

Unit Guide

Digital Skills Program

Monash College

Contents Page

MCS0001 – Fundamentals of Data Analytics with Python	2
Description	2
Prerequisites	2
Learning outcomes.....	2
Assessments.....	2
Requirements to pass the unit	2
Mode of study.....	2
MCS0002 – Introduction to Machine Learning.....	3
Description	3
Prerequisites	3
Learning outcomes.....	3
Assessments.....	3
Requirements to pass the unit	3
Mode of study.....	3

MCS0001 – Fundamentals of Data Analytics with Python

Description

This course will take you through the basics of data analytics using the Python programming language. It focuses on identifying the principles of scientific thinking and applying them in the context of data science. The course is delivered in an online, self-paced learning environment, with clear guidance and regular support provided by the trainer. You will participate in both independent and collaborative exercises each week that allow you to: communicate outcomes effectively in a range of formats; identify the various steps to perform data analysis and visualisation; explore the importance of data in a variety of fields; and use a range of industry-standard software to develop and implement data analytics principles.

Prerequisites

Nil

Learning outcomes

When you have completed this unit, you are expected to be able to:

1. Identify principles of scientific thinking and apply them in the context of data science
2. Reflect upon how to create and deliver data in teams
3. Critique the ethical and multicultural dimensions associated with data science decisions, use and quality and their possible impacts on organisations and society
4. Communicate outcomes effectively in a range of formats including orally, visually and written form
5. Identify the various steps to perform data analysis and visualisation
6. Explore the importance of data in a variety of fields
7. Use software to develop and implement data analytics principles

Assessments

Task
Portfolio 1: Data challenges – A series of take-home tasks
Portfolio 2: Case study – Written report; Git documentation & version control
Portfolio 3: Case study – Presentation; written report

Requirements to pass the unit

In order to achieve a pass in this unit, you must complete all assessments with a pass grade.

Mode of study

This course is taught asynchronously (self-paced), with 12 – 14 hours of learning per week.

A course trainer will guide you through your learning. Weekly sessions will be scheduled and trainers will participate in forums and be available to answer questions and provide guidance.

MCS0002 – Introduction to Machine Learning

Description

This course will provide you with the foundations for exploring Machine Learning and Artificial Intelligence (AI). It focuses on using software to develop and implement machine learning techniques. The course is delivered in an online, self-paced learning environment, with clear guidance and regular support provided by the trainer. You will participate in both independent and collaborative exercises each week that allow you to: understand the history and definitions of AI; define a spectrum of machine learning techniques and appreciate their purpose; apply simple algorithms to solve programming problems; produce appropriate data structures; develop and train Neural Networks; and, apply regression and Exploratory Data Analysis (EDA) techniques to analyse data and determine relationships.

Prerequisites

Nil

Learning outcomes

When you have completed this unit, you are expected to be able to:

1. Understand the history and definitions of artificial intelligence
2. Use software to develop and implement machine learning techniques
3. Define a spectrum of machine learning techniques and understand their purpose
4. Apply simple algorithms to solve programming programs
5. Produce and train Neural Networks
6. Develop and train Neural Networks
7. Apply regression and EDA techniques to analyse data and determine relationship in that data

Assessments

Task
Portfolio 1: Algorithms – A series of take-home tasks
Portfolio 2: Explorative Data Analysis – Written report & presentation
Portfolio 3: Neural Networks – Written report & presentation

Requirements to pass the unit

In order to achieve a pass in this unit, you must complete all assessments with a pass grade.

Mode of study

This course is taught asynchronously (self-paced), with 12 – 14 hours of learning per week.

A course trainer will guide you through your learning. Weekly sessions will be scheduled and trainers will participate in forums and be available to answer questions and provide guidance.