

Empowering Higher Ed.: Leveraging ChatGPT Across Curriculum Design, Teaching, and Research

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Engaging Poll

Q1: Have you used any AI tools for your personal life? Examples?



Engaging Poll

Q2: Have you used any AI tools for work? Examples?



Agenda

- Using ChatGPT in Curriculum Design
- Using ChatGPT in Teaching and Learning
- Using ChatGPT in Research & Administration
- Open Discussions

Using ChatGPT in Curriculum Design

- Course descriptions
- Student learning outcomes
- Course outlines
- Assignment ideas/instructions
- Rubrics

Example: To develop an undergraduate course -
Data Visualization



Curriculum Design – Course Descriptions

Prompt: I am a professor in the College of Business at a private college. I want to develop a lower-level undergraduate course - Data Visualization. Please create a one-paragraph description for this course. Thank you.



Curriculum Design – Course Descriptions



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Title: Introduction to Data Visualization in Business

Description:

In this lower-level undergraduate course, students will delve into the dynamic realm of data visualization within the context of business. Through a combination of theoretical concepts and hands-on practical exercises, students will explore the fundamental principles of transforming complex datasets into visually compelling representations. They will learn various visualization techniques and tools, gaining proficiency in crafting clear, impactful visuals that effectively communicate insights and support decision-making processes. By the end of the course, students will possess the skills necessary to navigate data visualization challenges in business contexts, empowering them to become adept storytellers of data.



Curriculum Design – Learning Outcomes

Prompt: Based on the above course description, please develop a few student learning outcomes. Each student learning outcome should include 3-5 enabling objectives. Each student learning outcome and enabling objective should start with one and only one verb in Bloom's Taxonomy. Considering this is a lower-level undergraduate course, most verbs used should be selected from the lower levels of the taxonomy, including understand, apply, and analyze. Thank you.



Curriculum Design – Course Outcomes

Student Learning Outcome 1: Understand the fundamental principles of data visualization.

- Describe the importance of data visualization in business decision-making.
- Explain the role of visualization in exploratory data analysis and hypothesis testing.
- Define key terms related to data visualization, such as data types, visualization techniques, and design principles.

Student Learning Outcome 2: Apply visualization techniques to represent different types of data.

- Apply bar charts, line graphs, scatter plots, histograms, heatmaps, and geographic maps to represent numerical, categorical, temporal, and spatial data, respectively.
- Utilize appropriate visualization techniques to convey trends, patterns, and relationships within datasets.
- Create visualizations that effectively communicate insights and support decision-making processes in business contexts.

Student Learning Outcome 3: Analyze the effectiveness of visualization design principles.

- Evaluate visualizations based on principles of visual perception and cognition.
- Analyze the impact of design choices, such as color selection, typography, and layout, on the clarity and interpretability of visualizations.
- Identify strengths and weaknesses in existing visualizations and propose improvements to enhance their effectiveness.

Student Learning Outcome 4: Utilize data preparation techniques for effective visualization.

- Apply techniques for cleaning and transforming raw data to prepare it for visualization, such as data cleaning, data aggregation, and data formatting.
- Identify and handle missing values, outliers, and formatting issues in datasets to ensure data quality for visualization.
- Summarize and analyze data using basic statistical methods before visualizing it to gain insights and identify patterns.

Student Learning Outcome 5: Interpret and communicate insights from data visualizations.

- Interpret visualizations to extract meaningful insights and actionable conclusions.
- Communicate insights derived from visualizations effectively to different stakeholders, such as colleagues, clients, or decision-makers.
- Incorporate storytelling techniques to create narratives that accompany visualizations and enhance their impact and understanding.

Curriculum Design – Course Outline

Prompt: The data visualization course will be taught online asynchronously. The course length is eight weeks. One module will be taught in each week. There will be eight modules in total. Please create a course outline based on the following student learning outcomes and enabling objectives. Note that I'd like the students to use MS Excel and Power BI for data visualization in this course. Thank you.

Student learning outcomes



Curriculum Design – Course Outline



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Course Title: Data Visualization with MS Excel and Power BI

Course Length: 8 weeks

Course Format: Online Asynchronous

Course Overview:

This course provides students with a comprehensive understanding of data visualization principles and techniques using MS Excel and Power BI. Over eight weeks, students will explore various visualization methods, learn to prepare and analyze data, and effectively communicate insights to support decision-making in business contexts.

Week 1: Introduction to Data Visualization Principles

- Student Learning Outcome: Understand the fundamental principles of data visualization.
 - 1a. Describe the importance of data visualization in business decision-making.
 - 1b. Explain the role of visualization in exploratory data analysis.
 - 1c. Define key terms related to data visualization, such as data types, visualization techniques, and design principles.

Week 1: Introduction to Data Visualization Principles

Week 2: Visualizing Numerical and Categorical Data in MS Excel

Week 3: Advanced Visualization Techniques in MS Excel

Week 4: Data Preparation for Visualization

Week 5: Introduction to Power BI for Data Visualization

Week 6: Advanced Visualization Techniques in Power BI

Week 7: Communicating Insights through Data Visualization

Week 8: Final Project and Presentation

Curriculum Design – Assignments

Prompt: Please create the final project and presentation instructions.



Curriculum Design – Assignments



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Final Project and Presentation Instructions:

Final Project Overview:

For the final project of the Data Visualization course, you will demonstrate your proficiency in data visualization techniques using both MS Excel and Power BI. The project will require you to select a dataset of your choice and create a series of visualizations to communicate meaningful insights derived from the data. You will then compile these visualizations into a presentation to effectively communicate your findings to your peers.

Project Requirements:

1. **Dataset Selection:** Choose a dataset relevant to your interests or field of study. Ensure that the dataset contains sufficient data to explore various visualization techniques and uncover insights.
2. **Data Preparation:** Clean and prepare the selected dataset for visualization. This may involve tasks such as handling missing values, removing duplicates, and formatting data appropriately.
3. **Visualization Creation:**
 - Using MS Excel: Create a set of visualizations using MS Excel to represent different aspects of the data. Utilize a variety of chart types and features available in Excel to effectively convey insights.
 - Using Power BI: Replicate the visualizations created in MS Excel using Power BI. Explore additional features and interactive capabilities offered by Power BI to enhance your visualizations.
4. **Interpretation of Insights:** Analyze the visualizations to extract meaningful insights and actionable conclusions. Identify trends, patterns, correlations, or anomalies present in the data.
5. **Presentation Preparation:**
 - Prepare a PowerPoint presentation to showcase your visualizations and findings. Include clear and concise slides that effectively communicate key insights derived from the data.
 - Incorporate storytelling techniques to create a narrative that guides your audience through the visualizations and highlights the significance of your findings.

Presentation Guidelines:

- Your presentation should be structured logically, with a clear introduction, body, and conclusion.
- Start by providing an overview of the dataset and your objectives for the project.
- Present each visualization along with a brief explanation of the insights it reveals.
- Use visuals, such as screenshots of your visualizations, to illustrate your points.
- Discuss any challenges encountered during the data visualization process and how you addressed them.
- Conclude by summarizing the key findings and their implications for decision-making or further analysis.

Presentation Delivery:

- You will have a designated time slot to deliver your presentation asynchronously.
- Record yourself presenting your slides and discussing your visualizations and findings.
- Ensure that your presentation is clear, well-paced, and engaging.
- Upload your recorded presentation to the course platform by the specified deadline.

Evaluation Criteria:

Your final project and presentation will be evaluated based on the following criteria:

- Clarity and effectiveness of visualizations in conveying insights.
- Depth of analysis and interpretation of the data.
- Organization and coherence of the presentation.
- Ability to communicate findings to a diverse audience.
- Overall creativity and presentation quality.

Submission Deadline:

The final project and presentation must be submitted by [insert submission deadline]. Late submissions will incur a penalty unless prior arrangements have been made with the instructor.

Curriculum Design – Rubrics

Prompt: Please create a rubric for the above assignment. There will be four criteria: Exceeds expectations, Meets expectations, Partially meets expectations, Does not meet expectations. Thanks.



Curriculum Design – Rubrics

1. Clarity and Effectiveness of Visualizations

- Exceeds Expectations: Visualizations are clear, visually appealing, and effectively convey insights. Appropriate chart types and formatting are used to enhance clarity and understanding.
- Meets Expectations: Visualizations are mostly clear and effectively convey insights, but there may be some minor issues with clarity or formatting.
- Partially Meets Expectations: Visualizations lack clarity or are not effectively conveying insights. There are noticeable issues with formatting or choice of chart types.
- Does Not Meet Expectations: Visualizations are unclear, visually unappealing, or fail to convey insights effectively.

2. Depth of Analysis and Interpretation

- Exceeds Expectations: Analysis is thorough and insightful, with in-depth interpretation of visualizations. Key trends, patterns, correlations, and anomalies are identified and discussed in detail.
- Meets Expectations: Analysis provides a reasonable level of insight into the data, with interpretation of most visualizations. Some key insights may be missing or lacking in depth.
- Partially Meets Expectations: Analysis is superficial or lacks depth, with limited interpretation of visualizations. Key insights are overlooked or inadequately addressed.
- Does Not Meet Expectations: Analysis is minimal or absent, with little to no interpretation of visualizations. Key insights are not identified or discussed.


3. Organization and Coherence of Presentation

- Exceeds Expectations: Presentation is well-organized, coherent, and logically structured. Slides flow smoothly, with clear transitions between topics and sections.
- Meets Expectations: Presentation is mostly organized and coherent, with logical progression between slides and sections. Some areas may lack clarity or cohesion.
- Partially Meets Expectations: Presentation is somewhat disorganized or lacks coherence. Transitions between slides and sections are unclear or abrupt.
- Does Not Meet Expectations: Presentation is poorly organized and lacks coherence. Slides are disjointed, and transitions between topics are confusing or nonexistent.

4. Communication of Findings

- Exceeds Expectations: Findings are communicated effectively to a diverse audience, with clear explanations and engaging storytelling. The significance of insights is effectively conveyed.
- Meets Expectations: Findings are mostly communicated clearly, with explanations that are understandable to the audience. Some areas may lack clarity or engagement.
- Partially Meets Expectations: Communication of findings is unclear or lacks engagement. Key insights may be poorly explained or overlooked.
- Does Not Meet Expectations: Findings are poorly communicated, with explanations that are confusing or difficult to understand. The significance of insights is not effectively conveyed.

Overall Assessment:

- Exceeds Expectations: The project demonstrates exceptional understanding, analysis, organization, and communication of findings.
- Meets Expectations: The project demonstrates solid understanding, analysis, organization, and communication of findings.
- Partially Meets Expectations: The project demonstrates some understanding, analysis, organization, and communication of findings, but there are noticeable areas for improvement.
- Does Not Meet Expectations: The project demonstrates insufficient understanding, analysis, organization, and communication of findings.  equiring significant improvement.

Curriculum Design – Rubrics

Prompt: Please create a rubric for an oral presentation assignment. There will be four criteria: Exceeds expectations, Meets expectations, Partially meets expectations, Does not meet expectations. **Format it as a table.** Thanks.



Curriculum Design – Rubrics

Criteria	Exceeds Expectations	Meets Expectations	Partially Meets Expectations	Does Not Meet Expectations
Content	Clearly and thoroughly presents all required content with exceptional depth and insight, demonstrating a comprehensive understanding.	Presents all required content clearly and accurately, showing a good understanding of the topic.	Presents some required content but lacks depth or clarity, demonstrating gaps in understanding.	Fails to present required content accurately or coherently, showing a lack of understanding of the topic.
Organization and Structure	Presentation is exceptionally well-organized, with a logical flow that effectively engages the audience and enhances understanding.	Presentation is well-structured, with clear organization that supports the overall message and purpose.	Organization is somewhat unclear or inconsistent, detracting from the overall effectiveness.	Organization is poor or nonexistent, making it difficult for the audience to follow the presentation.
Delivery and Engagement	Engages the audience throughout the presentation with dynamic delivery, effective use of visual aids, and compelling storytelling.	Engages the audience adequately through clear delivery, appropriate use of visuals, and effective communication.	Engages the audience inconsistently, with moments of disengagement or ineffective communication.	Fails to engage the audience, with monotonous delivery, lack of visual aids, or poor communication skills.
Time Management and Punctuality	Manages time exceptionally well, staying within the allocated time limit and maximizing the effectiveness of	Manages time effectively, staying close to the allocated time limit and ensuring all key points are	Struggles to manage time effectively, resulting in rushed or incomplete coverage of key	Fails to manage time appropriately, significantly exceeding or falling short of the



Using ChatGPT in Teaching & Learning

- Create announcements
- Create presentations
- Write feedback to students
- Create quizzes/exams
- Develop engagement ideas/activities such as trivia questions
- Create video scripts



Teaching/Learning - Announcements

Prompt: I'm a college professor teaching MGT 1010 Introduction to Business. Now it's the end of the 8-week course. Please write a 200 words announcement to summarize students achievements. In teams, students created business plans and made impressive presentations. I hope what they learned in this course will be used in other courses and their careers. Use positive, enthusiastic, and friendly tone. Show my appreciation to the students.



Teaching/Learning - Announcements



ChatGPT

Dear Students,

As we wrap up our MGT 1010: Introduction to Business course, I wanted to take a moment to celebrate each and every one of you for your hard work, dedication, and incredible achievements over the past eight weeks. It has been an absolute pleasure guiding you through the dynamic world of business, and I am truly impressed by the progress you have made.

One of the highlights of this course has been witnessing your teamwork and creativity shine through as you collaborated on your business plans and delivered impressive presentations. Your innovative ideas, thoughtful analysis, and polished delivery truly showcased your understanding of key business concepts and your ability to apply them in a practical setting.

As we conclude this journey together, I encourage you to reflect on all that you have learned and accomplished. The skills and knowledge you have gained in this course are not only valuable for your academic pursuits but also for your future careers. I have no doubt that the lessons learned here will serve as a solid foundation for your continued success in both your academic and professional endeavors.

I want to express my sincere appreciation to each of you for your active participation, enthusiasm, and commitment to excellence throughout the course. Your passion for learning and your dedication to your studies have been truly inspiring, and I am confident that you will continue to achieve great things in the future.

Congratulations on a job well done, and best wishes for all your future endeavors!

Warm regards,

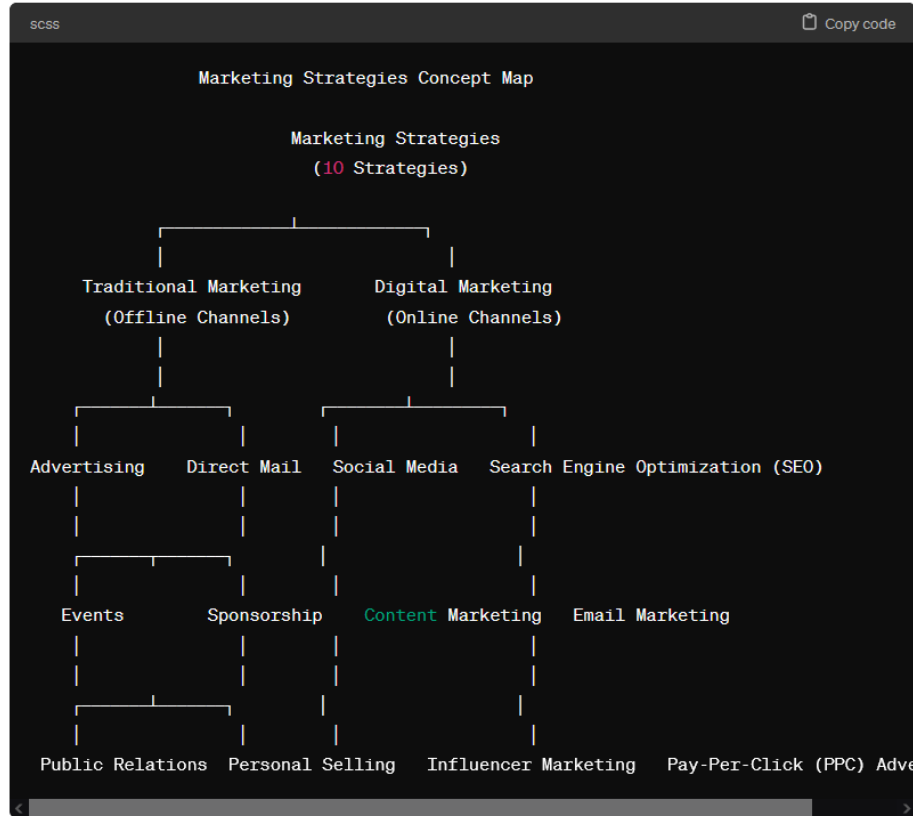


Teaching/Learning – Concept Maps

Prompt: Please create a concept map to demonstrate 10 marketing strategies.



Teaching/Learning – Concept Maps



Teaching/Learning – Presentations

Prompt: Please create a presentation to explain the procedure of Lean Six Sigma. Format it in slides.



Teaching/Learning – Presentations



ChatGPT

Certainly! Here's a presentation format outlining the procedure of Lean Six Sigma in slides:

Slide 1: Title Slide

- Title: Understanding Lean Six Sigma
- Subtitle: A Methodology for Process Improvement
- Your Name/Organization

Slide 2: Introduction to Lean Six Sigma

- Definition of Lean Six Sigma
- Overview of its objectives: Reducing waste, improving quality, increasing efficiency

Slide 3: Key Principles of Lean Six Sigma

- Define, Measure, Analyze, Improve, Control (DMAIC)
- Focus on customer value
- Data-driven decision making
- Continuous improvement culture



Teaching/Learning – Student Usage

- Use as study assistance
- Prepare for exams
- Collect information
- Summarize complex information
- Brainstorm ideas
- Create outlines of reports & projects
- Develop or refine drafts
- Analyze and evaluate AI-generated work



AI Policies and How To Cite AI Work

- AI policies:
 - [University Policies on Generative AI](#) from padlet.com
 - Lance Eaton's syllabus [collection](#)
- AI citations
 - APA, Chicago and MLM have their way to cite AI-Generated outputs
 - [Grammarly](#) generates citations in these styles:
OpenAI. (2024). *ChatGPT* (3.5). <https://www.openai.com/chatgpt> (APA)

Using ChatGPT in Research & Administration

- Collect information
- Literature review, summarize literature
- Brainstorm ideas
- Create/refine reports
- Create presentations
- Create emails
- Create recommendation letters
- Translation



Collect Information

Prompt: I am a college professor specializing in marketing. I'd like to do some research on electronic vehicle sales trends in the US, China, and Europe. Could you provide a summary along with the sources of the information?



Collect Information



ChatGPT

Certainly! Here's a summary of electronic vehicle (EV) sales trends in the US, China, and Europe along with some sources for further information:

United States (US):

- The US EV market has experienced significant growth in recent years, driven by factors such as government incentives, environmental awareness, and advances in EV technology.
- According to data from the International Energy Agency (IEA), EV sales in the US have been steadily increasing, with electric vehicles accounting for a growing share of total vehicle sales.
- Tesla remains a dominant player in the US EV market, with its Model 3 being one of the best-selling electric cars in the country.
- Other automakers such as GM, Ford, and Nissan have also been increasing their offerings of electric vehicles to meet growing demand.
- Sources: International Energy Agency (IEA), US Department of Energy, industry reports from automotive research firms like IHS Markit or BloombergNEF.

Collect Information

Prompt: Could you give links to the sources?



Collect Information



ChatGPT

I'm unable to provide direct links to specific sources as my browsing capabilities are disabled and I don't have access to real-time data. However, I can guide you on where to find the information:

1. International Energy Agency (IEA):

- Website: <https://www.iea.org/>
- Reports and publications section may contain data on global EV sales trends.

2. US Department of Energy:

- Website: <https://www.energy.gov/>
- The Office of Energy Efficiency & Renewable Energy (EERE) may have reports and data on electric vehicles and sustainable transportation initiatives.

3. China Association of Automobile Manufacturers (CAAM):

- Website: <http://www.caam.org.cn/>
- CAAM regularly publishes reports and statistics on the Chinese automotive industry, including electric vehicle sales.

Collect Information

Prompt: I am a college professor specializing in marketing. I'd like to research electronic vehicle sales trends in the US, China, and Europe. Could you provide a summary in a **spreadsheet**?



Collect Information



ChatGPT

Certainly! Below is a summary of electric vehicle (EV) sales trends in the US, China, and Europe over the past few years in a spreadsheet format:

yaml Copy code

Year	United States (Units)	China (Units)	Europe (Units)
2019	329,528	1,204,000	561,000
2020	328,716	1,360,000	1,365,000
2021	507,905	1,600,000	2,020,000
2022	610,000	1,800,000	2,400,000
2023	750,000	2,000,000	2,800,000

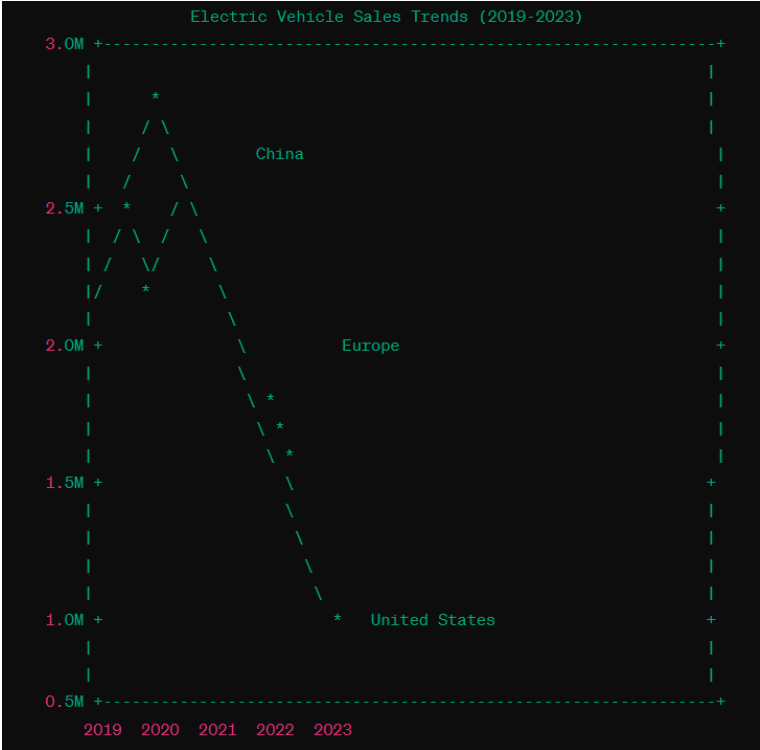
This spreadsheet provides a summary of electric vehicle sales data for the years 2019 to 2023 in the United States, China, and Europe. You can analyze this data further to understand the trends and patterns in EV sales across these regions.

Collect Information

Prompt: Please illustrate the above data in a line chart.



Collect Information



Translation

Prompt: Please translate this paragraph to English: Vous êtes étudiant et souhaitez poursuivre vos études en France ? En France et via son réseau de près de 260 espaces et antennes répartis dans 123 pays dans le monde, Campus France accompagne les étudiants étrangers dans leur projet.



Translation



ChatGPT

Are you a student and wish to pursue your studies in France? In France, and through its network of nearly 260 offices and branches spread across 123 countries worldwide, Campus France supports foreign students in their project.

Prompting Tips

ROLE (Act as)	TASK (Create a)	REQUIREMENTS (Be sure to)	OUTPUT (Turn into)
<ul style="list-style-type: none">• Instructor• Learning Designer• Researcher• Project Manager• Committee Chair• Facilitator• Presenter• Author	<ul style="list-style-type: none">• Lesson• Summary• Blog draft• Book outline• Proposal• Video script• Letter of rec• Email	<ul style="list-style-type: none">• Include• Exclude• Number• Length• Steps• Level• Tone• Inclusive	<ul style="list-style-type: none">• Plain text• Bulleted list• Concept map• Table• Spreadsheet• Graph• Slides• Code

Brett Christie, L. Gonzalez, and H. Brown (2023), Webinar: ChatGPT Unleashed: What to Expect This Fall and How to Prepare.

https://www.youtube.com/watch?v=U1_Z9tVT-XQ&list=PLz6k7w7MM7W6DxJt1kdkytkGzIcxrJDFC&index=5&t=8s.

Open Discussions

- Please share how you use ChatGPT or other AI in your work.
- Challenges and considerations

