

Introduction to A/B Testing

Digital Extension School, Life Long Learning, EPFL

28-29 September 2023 at World Economic Forum, Geneva

Overview

A/B testing is a powerful tool for product development and decision making. It is used to compare two versions of a product or service to determine which one performs better. In this workshop, we will learn how to use A/B testing to make data-driven decisions. We will start with a refresher on data analysis and statistics, and then dive into Bayesian statistics and A/B testing. We will learn how to implement A/B testing in Python using PyMC, and discuss various factors that can impact the test result. By the end of the workshop, you will be able to use A/B testing to make data-driven decisions in your projects.

Learning Objectives

- Understand the basics of Bayesian A/B testing
- Be able to implement Bayesian A/B testing in Python to solve real-world problems
- Be able to analyse the impact of sample size and prior beliefs on the results of A/B testing
- Be able to communicate and explain results to non-technical audience

Prerequisites

- Basic knowledge of Python
- Basic knowledge of Statistics

Getting Started

Explore the [workshop repository](#) and gather your resources for the quest!

:warning: Ensure you have installed the workshop virtual environment for the hands-on sessions. You can download the workshop environment file `workshop.yml` from [here](#) and find the installation instructions [here](#).

Agenda

Day 1

Introduction to the workshop: (9:00 - 9:30)

Morning Session: Data Analysis and Statistics (9:30 - 12:30)

- **Objective:** Refresher on data analysis with Python and statistics.
- **Agenda:**
 - 9:30 - 10:45 : [Data Analysis using Python](#)
 - 10:45 - 11:00 : Coffee Break
 - 11:00 - 12:15 : [Statistical Distributions](#) + Quiz
 - 12:15 - 12:30 : Q&A

Afternoon Session: Bayesian Statistics and A/B Testing (13:30 - 16:30)

- **Objective:** Discover the power of Bayesian thinking and its role in A/B testing.
- **Agenda:**
 - 13:30 - 14:45 : [Bayesian Statistics](#)
 - 14:45 - 15:00 : Coffee Break
 - 15:00 - 16:15 : [\(I\) Bayesians vs Frequentists \(II\) Introduction to AB Testing](#) + Quiz
 - 16:15 - 16:30 : Q&A

Day 2

Morning Session: Deep Dive into A/B Testing (9:00 - 12:00)

- **Objective:** Dive deeper into A/B testing concepts and methods.
- **Agenda:**
 - 9:00 - 10:15 : [A/B Testing in PyMC](#) + Quiz
 - 10:15 - 10:30 : Coffee Break
 - 10:30 - 11:45 : [Hands-on Session](#) + Quiz
 - 11:45 - 12:00 : Q&A

Afternoon Session: Implementing A/B Testing (13:00 - 16:00)

- **Objective:** Apply your newfound knowledge to implement A/B tests.
- **Agenda:**
 - 13:00 - 14:15 : Hands-on Session
 - 14:15 - 14:30 : Coffee Break
 - 14:30 - 15:45 : Hands-on Session
 - 15:45 - 16:00 : Q&A

Contact Information

- If you need guidance or have questions, send a message to amir.khalilzadeh@epfl.ch.