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Study Abroad
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Centre: Barcelona

Course: **Applied AI for Business**

Programme: Business, Design & Innovation

Semester: 2 (Spring)

ECTS credits: 6 ECTS

Duration: 45 hours

Language of Instruction: English

Instructor: Manel Guerris

Course Description

Artificial Intelligence (AI) is transforming industries, reshaping business strategies, and redefining the future of work. This course, designed for business students, provides a hands-on introduction to AI fundamentals, its applications in organizations, and its role in boosting productivity.

Students will gain practical experience with tools like RapidMiner, ChatGPT, and Microsoft Copilot, enabling them to leverage AI for decision-making, efficiency, and innovation. Through case studies, workshops, and a final project, participants will develop a strategic understanding of AI, preparing them confidently to navigate the AI-driven business landscape.

Prerequisites

None

Attendance policy

Attendance is mandatory for all classes, including study visits. Any exams, tests, presentations, or other work missed due to student absences can only be rescheduled in cases of certified medical or family emergencies. If a student misses more than three classes in the course half a letter grade will be deducted from the final grade for each additional absence. Seven absences from the course will result in a Fail grade.

Objectives

- Understand key AI concepts, including Machine Learning, Deep Learning, Generative AI, and Agentic AI.
- Identify and analyze AI applications in various industries.

- Develop hands-on experience using AI tools like RapidMiner, ChatGPT, and Microsoft Copilot.
- Design AI strategies for businesses and evaluate their impact on work and productivity.
- Enhance personal and professional productivity through AI-powered tools.
- Apply AI techniques to solve real-world business problems in a final project.

Learning Outcomes

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

- Identify AI-driven business opportunities and design AI strategies for organizations.
- Use AI tools to analyze data, automate tasks, and enhance decision-making.
- Develop AI-driven workflows to improve efficiency in business operations.
- Apply AI to content management, job applications, planning, and business processes.

Method of Presentation

- **Lectures:** Foundational concepts in AI and its application to creative fields.
- **Hands-On Workshops:** Step-by-step instruction on using AI tools
- **Case Studies and Discussions:** Exploration of AI-driven business cases.
- **Projects:** Individual and group assignments to experiment with AI tools.
- **Field Study:** Fieldtrips related to course contents will be organised to put into practise the concepts exposed in class.

Required Work and Assessment Methods

1. **Assignments (40%)**
    - Practical exercises using AI tools.
2. **Final Project (40%)**
    - Comprehensive project showcasing AI tools and a business concept.
3. **Participation (20%)**
    - Active engagement in workshops, critiques, and class discussions.

Contents

<u>Block 1: AI Fundamentals and Machine Learning</u>

Class 1: Introduction to Artificial Intelligence

- Definition and evolution of AI
- Types of AI
- AI current market situation and its impact on business

Class 2: AI applications

- AI applications on businesses
- Workshop: look for companies which have applied AI and analyze the value it provides

Class 3: Deep Learning and Generative AI

- How Deep Learning works: Neural networks
- Generative models: ChatGPT, DALL·E, Stable Diffusion
- Main limitations and challenges

Class 4: Agentic AI and the Future of Autonomous Agents

- What is Agentic AI?
- AI models capable of executing tasks autonomously
- Discussion: How much control should humans have?

Class 5: Introduction to Machine Learning

- Differences between supervised and unsupervised learning
- Use cases in business
- Workshop: categorization of machine learning applications in companies

Class 6: Supervised Machine Learning with RapidMiner

- Key algorithms: regression, decision trees, random forests neural networks
- KPIs to evaluate SML models
- Hands-on practice in RapidMiner: Customer classification

Class 7: Unsupervised Machine Learning with RapidMiner

- Clustering, dimensionality reduction, pattern recognition
- KPIs to evaluate UML models
- Hands-on practice in RapidMiner: Customer segmentation

Class 8: Machine Learning Hackathon

- Practical exercise in class with RapidMiner

<u>Block 2: AI Strategy in Organizations and the Future of Work</u>

Class 9: AI Strategy in Organizations

- How to integrate AI into a company
- Identifying strategic opportunities
- Case studies of AI adoption
- Discussion: How should companies prepare for AI?

Class 10: AI strategy application

- Workshop: Intenseye Business Case Discussion in class

Class 11: AI and the Future of Work

- Which jobs are at risk?

- New skills for the AI era
- How to position yourself as a professional in an AI-driven world

Class 12: Human-AI Collaboration in the Workplace

- How to work with AI without being replaced
- Practical examples of AI-augmented roles
- Discussion: How to differentiate yourself in the AI era

Class 13: AI strategy application (ii)

- Workshop: DBS Bank Business Case Discussion in class

Class 14: Ethics, Regulation, and AI Risks

- Algorithmic biases and discrimination
- Global regulations and compliance
- Debate: Should companies self-regulate AI?

Class 15: AI strategy application (iii)

- Workshop: definition of AI strategy for a company

Class 16: AI strategy application (iii)

- Public presentations of AI strategy definition for a company
- Discussion

<u>Block 3: Boosting Productivity with ChatGPT and Copilot</u>

Class 17: Prompt Engineering for ChatGPT

- How to ask effective questions to get better results
- Advanced prompting techniques (Zero-shot, Few-shot, Chain of Thought)
- Hands-on practice: Optimizing prompts in ChatGPT

Class 18: Content management with GPTs

- Content summarization strategies
- Content extraction strategies
- Content combination strategies
- Hands-on practice: Content management in ChatGPT

Class 19: Content creation with GPTs

- How to ask for alternatives and options
- How to explore creative ideas
- How to create customized content
- Hands-on practice: Mails and newsletters creation in ChatGPT

Class 20: Planning with GPTs

- How to use GPT reasoning techniques for planning
- Project planning
- Resources planning
- Hands-on practice: Planning a project with ChatGPT

Class 21: Improving job applications and interviews with GPTs

- Guided Workshop to better prepare CVs aligned with job ads and positions and to improve job interviews

Class 22: Ms-Excel with GPTs

- How to use GPTs as an Excel assistant
- How to use GPTs to provide combined formulas in Excel
- Building macros with GPTs
- Hands-on practice: Excel data analysis with ChatGPT

Class 23: Using Copilot in Microsoft 365

- Applications in Word, Excel, PowerPoint, and Outlook
- How Copilot automates repetitive tasks
- Hands-on practice: Generating reports and presentations with Copilot

Class 24: Automating Workflows with AI

- How AI can enhance efficiency in repetitive tasks
- Integrating ChatGPT and Copilot with other tools
- Workshop: Designing an AI-powered workflow

Class 25: Develop an AI application for a company using ChatGPT or Copilot

- Workshop: Improve a business user case by making an AI workflow with ChatGPT or Copilot

Class 26: Develop an AI application for a company using ChatGPT or Copilot (ii)

- Public presentations of the business case, the process followed, results achieved, and challenges detected
- Discussion

<u>Final Project</u>

Class 27: Project Definition

- Selecting a real business case to analyze
- Team formation and work Planning

Classes 28-29: Project Development

- Applying AI techniques and concepts learned throughout the course

Class 30: Final Presentation

- Project presentations and feedback

Required Reading

"The Business Case for AI: A Leader's Guide to AI Strategies, Best Practices & Real-World Applications" – Kavita Ganesan (2022)

"The Shortcut: Why Intelligent Machines Do Not Think Like Us" – Nello Cristianini (2023)

"Supremacy: AI, ChatGPT, and the Race that Will Change the World" – Parmy Olson (2024)