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<b>Code - Course</b>	<b>064622 - Artificial intelligence in tourism</b>				
<b>Type</b>	Elective: specialization		<b>Year</b>	4 <sup>th</sup>	
<b>Thematic Area</b>	New technologies and digital tools		<b>Credits</b>	3 ECTS	
<b>Teacher in charge of the course</b>			Albert Pérez Llanos		
<b>In-class</b>	30 hours	<b>Teacher-led</b>	20 hours	<b>Individual</b>	25 hours

## BRIEF COURSE DESCRIPTION

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### Artificial Intelligence in Tourism: From Zero to Hero

Dive deep into the transformative realm of artificial intelligence tailored for the tourism sector. This course aims to provide a comprehensive understanding of AI's principles, intricacies, and its revolutionary applications within the vast landscape of tourism. Beyond traditional lectures, students will embark on a journey of experiential learning, blending theory with hands-on practical use cases that touch different verticals within the tourism industry.

Inspiration is at the heart of our approach. We challenge students to think unconventionally, harnessing AI tools in their daily endeavors, both personally and professionally. By integrating AI tools directly into the classroom, we not only teach but demonstrate the power of AI. These tools, serving as our "teaching assistants," offer students a unique opportunity to interact, experiment, and innovate.

Be prepared to be disrupted. This course goes beyond the curriculum, aiming to reshape the way students perceive and utilize AI in tourism, turning novices into pioneers and innovators.

## BASIC SKILLS

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BS05- Students must develop the necessary learning skill to undertake further studies with a high grade of autonomy.

## GENERAL SKILLS

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GS04- Have a commitment to ethics.



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## LEARNING OBJECTIVES

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RT125: "Understand the basics of creating and managing digital platforms in the tourism sector."

RT131: "Understand the latest trends and applications of artificial intelligence in tourism."

## ACADEMIC CONTENTS

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### 1. Introduction to AI and Tourism

- Overview of AI: Definition
- Historical Context: Evolution of AI and the advancement of technology in tourism
- The Intersection of AI and Tourism

### 2. Foundations of AI

- Algorithms
- Machine learning
- Overfitting and underfitting
- Neural networks
- Deep Learning
- NLP (natural language processing)
- LLM (Large Language Models) / LMM
- Transformers

### 4. Adapting AI to real needs:

- Prompt Engineer
- Fine tuning
- Grounding
- Retrieval-Augmented Generation
- Reinforcement learning by human feedback



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## **5. Robotics, computer vision, cognitive computing**

- Automation and robotics in hospitality
- Computer vision
- Cognitive computing
- AGI

## **6. Data in Tourism**

- The importance of data in decision-making
- The importance of data in AI applications
- Types of Data in Tourism: Quantitative and Qualitative
- Data collection, cleaning, processing, and analysis within the tourism context

## **7. AI in Customer Experience**

- Chatbots and virtual assistants for tourist inquiries
- Personalized recommendations and travel planning
- Augmented and Virtual Reality in tourism

## **8. AI in Operations and Management**

- Predictive analytics for demand forecasting
- Optimization algorithms for resource allocation and scheduling

## **9. AI in Marketing**

- Online reputation: AI to reply to reviews.
- Online reputation: Sentiment analysis for feedback and reviews
- Predictive analytics for segmented marketing
- The new way of searching



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- AI-driven content creation and curation
  - o Text
  - o Image
  - o Video
  - o Audio

## 11. Ethical Considerations in AI for Tourism

- Bias and fairness in AI models
- Concerns about data privacy and security
- Ethical considerations in data collection and AI deployment
- Cultural and societal implications of AI-driven solutions

## 12. AI in Smart Destinations

- Analysis of trends and patterns
- Predicting future tourist hotspots
- Understanding smart tourism destinations

## LEARNING METHODOLOGY

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The learning methodologies planned for the subject combine a number of processes being the most remarkable the cognitive methods related to the comprehension of the principles of tourism and the global tourism system as well as the inclusion of a set of skills, mainly technical.

The activities and methodologies -both group and individual- designed for this subject are the following:



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- Analysis of the operations and daily tasks of a tourism department or company to identify opportunities for improving productivity and customer service by implementing AI.
- Creating a customer service chatbot using AI tools.
- Papers on the social and ethical impact of AI. Summary and analysis of AI-related papers and conclusions by the student.

## ASSESSMENT SYSTEM

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The assessment system measures the student's achievement of learning outcomes regarding the subject's competences and contents.

Students may choose continuous assessment or single assessment:

**Continuous Assessment:** the teaching-learning process is assessed by a continuous monitoring of the work done by the students throughout the course and a final individual examination. Students must attend classes in order to be assessed by continuous assessment.

**Single Assessment:** for those students who cannot come to class regularly, they can choose to be assessed by single assessment. The teaching-learning process is assessed by means of the assessment of all activities and in-person individual examination at the end of the course.

To qualify for this form of assessment, students must apply within the first 15 days of the start of the course through the assessment section of Virtual Campus.

The assessment activities planning will be public for the students from the start.

Activities	Type	Continuous	Single	Week deadline
Analysis of the operations and daily tasks of a	Group	20%	-	8 week



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## COURSE CONTENT

Bachelor's Degree in Tourism  
Academic Year 2024/25

tourism department or company to identify opportunities for improving productivity and customer service by implementing AI.				
Creating a customer service chatbot using AI tools.	Individual	20%	20%	10 week
Social and ethical impact of AI papers. Summary and analysis of AI-related papers and conclusions by the student.	Individual	20%	20%	12 week
Final exam	Individual	40%	60%	Exam week
<b>Total</b>		<b>100%</b>	<b>100%</b>	

To pass the course, it is mandatory to have obtained a minimum final grade of "5", as long as the student has completed the individual exam/s or work/s established in the course. This exam/s or final work/s must be graded with a minimum of "4" in order to be able to calculate the average of all the assessment activities carried out during the course.

### **Revision and Reassessment of the Course**

The student has the right to revise all the evidences that have been designed for the assessment of learning.

If a student fails to achieve the learning objectives of the course, in order to opt for the subject reassessment, it will be necessary to have obtained a final grade of the subject between "4-4.9", and to have attended the individual final exam/s or final work/s of the course.

The reassessment process will only involve the modification of the final grade in the case that the new assessment activity is passed and, in any case, the maximum grade will be "5". This grade will be averaged with the other grades of the assessment activities carried out by the student during the corresponding



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academic period, considering the percentages established in each subject, setting the final grade for the course.

## REFERENCES

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Congressional Research Service (2023) "Generative Artificial Intelligence and Copyright Law". (May 2023)

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Cristch, A. y Russel, S. "TASRA: a Taxonomy and Analysis of Societal-Scale Risks from AI". (January 2023)

Deloitte AI Institute (2023). "Proactive Risk Management in Generative AI"

Digital Sicher BSI (2023). "Large AI Language Models. Opportunities & Risks for industry and authorities". (March 2023).

European Parliament (2023). "General-purpose artificial intelligence". *Tambiana Madiega*. (March 2023)

Gaske, M (2023). "Regulation Priorities for Artificial Intelligence Foundation Models (draft)". 2023.

Gebru, T. et al (2023) "Five considerations to guide the regulation of 'General Purpose AI' in the EU's AI Act". (April 2023)

UNESCO (2023) "Foundation models such as ChatGPT through the prism of the UNESCO Recommendation on the Ethics of Artificial Intelligence". (June 2023).