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2023 Swinburne  
Career Practitioner Seminar

# Data Science

Turning data into decisions

Presented By Pei-Wei Tsai & Jae Fehring

17<sup>th</sup> February 2023 | AMDC506



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# Acknowledgement of Country

We respectfully acknowledge the Wurundjeri People of the Kulin Nation, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east, and pay our respect to their Elders past, present and emerging.

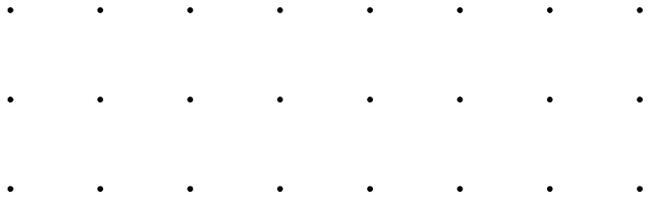
We are honoured to recognise our connection to Wurundjeri Country, history, culture, and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands.

We also respectfully acknowledge Swinburne's Aboriginal and Torres Strait Islander staff, students, alumni, partners and visitors.

We also acknowledge and respect the Traditional Owners of lands across Australia, their Elders, Ancestors, cultures, and heritage, and recognise the continuing sovereignties of all Aboriginal and Torres Strait Islander Nations.

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# What is Data Science?



# Data Science

- Data science is the study of data to extract **meaningful insights** for business.
- It is a **multidisciplinary** approach that combines principles and practices from the fields of **mathematics, statistics, artificial intelligence**, and **computer engineering** to analyse large amounts of data.
- This analysis helps data scientists to ask and answer questions like **what happened, why it happened, what will happen, and what can be done** with the results.

- Amazon Web Services (AWS)



# How Data Science is shaping our world

## What is Data used for?

- The world is **driven by data** nowadays.
- Our ability to **collect and process data** is changing the way we **look at** and **interact** with the world.
- **Information** is now being presented at a much faster pace thanks to **data scientists**.
- Organisations are using massive amounts of data to **improve efficiency, build strategies, and perform research**.
  
- A few daily life examples:
  - Netflix **recommendations** that fits into your interest.
  - Clinical assistance **decision making**.
  - Credit **prediction** for loans.
  - ChatGPT



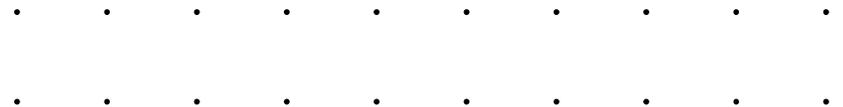
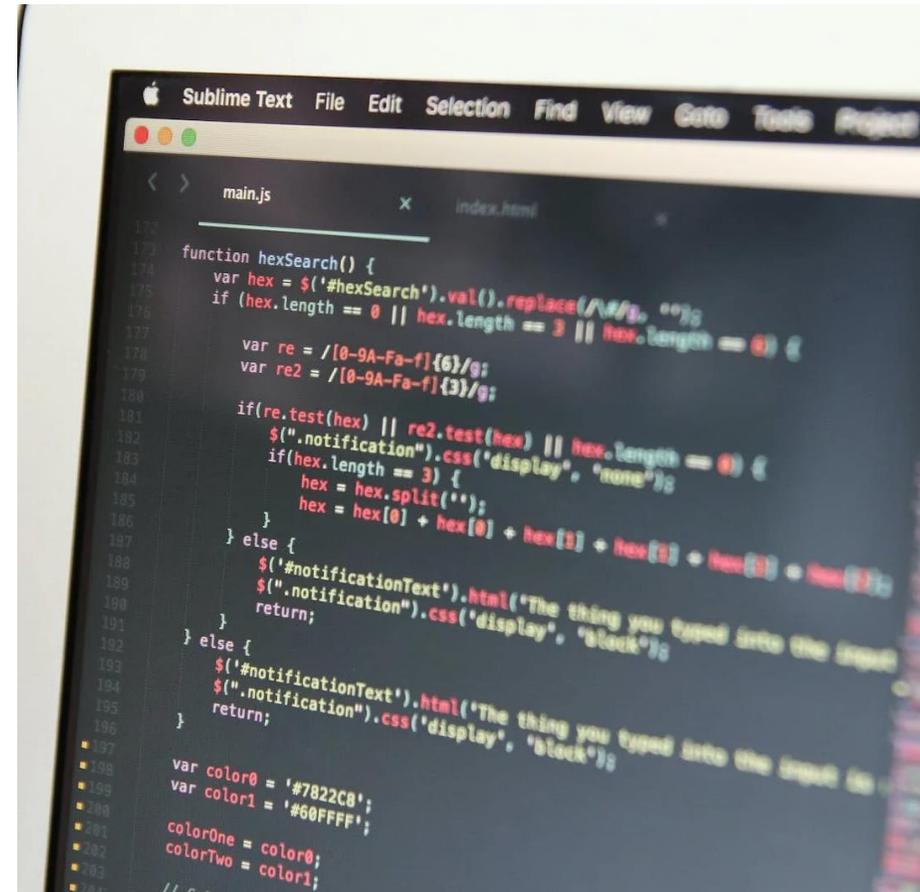
# How Data Science is shaping our world

## 21st Century Careers

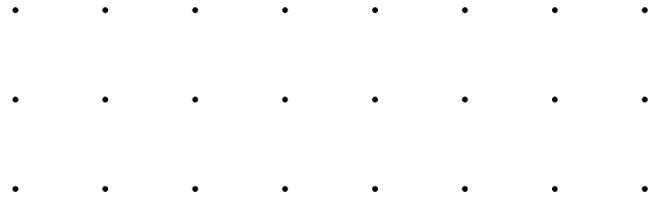
Jobs in Data Science roles are set to **grow by 12.9% in the next 5 years\***.  
Students who graduate from the Bachelor of Data Science, can look forward to a career as a:

- Data analyst
- Business intelligence developer
- Data infrastructure architect
- Data engineer
- Data scientist

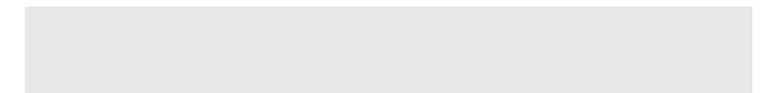
+ Jobs that haven't even been invented yet



\* According to Seek - <https://www.seek.com.au/career-advice/role/data-scientist>



# Data Science at Swinburne



# Bachelor of Data Science

## Overview



3 years full-time or equivalent part-time



Semester 1 and Semester 2 intakes



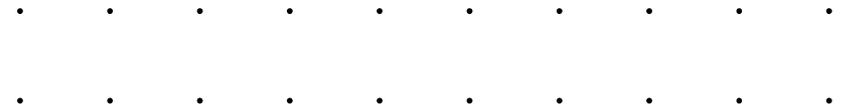
Hawthorn

- Harness the power of data for a career at the forefront of **data-driven** decision making and forecasting.
- Get **hands-on** with the tools used to manage big data sets and gain insight into how data is used to solve problems and even spot them before they arise.
- Make yourself an indispensable member of any business with roles in government, marketing, finance, healthcare and more.

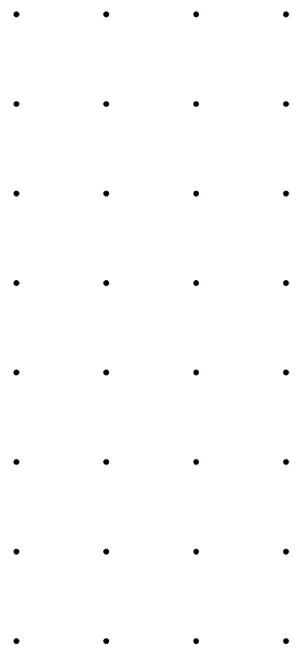
Our Bachelor of Data Science (BA-DS) program guarantees **Real Industry Experience**.

It means that all students get **hands-on** experiences on solving **practical problems** from our industry partners **every semester**.

**Paid placement** opportunity is available for either 6 or 12 months, where students will combine hands-on learning with academic submissions, workplace reflection and feedback from the host organisation.



# Bachelor of Data Science



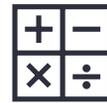
## Entry requirements

70

ATAR Guaranteed  
Entry Score

min. 25

VCE Units 3 and 4 English (except EAL) or  
30 in English as an Additional Language (EAL) or equivalent.



VCE Units 1 and 2 - satisfactory completion in two units  
(any study combination) of any Mathematics or equivalent.

## Pathways

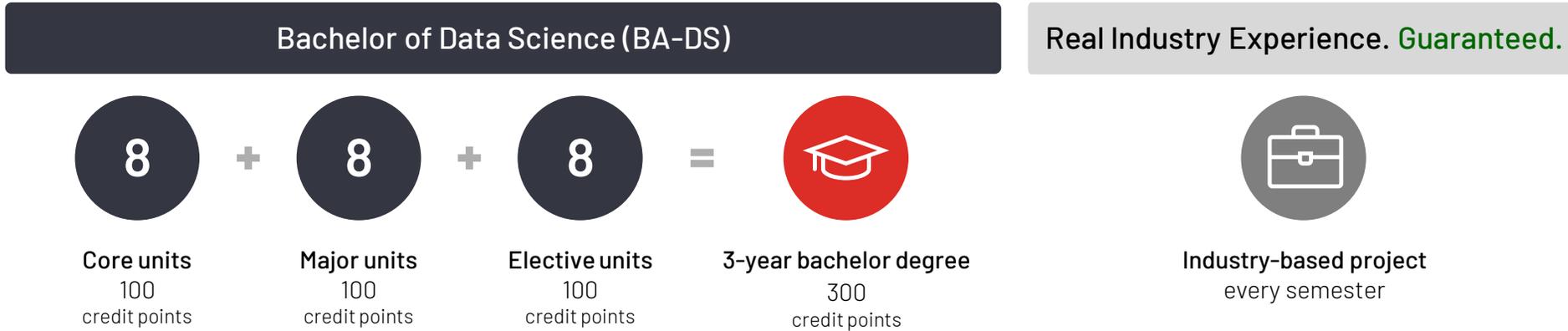


\* full-time or equivalent part-time.

\*\* credit information accurate as of 17 February 2023

# Bachelor of Data Science

## Course Structure



- Successful completion of the Bachelor of Data Science requires students to complete units of study to the value of **300 credit points**. All units of study are valued at 12.5 credit points unless otherwise stated.
- Full-time study: 100 credit points (8 standard units) of study per year.
- Part-time study: 50 credit points (4 standard units) of study per year.
- One credit point is equivalent to one hour of study per week per semester (including contact hours and private study).

# Industry Connections in Data Science



# Industry Connections in Data Science

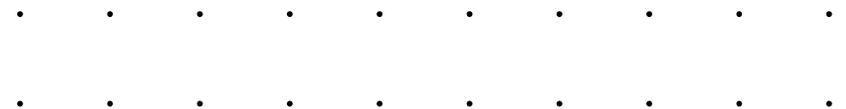


Students working with Infrastructure Victoria used their Data Science skills to determine the parking planning needs against future development contracts for the ever-growing City of Melbourne.



Students worked on a project designing a Carbon Calculator based in Data Science principles to determine the carbon footprint of a particular delivery.

This enabled consumers to compare carbon footprints amongst different logistics service providers.



# Why Swinburne for Data Science?



## Cutting Edge Skills

- **AWS partnership** – students have access to resources from AWS at Swinburne (Data for Social Good).
- Opportunities for students to work with the **OzStar supercomputer** which has the processing power equivalent to over 3000 top-of-the-range MacBooks combined and apply their classroom skills to real-world projects



## Real Industry Experience

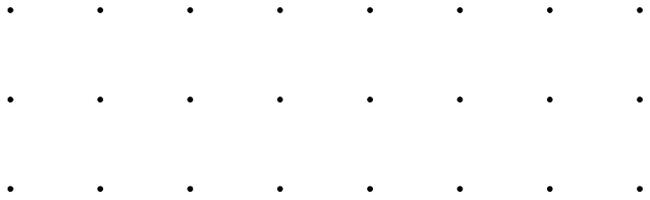
- **Every semester** of study, students work on industry-based projects, as part of the **Real Industry Experience guarantee**.
- Students have opportunities to work with local and global organisations while they study through the **internships** and paid **placements**.



## Community and Care

- **Small class sizes** and one-one-one connections with academic staff
- **Drop-in support** from tutors and experienced students for programming skills.





# Thank you

Any questions?

