

Integrating AI into Spreadsheet Analysis and Courses

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Abstract

Microsoft Excel remains one of the most widely used software applications in business and has long been a central component of business school curricula. Traditionally, Excel instruction has focused on spreadsheet development, formulas, functions, simulations, data analysis, and visualization through hands-on exercises. However, the rapid emergence of artificial intelligence (AI) is transforming the way spreadsheets are created, analyzed, interpreted, and automated, creating a need to rethink how Excel is taught in business core courses. This paper presents a structured framework for incorporating AI into Excel-based business education. First, the paper reviews the Excel-related capabilities of prominent AI chatbots, including ChatGPT, Microsoft Copilot, Claude, Gemini, and Perplexity. Second, it introduces selected AI tools designed specifically for spreadsheet applications and discusses their potential educational uses. Third, the paper proposes a structured framework that integrates AI into Excel instruction. The framework follows a scaffolded learning sequence: Excel Fundamentals → Advanced Excel Analytics → Pivot Tables → Data Visualization → AI-Assisted Formula Development → AI-Assisted Reporting and Visualization → AI-Assisted Advanced Analytics → AI-Assisted Programming. The framework is designed to help students first develop spreadsheet competency before applying AI tools to enhance productivity, analysis, and decision support. It emphasizes the critical evaluation of AI-generated outputs. Rather than simply using AI tools, students are required to validate formulas, analyses, visualizations, and code generated by AI systems. This emphasis helps develop spreadsheet literacy, AI literacy, critical thinking, and professional judgment simultaneously.

Keywords: Artificial Intelligence, Microsoft Excel, Business Education, Spreadsheet Analytics, ChatGPT, Microsoft Copilot, AI Literacy