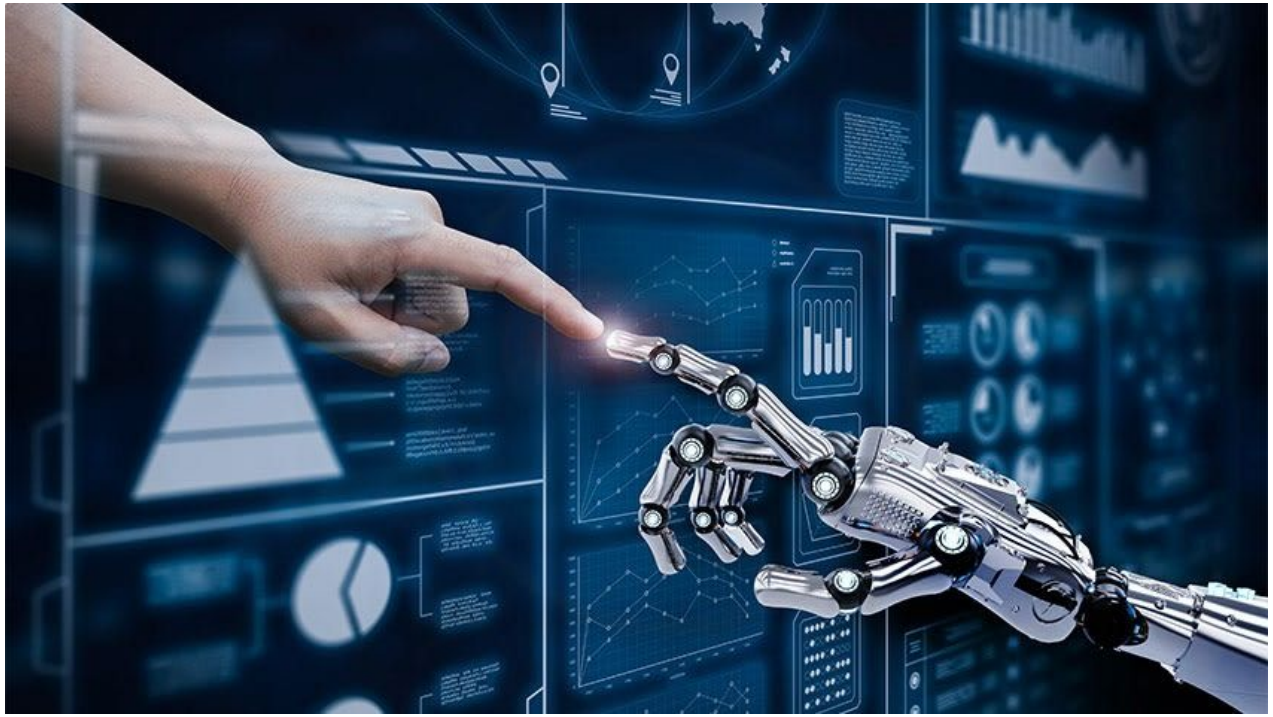


AI Concentration

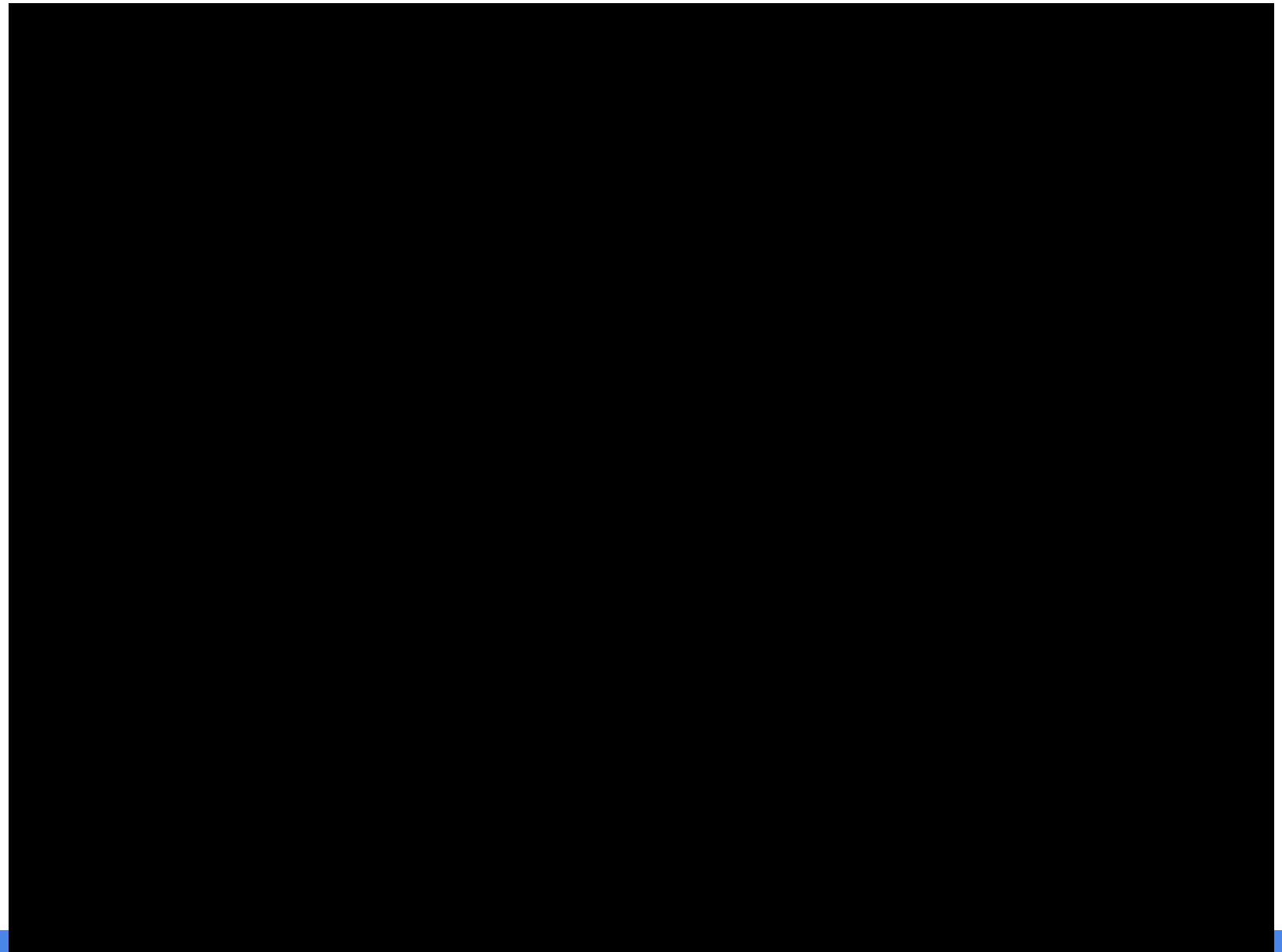
PhD. Msc. David C. Baldears S.
PhD(s). Msc. Diego Lopez-Bernal

TC3006C

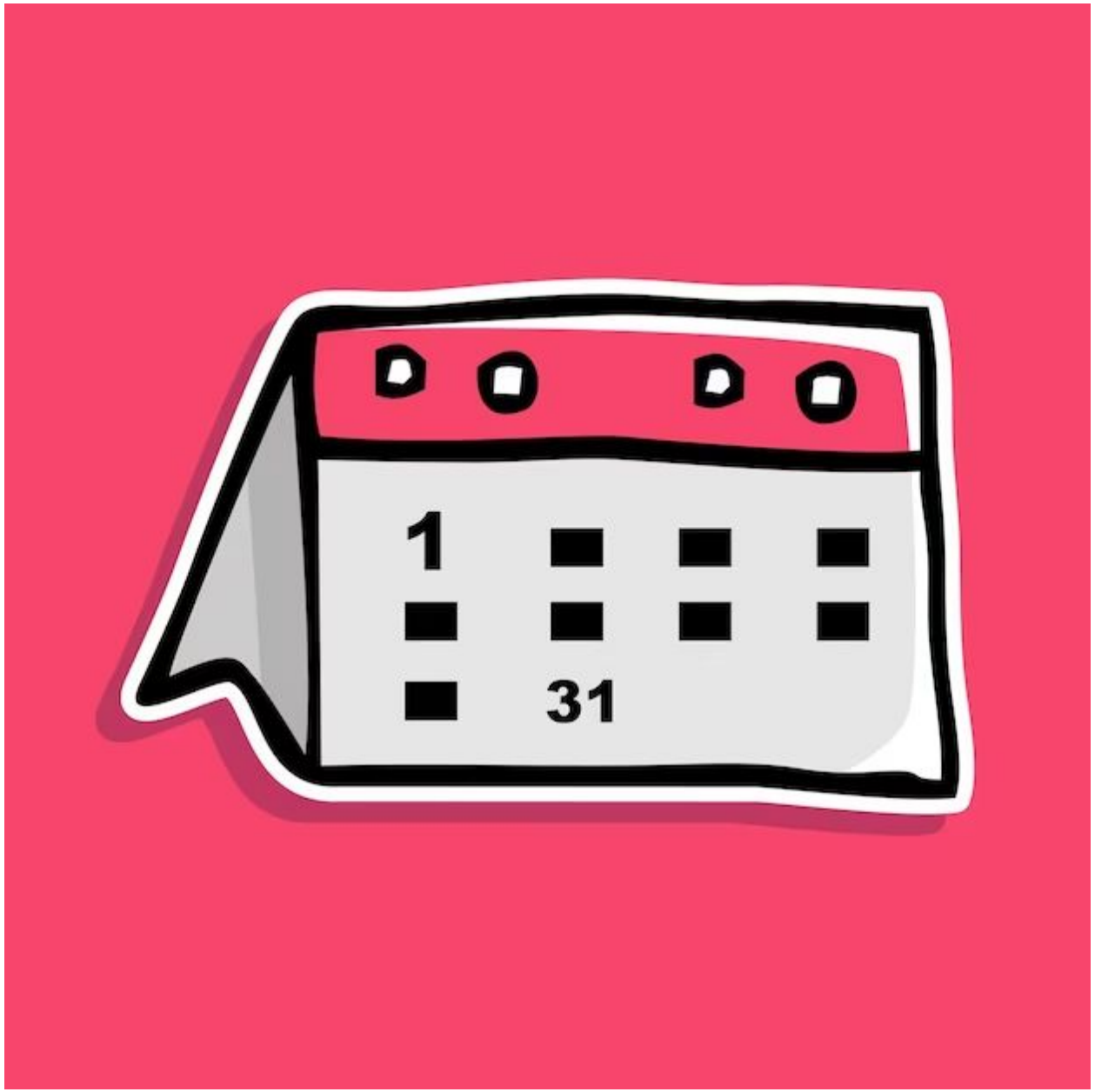
Teachers

- Diego Lopez-Bernal (Leader) expert in Machine Learning, Computer Vision and Neurolinguistics
  - lopezbernal.d@tec.mx
- David Balderas (Leader) expert in Machine Learning, Robotic Vision and Control
  - dc.balderassilva@tec.mx
- Andrea Torres expert in Machine Learning and Deep Learning
  - a.torres.c@tec.mx
- Jesús Vázquez expert in Software Development, Computer Vision and Aerial Robotics
  - jesus_vazquez@tec.mx
- Oscar Fuentes expert in Service Robotics and Machine Learning
  - ofc1227@tec.mx
- Emmanuel Paez expert in Machine Learning and Natural Language Processing
  - emmanuel.paez@tec.mx

Safe campus

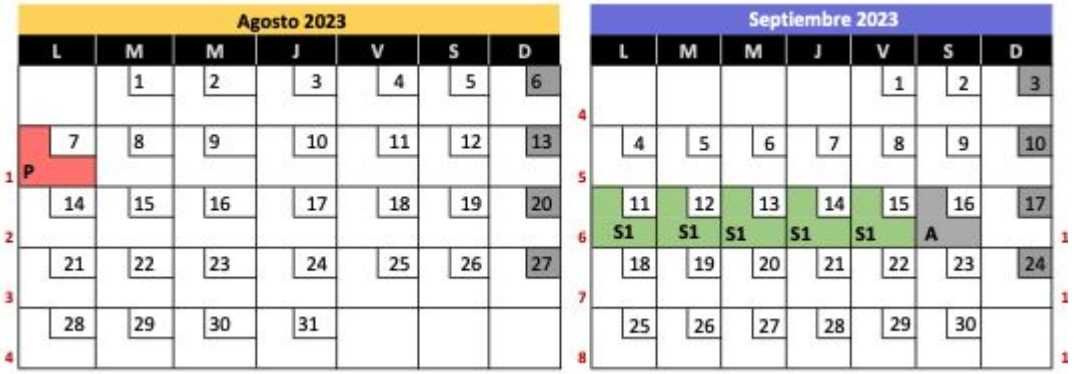


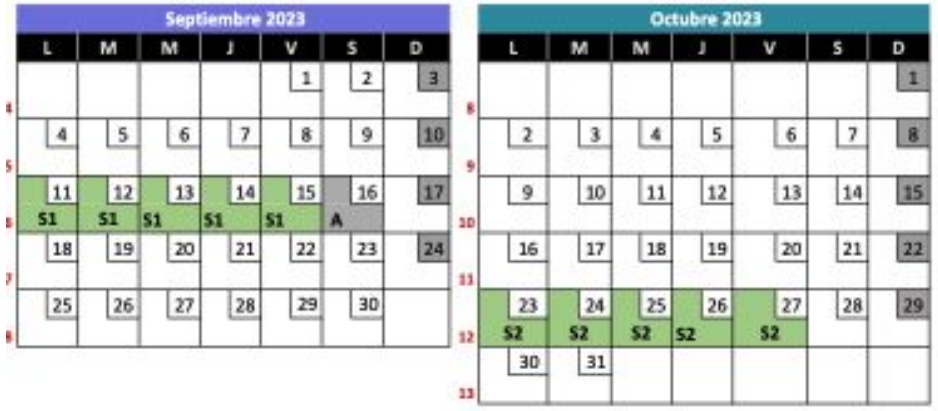
Calendars



Tec21:
(del 7 agosto al 8 de diciembre 2023)

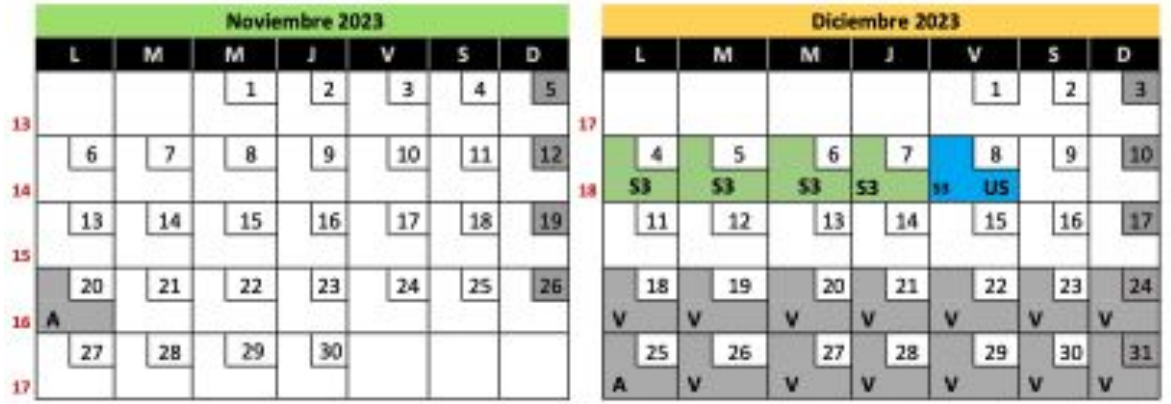
- Periodo 1: 7 agosto al 8 septiembre 2023
- Semana TEC 1: 11 al 15 septiembre 2023





- Periodo 2: 18 septiembre al 20 octubre 2023
- Semana TEC 2: 23 al 27 octubre 2023

- Periodo 3: 30 Octubre al 1 diciembre 2023
- Semana 18: 4 - 8 diciembre 2023



Clases

Modules

- Module 1. Python libraries - Andrea Torres
- Module 2. Statistics for data science - Jesús Vázquez
- Module 3. Machine Learning - Diego Lopez-Bernal and David Balderas
- Module 4. Big Data and AWS - Oscar Fuentes
- Module 5. Natural language processing 1 - Emmanuel Páez
- Challenge - Diego Lopez-Bernal
- Leaders - Diego Lopez-Bernal and David Balderas

Canvas -> Pagina de inicio -> Mis profesores

Schedule

	Horas	PERIODO 1 Lu	Ma	Mi	Ju	Vi
Inteligencia artificial avanzada para la ciencia de datos	14:00					
	15:00					
	16:00	TC3006C Andrea	TC3006C Oscar	TC3006C David	TC3006C Diego	TC3006C Diego
	17:00	TC3006C Andrea	TC3006C Oscar	TC3006C David	TC3006C Diego	TC3006C Diego
	18:00	TC3006C Andrea	TC3006C Oscar	TC3006C Emmanuel	TC3006C Diego	TC3006C Emmanuel
	19:00	TC3006C Jesús	TC3006C Oscar	TC3006C Emmanuel	TC3006C Jesús	TC3006C Emmanuel
	20:00	TC3006C Jesús			TC3006C Jesús	
	21:00	TC3006C Jesús			TC3006C Jesús	
	22:00					

	Horas	Semana Tec 01 Lu	Ma	Mi	Ju	Vi
Inteligencia artificial avanzada para la ciencia de datos	14:00					
	15:00					
	16:00	TC3006C Andrea	TC3006C Oscar	TC3006C David	TC3006C Diego	TC3006C Diego
	17:00	TC3006C Andrea	TC3006C Oscar	TC3006C David	TC3006C Diego	TC3006C Diego
	18:00	TC3006C Diego	TC3006C Oscar	TC3006C Emmanuel	TC3006C Diego	TC3006C Emmanuel
	19:00	TC3006C Diego	TC3006C Oscar	TC3006C Emmanuel	TC3006C Diego	TC3006C Emmanuel
	20:00					
	21:00					
	22:00					

Schedule

	Horas	PERIODO 2				
		Lu	Ma	Mi	Ju	Vi
Inteligencia artificial avanzada para la ciencia de datos	14:00					
	15:00					
	16:00	TC3007C Andrea	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	17:00	TC3007C Andrea	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	18:00	TC3007C Andrea	TC3007C Oscar	TC3007C Emmanuel	TC3007C Diego	TC3007C Emmanuel
	19:00	TC3007C Jesús	TC3007C Oscar	TC3007C Emmanuel	TC3007C Jesús	TC3007C Emmanuel
	20:00	TC3007C Jesús			TC3007C Jesús	
	21:00	TC3007C Jesús			TC3007C Jesús	
	22:00					

	Horas	Semana Tec 02				
		Lu	Ma	Mi	Ju	Vi
Inteligencia artificial avanzada para la ciencia de datos	14:00					
	15:00					
	16:00	TC3007C Diego	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	17:00	TC3007C Diego	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	18:00	TC3007C Diego	TC3007C Oscar	TC3007C Emmanuel	TC3007C Diego	TC3007C Emmanuel
	19:00	TC3007C Diego	TC3007C Oscar	TC3007C Emmanuel	TC3007C Diego	TC3007C Emmanuel
	20:00					
	21:00					
	22:00					

Schedule

		PERIODO 3				
	Horas	Lu	Ma	Mi	Ju	Vi
Inteligencia artificial avanzada para la ciencia de datos	14:00					
	15:00					
	16:00	TC3007C Diego	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	17:00	TC3007C Diego	TC3007C Oscar	TC3007C David	TC3007C Diego	TC3007C Diego
	18:00	TC3007C Diego	TC3007C Oscar	TC3007C Emmanuel	TC3007C Diego	TC3007C Emmanuel
	19:00	TC3007C Jesús	TC3007C Oscar	TC3007C Emmanuel	TC3007C Jesús	TC3007C Emmanuel
	20:00	TC3007C Jesús			TC3007C Jesús	
	21:00	TC3007C Jesús			TC3007C Jesús	
	22:00					

Evaluation Plan

Integración de la calificación final

La calificación final será compuesta por **60% de actividades y 40% de la presentación argumentativa.**

Actividades	Ponderacion
Module 1. Python Libraries	10%
Module 2. Statistics for Data Science	10%
Module 3. Machine Learning	10%
Module 4 Big Data and AWS	10%
Module 5. Natural Language Processing 1	10%
Evaluation Module	10%
Total	**60%**

Evidencia	Ponderacion
Presentación argumentativa	40%

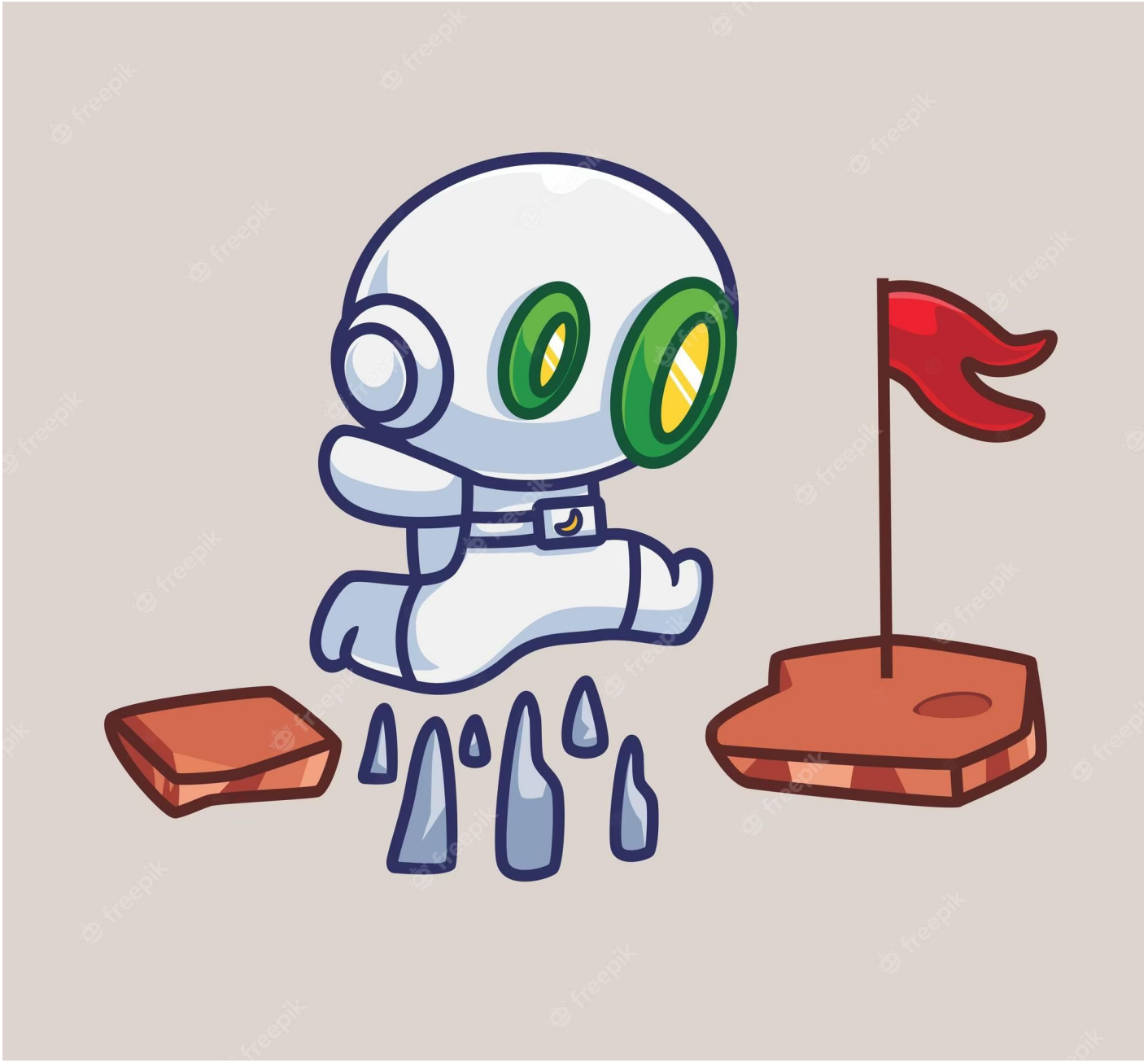
Evaluation Plan

Módulo de Evaluación

La calificación global de este módulo se conforma por la calificación de los exámenes integradores de cada módulo. Estos exámenes integradores serán diseñados y evaluados por el profesor de cada módulo y deberá contener todos los temas vistos en el módulo.

Evaluation Module	Ponderacion
Module 1. Python Libraries	2%
Module 2. Statistics for Data Science	2%
Module 3. Machine Learning	2%
Module 4 Big Data and AWS	2%
Module 5. Natural Language Processing 1	2%
Total	**10%**

Challenge



Challenge Description

Kaggle competition: you will solve a machine learning classification problem based on a dataset from Kaggle. In this challenge you will apply your knowledge about:

- Python libraries
- Data distribution
- Missing data
- Correlation analysis
- Data transformation
- Classifier selection
- Train-test-validation split
- Performance metrics

Support Material

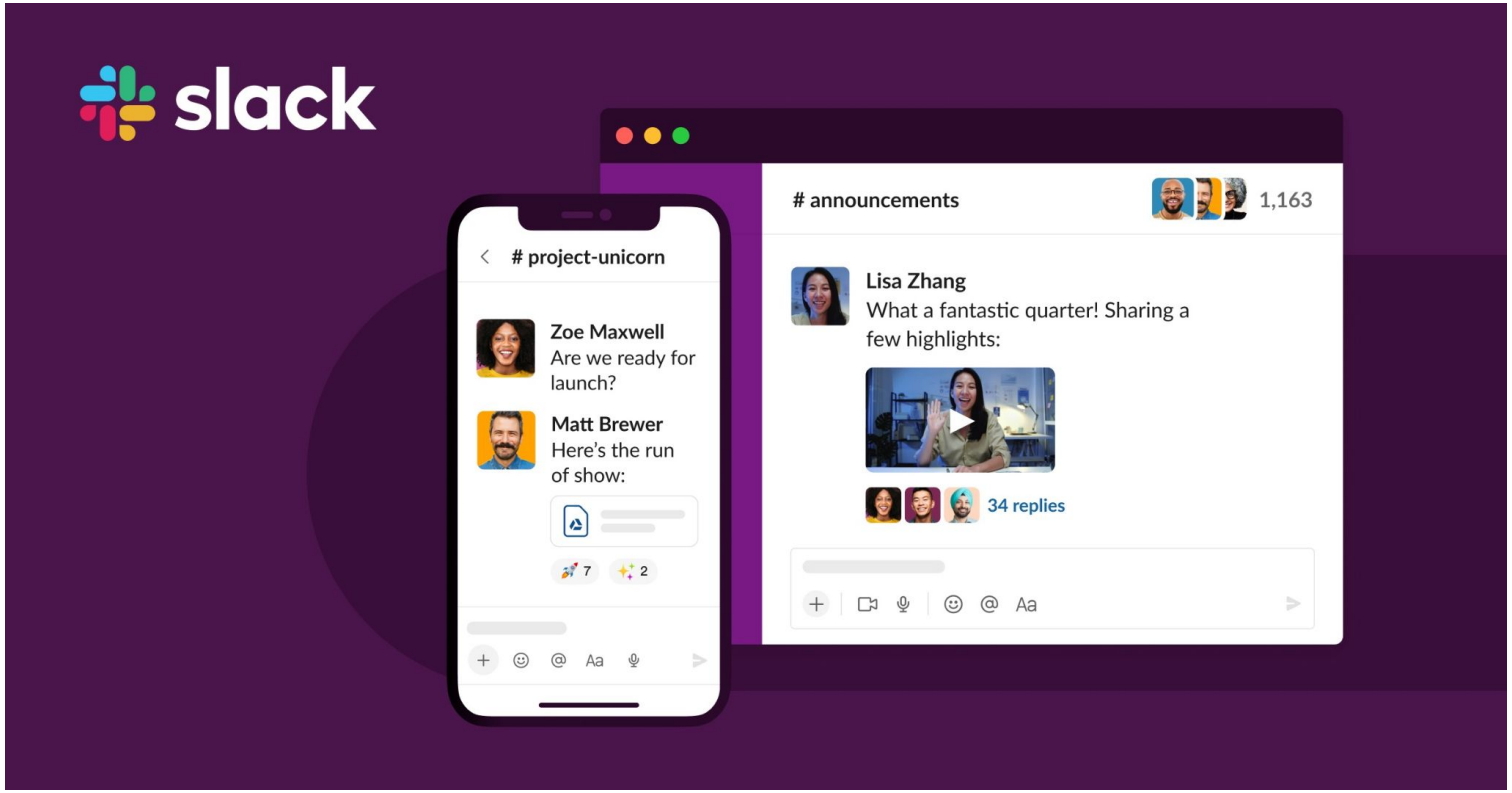
- Textbook
  - Hands-On Machine Learning with Scikit-Learn and TensorFlow : Concepts, Tools, and Techniques to Build Intelligent Systems. Geron, Aurelien. 2019. O'Reilly
  - Deep Learning with Python.Chollet, François. Segunda edición. 2018. Manning Publications Co
  - Richard O. Duda, Peter E. Hart, David G. Stork, “Pattern Classification, Wiley, 2nd Edition”.
  - Christopher Bishop, “Pattern Recognition and Machine Learning, illustrated Edition, Springer, 2006”.
- Recommended Online Course
  - https://www.coursera.org/learn/machine-learning

Objectives of this course

- The main objective of this course is to enabling the student with basic knowledge on the techniques to build an intellectual machine for making decisions behalf of humans. This course covers the techniques on how to make learning by a model, how it can be evaluated, what are all different algorithms to construct a learning model.
- Course Outcomes:
    - Basics on what is a learning machine.
    - Basic mathematics behind learning algorithms.
    - Different types of learning.
    - Finally, How to construct a learning machine

Communication channel

The communication channel for this concentration will be SLACK.



Video call channel

The communication channel for this concentration will be Microsoft Teams.

https://teams.microsoft.com/l/team/19%3aZsF5E4L2A1Byz0VUVTkIW3Z9kc6_pwAsv_V5w4DZ0a41%40thread.tacv2/conversations?groupId=3684b50a-c068-44b7-b4cd-b21a149643c2&tenantId=c65a3ea6-0f7c-400b-8934-5a6dc1705645

Teams for activities and challenge

Now, we will create the teams. They must contain members that are from different backgrounds.