

# A Comparative Analysis of ChatGPT Courses in Industrial and Academic Domains

## ABSTRACT

This study presents an initial investigation into the available courses on ChatGPT, aiming to enhance understanding of its applications and ethical considerations. We have categorized ChatGPT-related courses across both industrial and academic domains, with platforms like Udemy and Coursera representing the former and various U.S. universities representing the latter. The initial data analysis reveals a focus on marketing, content creation, coding, and applications in the industrial domain, whereas the academic domain tends to emphasize fundamental theories and mathematical methods in AI. The future direction includes a more comprehensive review of courses from additional online learning platforms and universities.

**Keywords:** Digital innovation, ChatGPT, ChatGPT-related courses, AI education, ethical AI

## INTRODUCTION

Digital innovation includes the use of a wide range of technical tools and approaches during the ideation process (Nambisan et al., 2017). With the advent of digital innovation, substantial transformations have occurred in the ways people work, communicate, and connect with each other. ChatGPT is one of the digital innovation tools that are currently changing our lives, also known for its natural and live conversational ability. The AI chatbot model distinguishes itself with its sophisticated proficiency, easily tackling follow-up inquiries, flagging errors, challenging flawed premises, and refusing inappropriate requests (George & George, 2023). However, even as its remarkable features continue to amaze, some ChatGPT users have started raising concerns (Zhou et al., 2023).

A predominant concern is the potential for job displacement. The rise of AI and chatbot technologies has elicited growing concerns that automation could potentially replace human roles, causing job instability and economic uncertainty (Howard, 2019). Furthermore, the malicious use of AI has led to a crisis of confidence in the technology, prompting calls for governmental regulations and industrial initiatives to ensure responsible and ethical AI development (Butcher & Beridze, 2019).

Another aspect contributing to the prevailing unease surrounding ChatGPT is the lack of understanding about how to effectively utilize AI (Denny et al., 2023). This uncertainty can lead people to perceive AI as a potential factual risk, rather than a tool for progress. However, it is crucial to view technology, including AI, as a means to enhance human capabilities, not as a substitute (Cockburn et al., 2018). While AI proves its worth in numerous domains, the unique attributes of humans, such as creativity, critical thinking, and emotional connection, remain irreplaceable.

To address these concerns and uncertainties, education and ethical deliberations are vital. Addressing worries related to job displacement and understanding the ethical implications of AI can empower individuals and society to harness AI's potential for positive impact (Boillat et al., 2022). Adopting a balanced perspective, recognizing AI's supportive role, and acknowledging its inherent limitations are crucial. Engaging in ongoing discussions surrounding AI ethics and formulating regulatory frameworks can ensure the responsible evolution and deployment of AI, promoting a beneficial coexistence between humans and AI (Cath, 2018).

Given the potential benefits and risks associated with AI, understanding and effectively utilizing tools like ChatGPT can help people overcome their AI-related fears and leverage the technology to enhance productivity. Specifically, we aim to review existing tutorials, courses, and guidelines from various institutions and online platforms within the AI chatbot field to better understand its potential uses and prevent unethical practices.

This research-in-progress study will begin with an initial review and analysis of available courses on ChatGPT from online platforms and universities, with the goal of deepening our understanding of this AI chatbot.

## **RELATED WORK**

ChatGPT has become as a versatile tool that greatly aids individuals in various aspects of their lives, and scholars provide different perspectives on how people are using ChatGPT to help them (Shoufan, 2023). For example, this tool sparks creativity and assists users with tasks like planning social gatherings, suggesting topics for blog posts, proposing new ideas, generating travel plans or shopping guides (Sudirjo et al., 2023), working as a health advisor, or even serving as a cinema consultant, delivering personalized movie suggestions (Lin & Zhang, 2023). Furthermore, it prepares individuals for job interviews by offering scenarios, questions, and responses tailored to various industries (Cockburn et al., 2018). Despite its limitations in comprehending emotions, it provides guidance in navigating interpersonal relationships.

ChatGPT also offers substantial benefits to businesses. For example, it brainstorms new ventures and refines existing concepts, applies constraints, selects the optimal solution, and provides functional proof-of-concept demonstrations (Qadir, 2023). ChatGPT also excels at simplifying complex subjects, making it accessible for users to grasp concepts like machine learning, quantum computing, or solving mathematical problems (Liu et al., 2023). Additionally, it serves as a writing assistant with a wide range of content, from crafting poems and composing music and articles to creating resumes and summarizing diverse subjects (Imran & Almusharraf, 2023). Beyond these capabilities, ChatGPT extends its utility to summarizing research reports, offering coding assistance, facilitating text translation into multiple languages, and generating multiple-choice questions (Liu et al., 2023). It analyzes the sentiment and tone of text, finds datasets for research purposes, and extracts data from text. Users can also train ChatGPT on their own data and export the model for integration with other tools and platforms. While its comedic abilities may not be guaranteed, it does have the potential to generate amusing content and compose music in various genres, showcasing its learned inventiveness and versatility in creative tasks (Warnerfjord, 2023). In the medical field, ChatGPT serves as a valuable tool in diagnosis and decision-making processes in specialties such as cardiology, radiology, dentistry, and urology (Shahsavari & Choudhury, 2023).

Despite its potential and benefits, ChatGPT is not without its concerns. Issues such as AI plagiarism, discouragement of critical thinking, and misinformation are prevalent. For instance, the use of ChatGPT by students to complete assignments can compromise the integrity of educational institutions (Cotton et al., 2023). The over-reliance on the tool can hinder the development of critical thinking and independent learning (Rasul et al., 2023). Furthermore, questions about the accuracy, reliability, and potential biases in the information generated by ChatGPT raise concerns (Johnson et al., 2023). There are challenges in regulating the content generated by ChatGPT to ensure ethical use and prevent the dissemination of harmful or extremist material, which has broader societal and policy implications (Hacker et al., 2023). Additionally, the potential of ChatGPT to automate tasks in various fields could impact employment opportunities, leading to job displacement in areas where it can efficiently perform certain functions (George et al., 2023).

## METHOD AND INITIAL ANALYSIS AND RESULTS

Through the initial review of available online courses, we present several distinct categories of ChatGPT courses. The resources for the data collection can be classified into two main categories: industrial and academia. Notably, Udemy and Coursera have been chosen from the industrial domain as pilot data due to their widespread popularity. Meanwhile, in the academic sphere, we have thoroughly evaluated courses offered by esteemed institutions.

### Industrial Domain

In the industrial domain, the related courses offered are mainly on the utilization of ChatGPT and the optimization of such usage. Consequently, we have identified several categories to classify the 26 courses selected within this domain. These categories include marketing/business, content creation, coding/APIs, ChatGPT application/model building, productivity, and understanding program fundamentals. Due to the length limitations of the conference proceeding, we present part of the online course information in Table 1 below for reference.

**Table 1. Sample ChatGPT Courses Offered by the Industry**

Course name	Platform	marketing/ business	content creating	coding/ APIs	Applications	productivity	program fundamentals
ChatGPT Complete Guide: Learn Midjourney, ChatGPT 4 & More	Udemy	x	x	x		x	
ChatGPT Masterclass: ChatGPT Guide for Beginners to Experts!	Udemy	x	x	x	x	x	
ChatGPT, Midjourney, AI Tools & APIs - The Complete Guide	Udemy	x					
ChatGPT for Data Science and Machine Learning	Udemy			x	x		
OpenAI Python API Bootcamp:	Udemy		x	x		x	x

Learn to use AI,  
GPT, and more!

Prompt Engineering for ChatGPT	Coursera		x
ChatGPT for Beginners: SciFi Writing with Dall-e	Coursera	x	x

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In total, we analyzed five courses from Coursera and twenty from Udemy. Fourteen courses focus on business and marketing, thirteen on content creation, eleven on coding, eight on the ChatGPT application, ten on productivity, and ten on program fundamentals. It is important to note that most courses span across more than two categories.

### Academic Domain

In the academic domain, universities primarily focus on the theoretical aspects of AI. For this study, we limited our investigation to universities in the United States. While specific courses solely tailored to ChatGPT might be limited, the following fields can provide valuable knowledge and skills to enhance students' understanding and utilization of AI language models. As the field of AI continuously evolves, universities may introduce new courses or update existing ones to align with the latest AI developments. In this initial study, we will focus on undergraduate courses in the following areas:

- (1) Natural Language Processing: Courses in NLP cover the fundamentals of language processing and understanding, which are essential for working with AI language models.
- (2) Machine Learning: Understanding machine learning principles is crucial for comprehending how AI language models like ChatGPT are trained and function.
- (3) Deep Learning: Deep learning courses delve into neural networks and their applications, including the architecture used in advanced language models like ChatGPT.
- (4) Ethics in AI: AI ethics courses help with understanding how to use AI responsibly, which is essential when using AI language models for different applications.
- (5) Human-Computer Interaction: These courses go in-depth with human and AI system interactions, including language models, and can help explain AI's potential impact on community and education.

In this starting analysis, we investigated 17 different universities that offer separate Bachelor of Arts (BA) or Bachelor of Science (BS) degrees in Artificial Intelligence. Our findings indicate that, at the undergraduate level, there is a pronounced emphasis on natural language processing and human-computer interaction. The results of our analysis are summarized in Table 2 for reference. It is worth noting that many universities offer courses spanning multiple categories.

**Table 2. AI courses Offered by the Undergraduate Programs**

Categories	Number of universities covered
Natural Language Processing	14
Machine Learning	16
Deep learning	13
Ethics in AI	4
Human-Computer Interaction	11

## CONCLUSIONS AND FUTURE DEVELOPMENT

In this pilot study, we found that courses offered by the industry mainly focus on marketing/business, content creation, and coding/APIs, reflecting the primary uses of AI in practical settings. In contrast, undergraduate programs tend to place a greater emphasis on foundational theories and mathematical methodologies essential for developing AI. ChatGPT applications and the ethical usage of AI are still relatively new topics in both industry and higher education. Our next step is to collect more course information from other online learning platforms (e.g., edX, LinkedIn Learning, and Codecademy) and universities, use quantitative text mining to investigate skills taught in industry and higher education, compare the similarities and differences between these two domains, and provide a comprehensive list of skills for educators to consider when they develop new AI programs or courses.

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