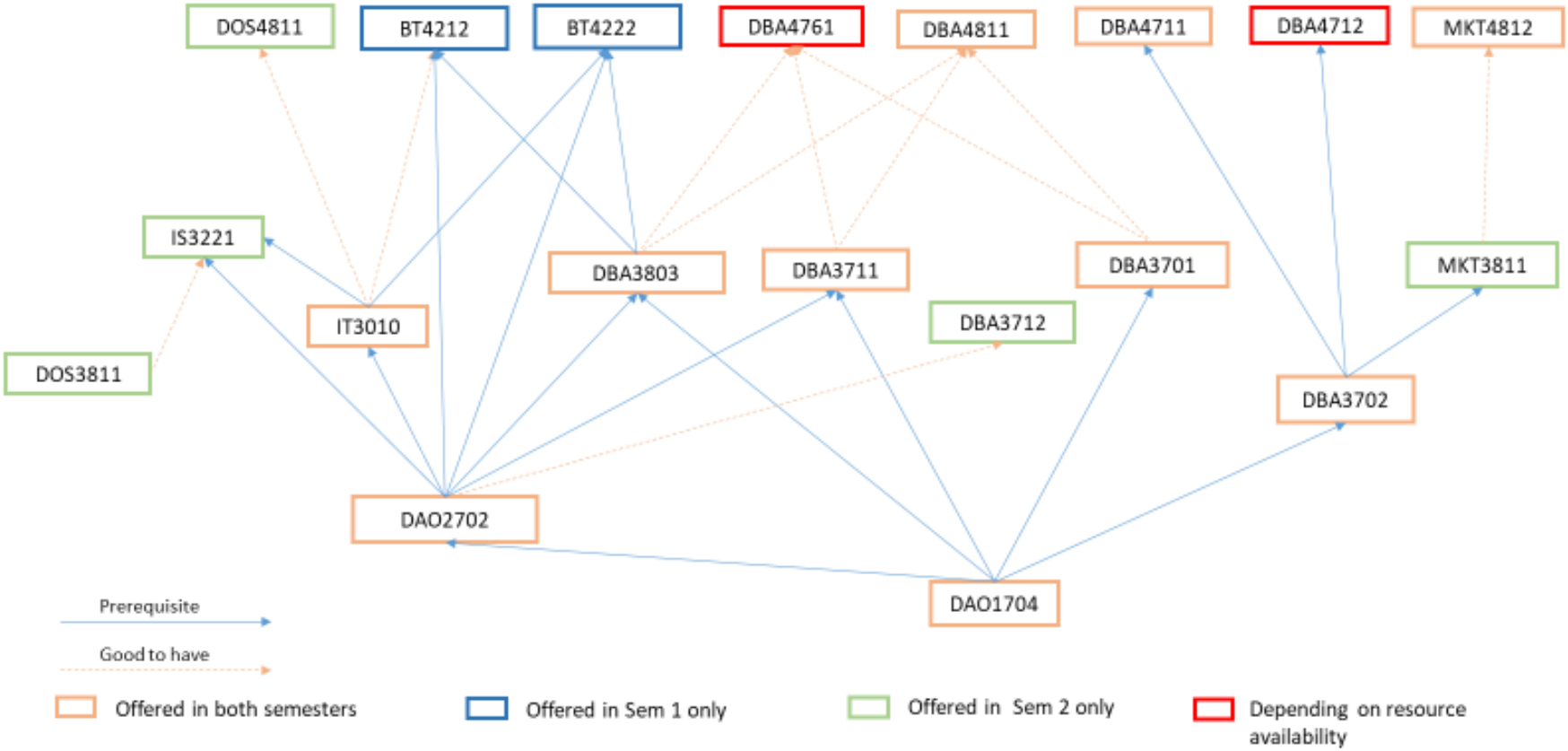

Figure 3. Progress Path in the BA Specialisation

Career Opportunities

In 2011, McKinsey projected that "By 2018, the U.S. will face a shortage of 1.5 million managers who can use data to shape business decisions". A 2012 Harvard Business Review article by Thomas Davenport and D.J. Patil named Data Scientist as the sexiest job of the 21st century. The business world has witnessed a growing demand for business analytics talents in the past few years; and the trend will last in the foreseeable future, as organizations that can harness data effectively will be able to create significant value and promote distinctiveness, while others will find themselves increasingly at a disadvantage.

A report by IBM shows a mapping of Data Science & Analytics (DSA) job prospects across different business sectors. We expect graduates with the BA Specialisation to fill positions as data-driven decision makers, functional business analysts, and analytics managers.

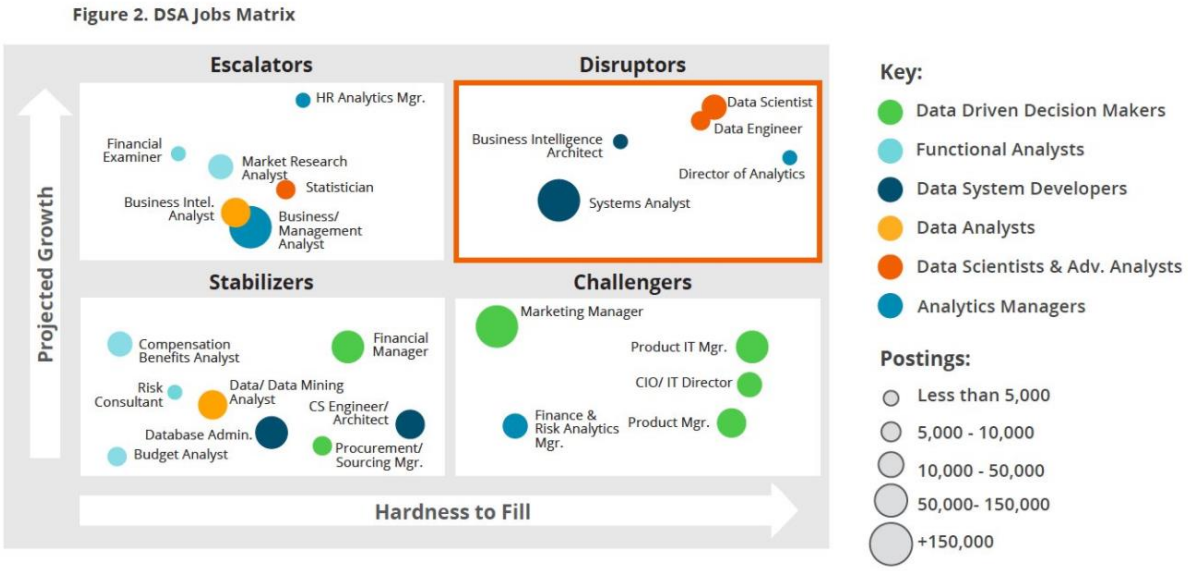

Figure 4. DSA Jobs Matrix

Joining Our Analytics Community

If you are favoured with both verbal facility and quantitative affinity, plus not a little creative flair, we earnestly recommend that you adopt a curious, ingenious & enterprising outlook, practise to observe keenly, analyse soundly, and communicate cogently, while you embark on the decision-analytic BA Specialisation in our managerial leadership BBA program. Top students may further be invited to shape their leadership mindsets in our *The Way To Success* (TWTS) program with http://en.CEOglobal.org.

You are warmly welcome to join our public forum http://facebook.com/groups/OpsBA to keep in touch, learn of quickening advances together, pick up talking points for chats & interviews, and eventually be a long-term member of our cosy specialist http://facebook.com/groups/BASpec community. You may then look forward to continuous development corporately into transformative prime movers building innovative data-centric enterprises globally.