esade

TEACHING GUIDE - 2025-2026

Data Sciences for Intrapreneurs

UGRA_016194

Departments	Data, Analytics, Technology and Artificial Intelligence (DATA), Dept. of Operations, Innovation & Data Sciences
Teaching Languages	English
ECTS	5
Teacher responsible	Jiho Yang - jiho.yang@esade.edu

Course Goals

By the end of this course, students will be able to:

1. Explain what AI is and how AI transforms work, business, and society.

2. Describe how different AI models operate, including supervised/unsupervised machine learning.

3. Identify ethical challenges associated with the development and deployment of AI technologies.

4. Understand challenges in transforming businesses around AI and learn frameworks that can aid managers to successfully implement AI into their organizations

5. Track current developments and emerging trends in AI.

6. Gain knowledge about how to effectively leverage different AI-based tools to improve efficiency and effectiveness in carrying out tasks and to identify new opportunities for firms

7. Generate insights on how to better achieve organizational goals by applying AI-based analytics tools to real-world data

NOTE: Students <u>must achieve a minimum grade of 5.0 on the final exam(s) of a course to be eligible to pass the course;</u> a grade lower than 5.0 in the exam will become the student's final grade without averaging in other assessments. This rule applies to retake exams as well.

Previous knowledge

Students are advised to review basic programming with Python, including data types, data structure, file handling, and working with libraries. Basic knowledge and experience in machine learning and/or generative AI tools can be useful, but not strictly required.

Teaching methodology

1. Lectures: Conceptual frameworks to understand the implications of AI for work, business, and society

2. Hands-on Labs: Use of no-code, less-code tools for practical applications of machine-learning and generative AI models

3. Case Studies: In-class discussion on businesses adopting AI to better understand how AI can boost efficiency and effectiveness of firms, which strategic challenges firms may face when transforming business around AI, and what risks are involved in using AI for businesses.

4. Group projects: Application of AI tools and techniques to real-world data to generate insights on business opportunities

5. Individual assignment: Application of conceptual frameworks on the intersection between AI and business to analyze real-world organizations

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Description

Course contribution to program

This course aims to prepare students to be (1) ethical and proficient users of AI-based tools to improve work performance, redesign their tasks, and generate insights on new opportunities for their organizations, and (2) managers who understand the transformative impacts of AI for employees, businesses, industries, and societies and help their organizations implement AI at different levels of operation.

Students will:

1. learn conceptual frameworks for systematically understanding the implications of AI for work, business, and society

2. discuss case studies that describe the implications of AI for businesses, as well as strategic challenges and risks organizations face when implementing AI

3. understand how AI operates under the hood through hands-on practices for using AI tools to analyse data

4. apply conceptual framework and knowledge learned in class to real-world organisations to propose strategies to successfully implement AI technology, and

5. work in groups to apply AI-based tools for data analytics to real-world data and generate insights for new economic opportunities or innovative solutions to societal challenges.

Bibliography

Agrawal, A., Gans, J., & Goldfarb, A., Prediction Machines: The Simple Economics of Artificial

Intelligence, Harvard Business Review Press (Book)

Mollick, E., Co-Intelligence: Living and Working with AI, WH Allen (Book)

Iansiti, M., & Lackhani, K. R., Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World, Harvard Business Review Press (Book)

Agrawal, A., Gans, J., & Goldfarb, A., Power and Prediction: The Disruptive Economics of Artificial Intelligence, Harvard Business Review Press (Book)

Brynjolfsson, E., & McAfee, A., The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies, W. W. Norton (Book)

Wooldridge, M., The Road to Conscious Machines: The Story of AI, Pelican (Book)

Narayanan, A. & Kapoor, S., AI Snake Oil, Princeton University Press (Book)

Activities

In-class discussions and debates
In-class discussion based on (but not limited to) case studies on real-world examples of businesses adopting AI to better understand strategic opportunities and challenges AI presents.

Written and/or oral exams
A final exam will take place at the end of the term where students will apply concepts and frameworks they learned during the sessions.

Group presentations
Students will work in groups where they will have the opportunity to apply AI-based tools to real-world data to generate insights on new opportunities or solutions to business/societal challenges

Readings
Students are required to come to class prepared, having read all the required readings including case studies and academic articles.

Essays
Students will individually choose a company of their interest and evaluate its AI strategy, focusing on which tasks AI can be best implemented for, how the company can build or transform into AI-based business models, implications for competition, etc

Case study analyses
Students will be required to read case studies on companies adopting AI and analyze how AI is used in these organizations, whether and how the deployment of AI can be improved, what kinds of challenges the organizations face, etc

Content

#	Topic
1	Introduction to AI
2	Foundations of Machine Learning
3	Hands-on Machine Learning & Data Analytics
4	AI Impact on Work
5	Practical Generative AI
6	Hands-on Workflow Automation
7	Strategy, Competition & Society in the Age of AI
8	Cloud Computing

#	Topic
9	AI Risk, Ethics, and Governance

Assessment

Tool	Assessment tool	Category	Weight %
In-class analysis and discussion of issues	Students are expected to actively participate in in-class activities including case discussions and hands-on practices. In order to do so, students must come to each session prepared, having read assigned readings and having followed instructions for pre-	Retake and ordinary round	25.00%
Final individual project	Each student will choose a real-world organization and submit a report on opportunities and challenges for the organization to adopt AI technologies and strategies to successfully implement AI.	Retake and ordinary round	25.00%
Group project	Students will work in groups to apply AI tools to real-world data to generate insights on new opportunities or solutions to business/societal challenges. Presentation and report will each account for 15% of final marks.	Retake and ordinary round	25.00%
Written and/or oral exams		Ordinary round	25.00%
Written and/or oral exams	Students who fail to pass the course will be required to sit a retake exam that accounts for the 25% of their final course grade.	Retake	25.00%

PROGRAMS

BITLASI22-Bachelor in Transformational Leadership and Social Impact (Undergraduates: Business)
BITLASI22 Year 4 (Optative)