

Careers Practitioners Seminar 2023

Demystifying Maths in Business

**Professor Rob Brooks,
Deputy Dean (Education)
Monash Business School**



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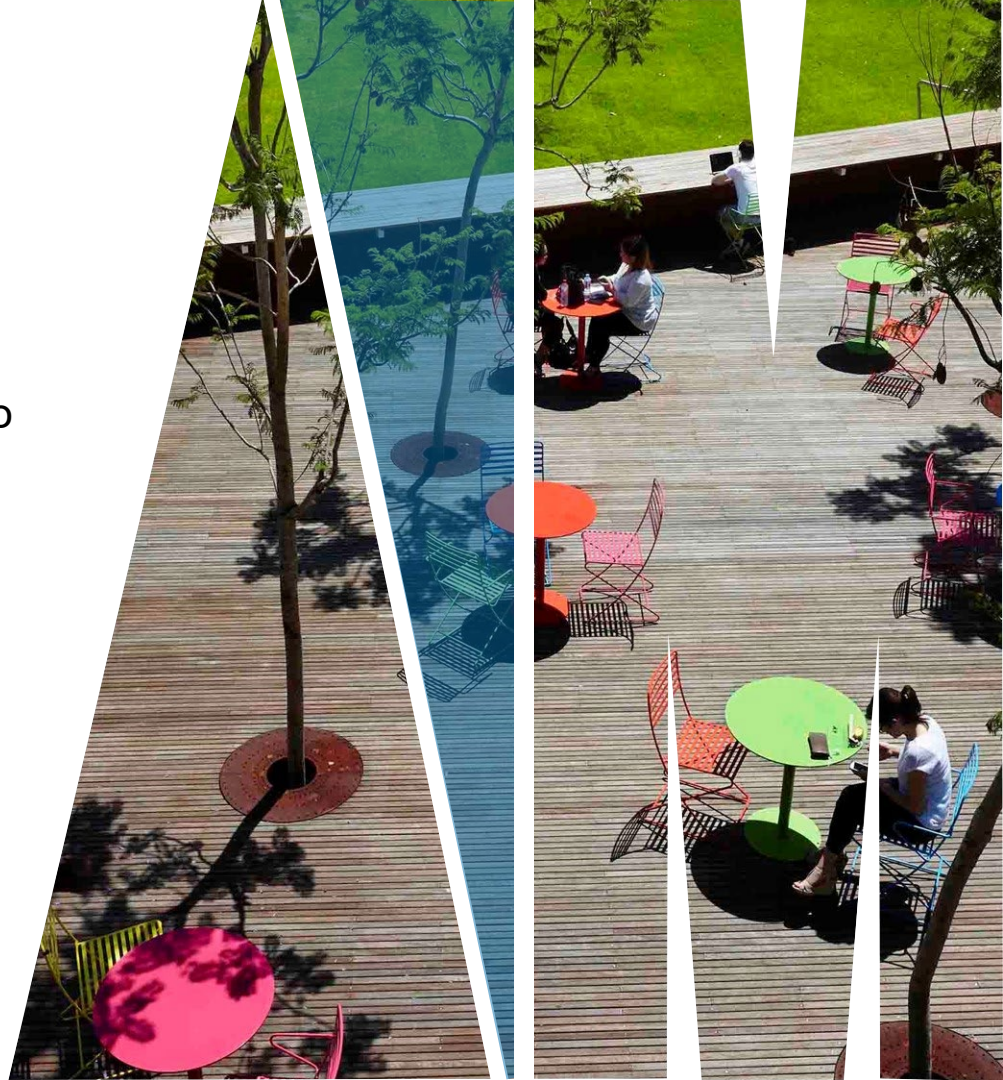
We wish to acknowledge the people of the Kulin Nations, on whose lands we are gathered today. These lands are places of age-old ceremonies; where ideas, culture, history and knowledge are exchanged – a tradition that continues to this day.

We pay our respects to their Elders, past and present, and acknowledge that the land and waterways are, and always will be, traditional Indigenous land and that sovereignty was never ceded.



SESSION OUTLINE

- **Maths in Business** – A brief overview of entry requirements for newcomers. Why do we have it?
- **From units three and four** to university...the journey.
- **Showcase and examples:** MBUS course application of maths.
- **Alumni perspective:** Harry Evans
- **Q&A**



WHY THIS TOPIC?

- Maths across business courses is not a one-size-fits-all approach...
- To assist with careers counselling when guiding your students both on subject selection and course options.
- Build a better understanding of the differences across our comprehensive degrees, and how maths is applied in our courses.
- Provide a forum for feedback from you...your experience as CP's, and your questions...





MONASH
University

COURSE

Bachelor of Business
Administration

ENTRY REQUIREMENTS

VCE: Units 1 and 2: Satisfactory completion in 2 units (any study combination) of Maths: General Mathematics, Maths: Mathematical Methods or Maths: Specialist Mathematics or Units 3 and 4: any Mathematics.

IB SUBJECTS: Successful completion of any mathematics subject.

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MONASH
University

COURSE

Bachelor of Business

Specialist Degrees

Bachelor of Accounting

Bachelor of Banking & Finance

Bachelor of International
Business

Bachelor of Marketing

MONASH
BUSINESS
SCHOOL

ENTRY REQUIREMENTS

VCE: Units 3 & 4: a study score of at least 22 in one of Maths: Mathematical Methods or Maths: Specialist Mathematics or at least 25 in Maths: Further Mathematics.

IB SUBJECTS: At least 4 in Mathematics: Applications and Interpretations SL or 4 in Mathematics: Analysis and Approaches SL or 3 in Mathematics: Applications and Interpretations HL or 3 in Mathematics: Analysis and Approaches HL.



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MONASH
University

MONASH
BUSINESS
SCHOOL

COURSE

Bachelor of Commerce

Specialist Degrees

Bachelor of Actuarial Science

Bachelor of Economics

Bachelor of Finance

ENTRY REQUIREMENTS

VCE: Units 3 & 4: a study score of at least 25 in one of Maths: Mathematical Methods or Maths: Specialist Mathematics.

IB SUBJECTS: At least 4 in Mathematics: Analysis and Approaches SL or 3 in Mathematics: Analysis and Approaches HL or 3 in Mathematics: Applications and Interpretations HL.

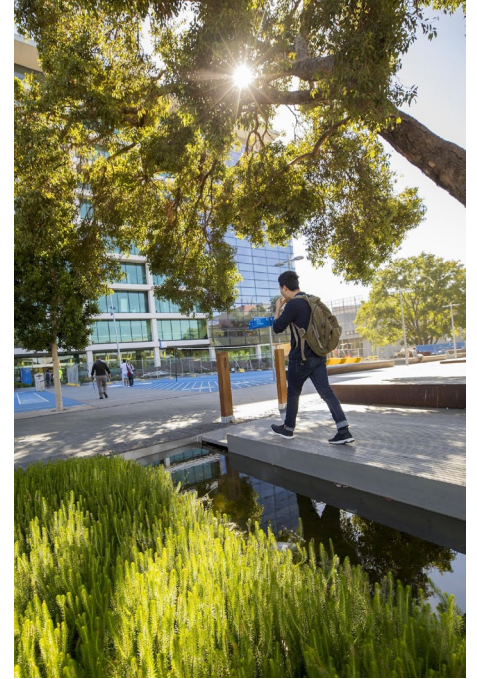


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WHY MATHS AT MONASH BUSINESS SCHOOL?

- Prepares students for understanding the course content and succeeding at Monash.
- Builds on their secondary three and four maths units.
- Prepares students for the employment market, particularly areas like data analytics and actuarial studies that require the application of high-level maths.
- The ability to analyse data is becoming more important in business contexts. Application of maths can broaden their skill set.
- There are different maths options across the courses – not all students need to do methods (i.e. BBUS/BBA).



COURSE DIFFERENCES

- **Commerce (BCOM)** has a higher application of maths, and builds on students have methods or specialist maths...
- BCOM tends to offer more analytical and statistical majors i.e. actuarial studies and business analytics
- **Business (BBUS)** tends to be more people-focused majors i.e. marketing, human resources...
- Differences, also in the double degree options... i.e. law, biomedical science, science, and engineering only possible with commerce.



SO HOW MUCH MATHS DO STUDENTS NEED?

- The Bachelor of Business (BBUS) builds on the general maths curriculum
 - Data analysis
 - Probability
 - Statistics.
- The Bachelor of Commerce (BCOM) builds on that higher-level methods or specialist maths:
 - Calculus content
 - Data analysis
 - Probability
 - Statistics
- Following slides show relevant material and examples.

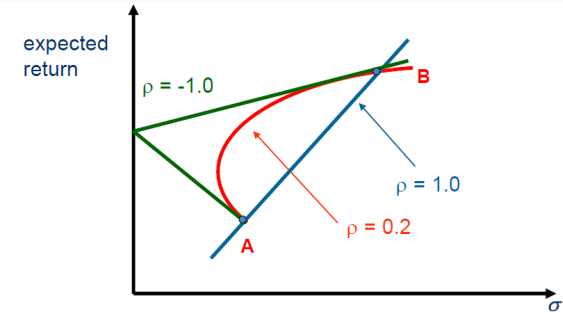


APPLICATION EXAMPLE

- Calculus content, data analysis, probability, and statistics
- Finance – trading
- Intersection/building of topics:
 - Investigating and modelling time series data
 - Recursion and financial modelling
 - Depreciation of assets
 - Compound interest investments and loans
 - Reducing balance loans

See pages 85 and 86 of VCE Mathematics Study design.

Correlation Coefficient



Relationship depends on the correlation coefficient

$$-1.0 \leq r \leq +1.0$$

If $r = +1.0$, no risk reduction is possible

If $r = -1.0$, complete risk reduction is possible

If $r = 0$, no relationship exists

APPLICATION EXAMPLE – ARRIVALS RECOVERY

When will international arrivals recover to 2019

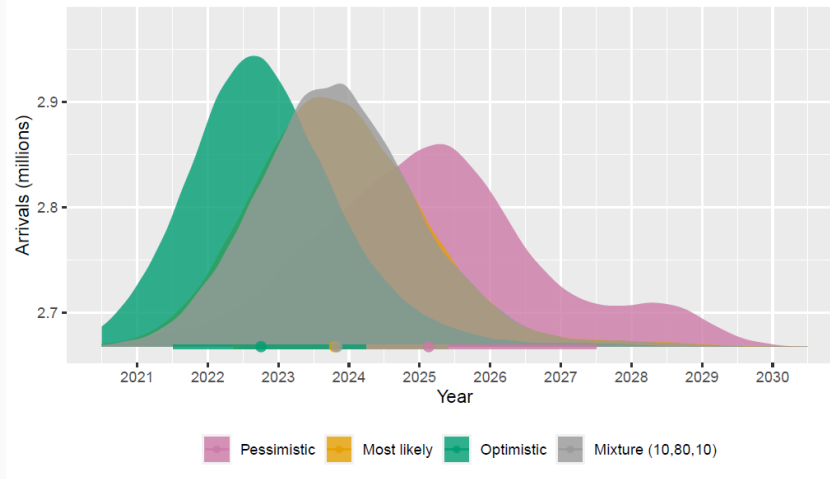
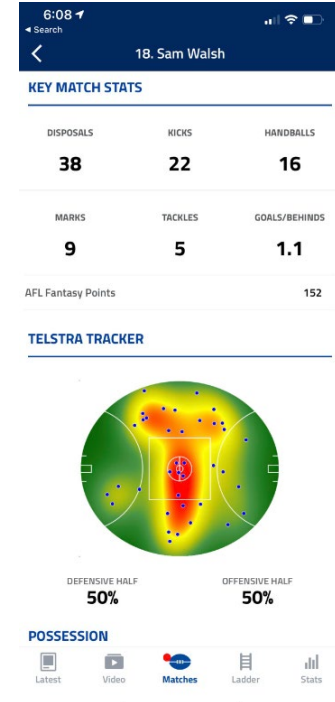
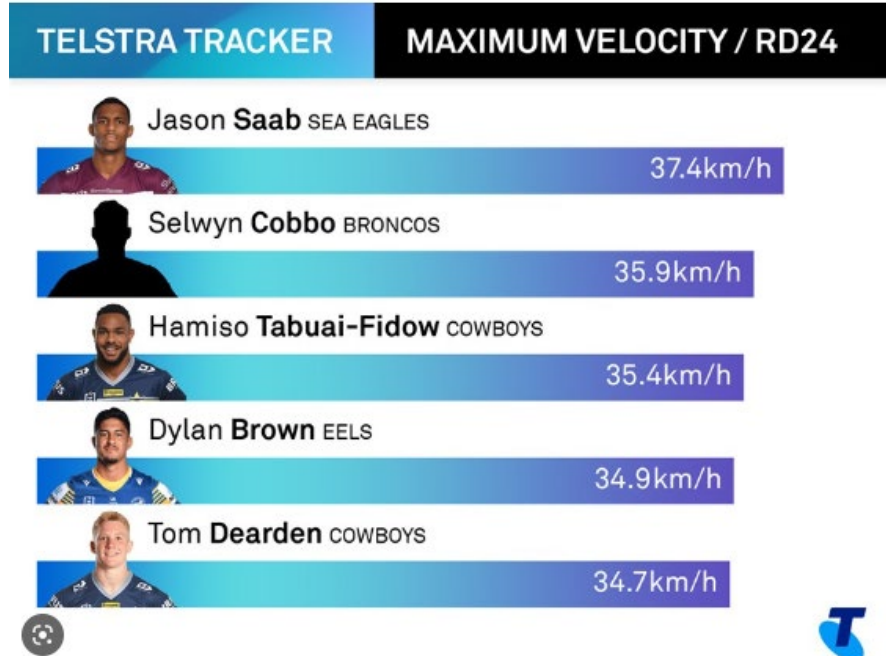


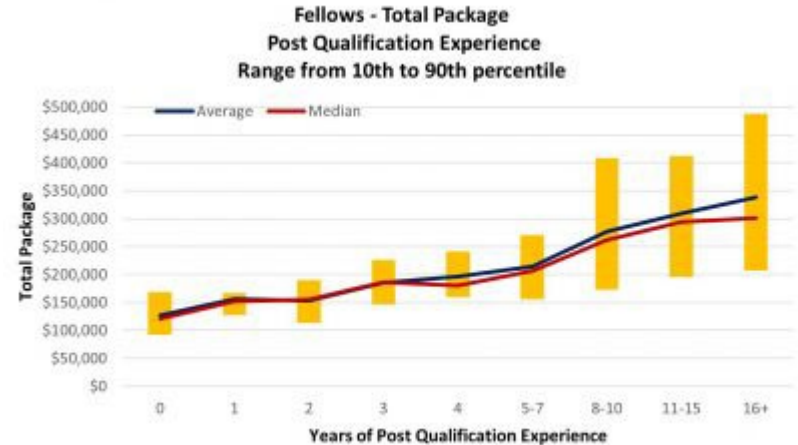
Figure 8: Scenario-based forecast distributions

APPLICATION EXAMPLE – TELSTRA TRACKER



EMERGING OPPORTUNITIES AND TRENDS

- Strong growth in data analytics, reflecting a trend across the globe.
- Graduates of actuarial studies - which is all about evaluating risk and opportunity - continue to show high starting salaries and employment opportunities.
- Role of AI working alongside maths in business and other roles...
- Accounting roles transferring to non-traditional landscapes – one-third of all ASX-200 listed CEOs have an accounting, financial services background...



TRANSFER OPTIONS TO MEET MATHS

Q: If students don't have methods or specialist maths what is the recommended course of action if they wish to study a course that requires it (e.g. Bachelor of Commerce)?

A: The recommendation is to enrol in the Bachelor of Business and take **Mathematics for Business (ETF2700)** or **Introduction to Quantitative Skills for Social Sciences (ECC1550)** in Semester One, and then apply to transfer into the Bachelor of Commerce.

Note: students are able to transfer in semester two (providing there is a mid-year intake and as soon as they meet pre-requisites. Applications for course transfer will close before results are released. Students will need to apply for transfer before they know if they have passed the unit. Mid-year entry is subject to the availability of mid-year intake for CSP.

GREAT RESOURCE – PRE REQS PAGE

Courses

Find a course >

Majors, extended majors,
minors and
specialisations

Professional Development

Entry pathways for
domestic students

Entry pathways for
international students

Entry requirements

English language
programs

Admissions transparency >

ATAR explained >

Study online

[Home](#) | [Courses](#) | [Entry requirements](#) | [Maths & Science Prerequisites](#)

Maths & Science Prerequisites

The best way to meet the prerequisites requirements for Monash undergraduate courses is by undertaking them via your VCE or equivalent Year 12 studies.

If you do not have the prerequisite studies at the time offers are released you will not be eligible to be considered for that course. However, Monash does accept a range of alternate options if you do not have the required VCE units or do not meet the study score.

Some of these are outlined below. These options are not a definitive list but do provide you with relevant and known alternatives that may help you with planning your course progression.

It is important to note you must complete at least one of the listed alternative options before you can access the destination degree. For example, if you are interested in Commerce and you have not studied units 3 & 4 Mathematics Methods, you could enter Monash's Business, Arts or Science degree, undertake MTH1010 and then apply to transfer to Commerce.

ARTS

Bachelor of Politics, Philosophy and Economics >

MONASH BUSINESS SCHOOL

Bachelor of Commerce >

Bachelor of Business >

Bachelor of Business Administration >

EDUCATION

<https://www.monash.edu/study/courses/entry-requirements/math-science-prerequisite>

BACHELOR OF BUSINESS ADMINISTRATION

Peninsula – YEAR 11 MATHS

Focuses on job readiness, providing graduates with practical skills to operate in any business environment.

Majors (specialisations)

- Accountancy
- Business Administration studies
- Economics and business decisions
- Finance and economics
- **Management practice***
- **Marketing and communications***

* A great option for students keen not to pursue maths in business...



BACHELOR OF BUSINESS

Caulfield – YEAR 12 MATHS

* More
people/less
maths-focused
majors

Practical learning offers a deep insight into how organisations work across all business functions with a strong focus on people.

Majors:

- Accounting
- Banking and Finance
- Business Analytics and statistics
- Business Law
- **Business management***
- Business studies
- Economics and business strategy
- Financial econometrics
- **Human resource management***
- **International Business***
- **Marketing***
- Taxation



BACHELOR OF COMMERCE

Clayton – HIGHER YEAR 12 MATHS

* More maths-
focused majors

Harness your analytical and quantitative skills to understand how commerce impacts decision-making, leadership, innovation, and policy development on a global scale.

Majors:

- Accounting
- Actuarial studies*
- Behavioural commerce
- Business Analytics*
- Econometrics*
- Economics
- Finance*
- Management studies
- Marketing science
- Mathematical foundations of econometrics*
- Sustainability





Alumni Perspective

Harry Evans

Bachelor of Commerce and Bachelor of Science (actuarial)

Graduate Data Analyst, Carsales.com.au



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Thank you.

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staff

(<https://www.monash.edu/business/contact-us/one-on-one-consultations>)





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QUESTIONS?



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