IB9AU-15 Generative AI and AI Applications

26/27

Department
Warwick Business School
Level
Taught Postgraduate Level
Module leader
Ram Gopal
Credit value
15
Module duration
9 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

In this module, we will demystify Generative AI and illuminate its crucial impact on finance. Students will gain insights into various generative models and hone Python and PyTorch skills. Through our pragmatic approach, students will apply key generative AI concepts like Generative Adversarial Networks, Transformer Models, Diffusion models and Natural Language Processing to real-world scenarios. As we round off the module, we will project into the future of Generative AI and engage in essential discussions on ethical implications. Our primary goal is to empower students with the know-how and aptitude to leverage Generative AI in finance, enhancing decision-making and pioneering innovative strategies.

Module web page

Module aims

The principal aim of this module is to offer students a comprehensive understanding of Generative AI and its significant role in the modern business. The module intends to instill a robust understanding of various generative models, while fostering proficiency in Python and PyTorch to handle real-world data.

Students will learn important generative AI topics such as the attention mechanism, Transformer models, and Natural Language Processing. They will examine these technologies not only from a theoretical standpoint but also in practical scenarios.

Lastly, the module wraps up with a forward-looking discussion on the prospects and ethical dimensions of Generative AI. The overarching aim is to equip students with the knowledge and skills necessary to apply Generative AI solutions in practice, leading to more informed decision-making and innovative approaches.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Introduction to Generative AI and Its Role in Business
Deep Dive into AI Development
Generative AI Models
Image Generation from Autoencoders to Diffusion Models
Transformer Models and the Attention Mechanism
Forecasting using Transformer Models
Natural Language Processing
AI Agents
Future of Generative AI

Learning outcomes

By the end of the module, students should be able to:

- Demonstrate comprehensive understanding of the fundamental concepts, models, and applications of Generative AI
- Demonstrate comprehensive understanding of and apply various Generative AI models to solve complex problems
- Explore the integration of business data with generative models, understanding how to enhance the quality, reliability, and value of predictions and analyses.
- Demonstrate analytical thinking to leverage the nuanced datasets
- Demonstrate critical evaluation skills by assessing the strengths and limitations of generative AI models

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

Master the use of Python for implementing and optimizing Generative AI models
Apply Natural Language Processing (NLP) techniques to analyze and interpret text data
Develop Generative AI solutions using Transformer Models

Transferable skills

Enhanced communication skills
Problem solving skills

Study

Study time

Type	Required
Online learning (scheduled sessions)	9 sessions of 1 hour (6%)
Other activity	18 hours (12%)
Private study	49 hours (33%)
Assessment	74 hours (49%)
Total	150 hours

Private study description

Private study and pre-reading

Other activity description

9 x 2 hrs F2F workshops

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A

Assessment component	Weighting	Study time	Eligible for self-certification
Group Written Report	20%	15 hours	No

	Weighting	Study time	Eligible for self-certification
1,250 word group report			
Reassessment component			
Individual assignment			Yes (extension)
Assessment component			
Individual Assignment 1 Individual Assignment	20%	15 hours	Yes (extension)
Reassessment component is the same			
Assessment component			
Individual Assignment 2 Individual Assignment	50%	37 hours	Yes (extension)
Reassessment component is the same			
Assessment component			
Class Participation	10%	7 hours	No
Reassessment component is the same			

Feedback on assessment

via my.wbs

Availability

Courses

Course availability information is based on the current academic year, so it may change.
This module is Core for:

- Year 1 of TIBS-H60Z MSc Financial Technology

This module is Optional for:

- Year 1 of TIBS-N1N3 Postgraduate Taught Business Analytics