

AI4DS-Faculty-Survey

Survey Flow

Block: Section 1: Consent (2 Questions)

Branch: New Branch

If

If Consent: I voluntarily consent to participate in this study Is Selected

Standard: Section 2: Background (6 Questions)

Standard: Section 3: Competency in Using AI Tools for Teaching Data Science (2 Questions)

Standard: Section 4: Attitudes Toward AI in Data Science Education (2 Questions)

Standard: Section 5: Challenges and Concerns Regarding AI in Data Science Education (2 Questions)

Standard: Section 6: Potential of AI Tools to Improve Data Science Teaching (1 Question)

Standard: Section 7: Ethical Considerations and Institutional Policies (4 Questions)

Standard: Section 8: AI Readiness and Faculty Support Needs (3 Questions)

EndSurvey:

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Start of Block: Section 1: Consent

Q1

Welcome to The Research Study! **Title of Study:** Usage and Perceptions of Generative AI Technology in Data Science among University Faculty **Purpose of Study:** This study aims to assess faculty awareness, attitudes, and competency regarding the use of AI tools in data science. We will also explore how AI tools can improve data science workflows and what concerns or pitfalls may arise when integrating AI into data science tasks. In order to conduct this research study, we need to collect data from the NCA&T faculty who currently teach or may teach Statistics or Data Science courses. **Confidentiality:** This study has been approved by the Institutional Review Board at NCA&T. Any information that is obtained in connection with this study and that can be identified with you will remain confidential. Your anonymized data will be used only by the study investigators and all results will be reported in aggregate form so that no individual participant can be identified. Your decision whether or not to participate will not affect your relationship with NCA&T in any way. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without prejudice. If you have any questions about this study, you may contact the Principal Investigator Dr. Abeer Hasan via email at amhasan1@ncat.edu or by calling (336) 285-3752. If you have any study-related concerns or any questions about your rights as a participant in the study, you may call the Office of Research Compliance and Ethics at North Carolina A&T State University at (336) 285-3179 or email rescomp@ncat.edu. The survey should take you about 10 minutes to complete. By clicking the button below to start the survey, you acknowledge that Your participation in the study is voluntary, and You are aware that you may choose to terminate your participation at any time for any reason.

Q2 Consent:

- ☐ I voluntarily consent to participate in this study (1)
- ☐ I don't consent to participate in this study (2)

End of Block: Section 1: Consent

Start of Block: Section 2: Background

Q3 I am

- ☐ Male (1)
- ☐ Female (2)
- ☐ Prefer not to say (3)

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Q4 What is your primary area of expertise within data science? (e.g., Intro Statistics, Mathematical Statistics, Data Science, Machine Learning, etc.)

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Q5 How many years have you been teaching data science or related subjects?

- ☐ 1-3 years (1)
- ☐ 3-5 years (2)
- ☐ 5-10 years (3)
- ☐ 10+ years (4)

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Q6 At what academic level do you primarily teach?

☐ Undergraduate (1)

☐ Graduate (2)

☐ Both (3)

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Q7 Have you incorporated AI tools in your data science teaching?

- ☐ Never (1)
- ☐ Rarely (2)
- ☐ Sometimes (3)
- ☐ Often (4)
- ☐ Always (5)

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Q8 What AI tools or platforms do you use in your teaching? (Select all that apply)

- ☐ AI-driven coding platforms (e.g., Jupyter Lab, Colab) (1)
 - ☐ Automated grading system (2)
 - ☐ AI-driven learning assistants (e.g., ChatGPT) (3)
 - ☐ AI-based data analysis or visualization tools (e.g., DataRobot, Tableau) (4)
 - ☐ AI-based project management or collaboration tools (5)
 - ☐ Other (please specify) (6)
-
- ☐ ☒ None (7)

End of Block: Section 2: Background

Start of Block: Section 3: Competency in Using AI Tools for Teaching Data Science

Q9 How would you rate your ability to perform the following tasks using AI tools in your teaching?

	Expert (1)	Proficient (2)	Intermediate (3)	Beginner (4)	No Experience (5)
Implement AI-assisted coding environments for teaching (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use AI tools for real-time data analysis and visualization in class (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Automate student feedback and assessment using AI tools (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guide students in applying AI to solve real-world data science problems (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Employ AI for student performance tracking and curriculum adjustments (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q10 How frequently do you use AI tools in the following teaching activities?

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
Automating grading or feedback for data science assignments (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engaging students through AI-assisted interactive labs (e.g., coding or machine learning exercises) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Monitoring student learning progress using AI-based analytics (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Generating teaching materials with AI support (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 3: Competency in Using AI Tools for Teaching Data Science

Start of Block: Section 4: Attitudes Toward AI in Data Science Education

Q11 To what extent do you agree with the following statements about AI in data science education?

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
AI tools are vital for future data science education. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AI can significantly improve the teaching of data science topics like machine learning, deep learning, and big data. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over-reliance on AI tools may reduce the development of critical thinking skills in students. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AI tools can efficiently automate repetitive teaching tasks, freeing up time for more complex educational engagements. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AI tools are capable of improving equity and inclusion in data science education. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q12 Do you believe that AI tools should complement or replace traditional methods of teaching data science?

- ☐ AI tools should complement traditional methods. (1)
- ☐ AI tools should balance with traditional methods. (2)
- ☐ AI tools should replace traditional methods in some contexts. (3)
- ☐ AI tools should not replace traditional methods. (4)

End of Block: Section 4: Attitudes Toward AI in Data Science Education

Start of Block: Section 5: Challenges and Concerns Regarding AI in Data Science Education

Q13 How concerned are you about the following aspects of AI integration in data science education?

	Very Concerned (1)	Somewhat Concerned (2)	Neutral (3)	Not Concerned (4)
Potential for AI to produce biased results in student assessments (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of transparency in how AI tools generate outputs (e.g., black-box models) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The challenge of keeping up with evolving AI technologies in education (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Over-reliance on AI tools, leading to reduced faculty engagement with students (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data privacy and security issues related to using AI in education (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Q14 What are the biggest challenges you face in integrating AI tools into your data science courses? (Select all that apply)

- ☐ Difficulty in learning and mastering AI tools (1)
- ☐ Insufficient institutional support or training (2)
- ☐ Ethical concerns (e.g., fairness, bias) (3)
- ☐ Limited access to advanced AI tools or platforms (4)
- ☐ Resistance from students or faculty to adopt AI tools (5)
- ☐ Balancing AI tools with the curriculum's learning objectives (6)

End of Block: Section 5: Challenges and Concerns Regarding AI in Data Science Education

Start of Block: Section 6: Potential of AI Tools to Improve Data Science Teaching

Q15 To what extent do you agree that AI tools can enhance the following aspects of data science teaching?

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Automating assessment and feedback for data science projects (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting the personalization of learning paths based on student performance (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Simplifying complex data science concepts through AI-enhanced visualizations (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assisting with real-time performance tracking and identifying areas where students struggle (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhancing student engagement with AI-driven interactive learning modules (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Section 6: Potential of AI Tools to Improve Data Science Teaching

Start of Block: Section 7: Ethical Considerations and Institutional Policies

Q17 How aware are you of your institution's guidelines on the use of AI in teaching and assessments?

- ☐ Very Aware (1)
- ☐ Somewhat Aware (2)
- ☐ Neutral (3)
- ☐ Not Aware (4)

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Q18 What primary ethical concern do you have about using AI tools in education?

- ☐ Bias in AI-driven student evaluations (1)
- ☐ Infringement on student privacy with AI monitoring tools (2)
- ☐ Over-reliance on AI leading to less human oversight in teaching and assessments (3)

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Q19 How important is it to maintain human oversight when using AI for assessments and student feedback?

☐ Very Important (1)

☐ Important (2)

☐ Neutral (3)

☐ Not Important (4)

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Q20 Which of the following best describe the AI policy in your syllabus/ class?

- ☐ Assistance from generative AI technologies is not allowed for any activities or assignments in this course. (1)
- ☐ The use of generative AI technologies is allowed for specific activities or assignments the instructor designates. Students must clearly indicate when AI-generated content has been used and cite the specific model and platform employed. (2)
- ☐ The use of generative AI technologies is permitted for activities and assignments in this course. Proper attribution is required whenever AI-generated content is used (3)

End of Block: Section 7: Ethical Considerations and Institutional Policies

Start of Block: Section 8: AI Readiness and Faculty Support Needs

Q21 How confident are you in your knowledge of AI tools available for data science education?

- ☐ Very Confident (1)
- ☐ Somewhat Confident (2)
- ☐ Neutral (3)
- ☐ Not Confident (4)

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Q22 What types of training or support would you need to effectively integrate AI tools into your teaching?

☐

More AI-related training or professional development (1)

☐

Access to advanced AI platforms for classroom use (2)

☐

Technical support for integrating AI into the curriculum (3)

☐

Institutional support for purchasing AI tools (4)

☐

Peer collaboration and sharing best practices. (5)

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Q23 Do you believe your institution provides sufficient guidance and resources for using AI in teaching?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Somewhat (3)

End of Block: Section 8: AI Readiness and Faculty Support Needs
