00 Master Infographic

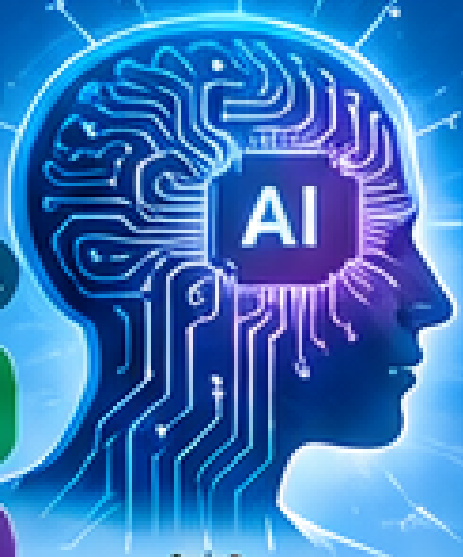
KENTUCKY STATE UNIVERSITY

Center for Advancing Digital Enablement, Entrepreneurship, and Transformation (CADEET)
School of Business

UNDERSTANDING AI AND DIGITAL DATA ANALYTICS TOOLS LITERACY

Concepts, Capabilities, Applications, and Responsible Use

A Visual Learning Framework for the CADEET Micro-Credential Program



1. **Core Concepts**
   What AI and digital analytics are and how they relate
2. **AI Technologies**
   Key AI technologies and real-world examples
3. **Data Analytics**
   Essential concepts from data to insights
4. **Tools**
   Popular AI and digital analytics tools
5. **Applications**
   Real-world uses across multiple sectors
6. **Prompting**
   How to write effective prompts and task briefs
7. **Responsible Use**
   Ethics, privacy, bias, and human oversight
8. **In Action**
   A step-by-step workflow from problem to decision



PEOPLE + AI + DATA + INSIGHTS = BRIGHTER OPPORTUNITIES

Learn Faster | Work Smarter | Solve Problems | Make Better Decisions | Create Greater Impact

01 AI and Analytics Literacy

1 Understanding AI and Digital Analytics Literacy

Key Concepts and How They Relate

Learning Objective

Build a clear, foundational understanding of AI, generative AI, data analytics, and digital literacy, and how they work together to enhance human productivity and decision-making.

Artificial Intelligence (AI)

Systems that perform tasks that typically require human intelligence, such as reasoning, learning, problem-solving, and content creation.

Generative AI

A type of AI that creates new content (text, images, code, audio, etc.) based on learned patterns.

Examples: ChatGPT, Claude, DALL-E.

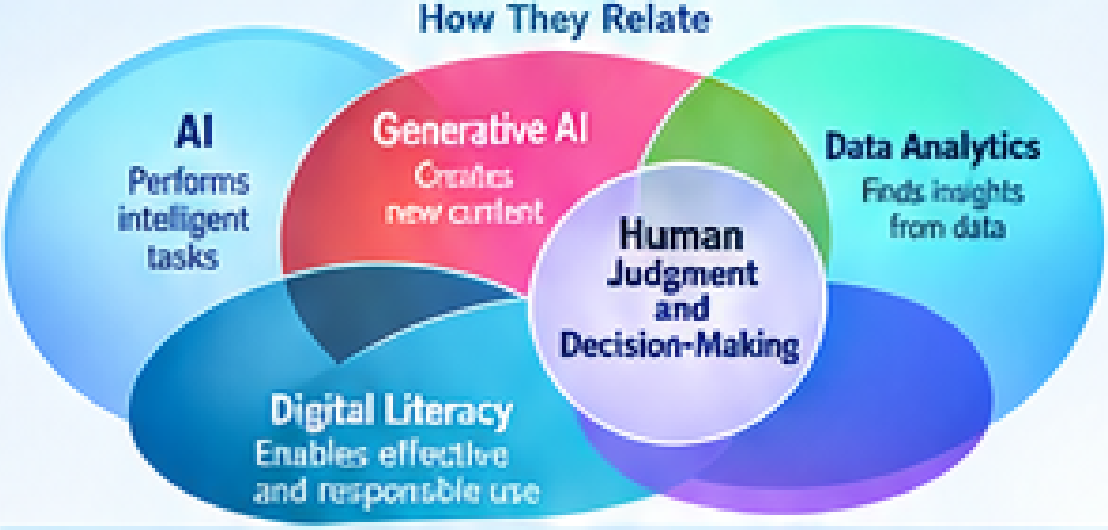
Data Analytics

The process of collecting, cleaning, analyzing, and interpreting data to find patterns, generate insights, and support decision-making.

Digital Literacy

The knowledge and skills to effectively and responsibly use digital tools, including AI and data analytics, in learning, work, and daily life.

How They Relate



AI vs. Conventional Data Analytics

AI (including Generative AI)	Conventional Data Analytics
• Learns from data	• Analyzes existing data
• Can generate new content	• Identifies patterns and trends
• Performs complex, intelligent tasks	• Answers specific questions
• Often uses machine learning	• Uses statistical and analytical methods

02 Fundamental AI Technologies

2 Fundamental AI Technologies

Key Technologies, Simple Explanations, and Real-World Examples

Learning Objective

Understand the major AI technologies, how they work, and where they are used in everyday life.

Machine Learning (ML)

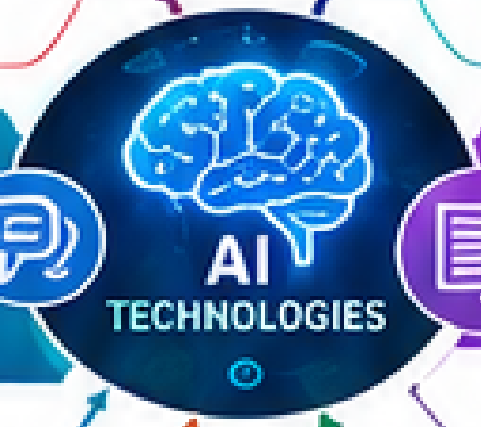
Algorithms that learn from data to identify patterns and make predictions.

Example: Predicting customer behavior.

Deep Learning

A powerful form of ML using neural networks to analyze complex data (such as images or language).

Example: Image recognition in photos.



Natural Language Processing (NLP)

Enables computers to understand, interpret, and generate human language.

Example: Chatbots, translation, text analysis.

Generative AI

Creates new content (text, images, code, audio etc.) based on learned patterns.

Example: ChatGPT, Claude, DALL-E.

Computer Vision

Allows computers to understand and interpret visual information from the world.

Example: Identifying objects in images or video.

Predictive AI

Uses data and ML to forecast future outcomes.

Example: Predicting sales, crop yields, or equipment failures.

Real-World Impact

Smarter | Faster | Greater | Improved | New

03 Data Analytics Concepts

Skills for Today. Opportunities for Tomorrow.

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3 Essential Digital Data Analytics Concepts

From Data to Insights to Better Decisions

Learning Objective

Understand the key steps and types of data analytics used to turn data into meaningful information for decision-making.

The Data Analytics Process

1. **Collect Data** — Gather data from reliable sources.
2. **Prepare Data** — Clean, organize, and validate the data.
3. **Analyze Data** — Use analytical methods to find patterns and insights.
4. **Visualize Results** — Present insights using charts, graphs, and dashboards.
5. **Make Decisions** — Use insights to take action.

The Four Types of Data Analytics

Descriptive	Diagnostic	Predictive	Prescriptive
What happened? Summarizes historical data. **Example:** Sales increased by 10% last quarter.	**Why did it happen?** Explores causes and relationships. **Example:** Sales increased due to higher online traffic.	**What is likely to happen?** Uses data and models to forecast. **Example:** Sales are expected to increase high quarter.	**What should we do?** Recommends actions to achieve better outcomes. **Example:** Increase marketing spend in high-performing regions.

Data Visualization and Interpretation

Charts and dashboards make data easier to understand.

Evidence-Based Decision-Making

- Use accurate and reliable data
- Interpret results in context
- Consider multiple perspectives

04 AI and Analytics Tools

- **Examples:** ChatGPT, Claude, computer vision, predictive AI

- **Examples:** Excel, Power BI, Tableau, Looker Studio

Key Takeaway: AI and data analytics are complementary — both are more powerful when combined with human expertise and digital literacy.

4 Popular AI and Digital Analytics Tools

Key Tools, Capabilities, and Use Cases

Learning Objective

Become familiar with widely used AI and digital analytics tools and understand their primary functions and appropriate use cases.

AI Assistants (Conversational AI)

ChatGPT

Conversational AI for research, content creation, analysis, and problem-solving.

Claude

AI assistant for reasoning, writing, and analysis.

Microsoft Copilot

AI assistant integrated with Microsoft 365 apps (Word, Excel, PowerPoint, etc.).

Spreadsheet Tools

Microsoft Excel

Data organization, analysis, and visualization.

Common Uses:

- Data analysis
- Calculations and modeling
- Charts and reports

Business Intelligence & Visualization

Power BI

Interactive dashboards and data analysis (Microsoft).

Tableau

Data visualization and business intelligence.

Google Looker Studio

Free, web-based dashboard and reporting tool.

Programming and Analytics Environments

Python

Powerful programming language for data analysis, AI, and automation.

Common Uses:

- Data analysis and machine learning
- Data cleaning and automation
- Building custom solutions

Key Considerations

05 Practical Applications

products | decisions | efficiency | services | opportunities

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5 Practical Applications of AI and Digital Analytics

Real-World Examples Across Key Sectors



Learning Objective

See how AI and digital analytics tools can be applied to solve real-world problems in education, business, agriculture, healthcare, and more.

Education and Academic Research

- Summarize research
- Analyze data
- Personalize learning
- Support writing and study

Example: Using AI to summarize research articles.

Business and Entrepreneurship

- Analyze market trends
- Develop business plans
- Improve customer experience
- Automate routine tasks

Example: Using analytics to identify new market opportunities.

AI & ANALYTICS IN ACTION

Workforce Development

- Build in-demand skills
- Improve productivity
- Support career planning
- Enable continuous learning

Example: Using AI for resume enhancement and skills development.

Agriculture and Sustainability

- Monitor crop health
- Predict yields
- Optimize resource use
- Support sustainable practices

Example: Using data analytics to predict crop yields.

Healthcare and Public Services

- Support diagnostics (AI-assisted)
- Analyze public health data
- Improve service delivery
- Enhance operational efficiency

Example: Using analytics to identify community health trends.

Organizational Management and Decision-Making

- Analyze performance data
- Improve operations
- Support strategic planning
- Enhance risk management

Example: Using dashboards to track key performance indicators (KPIs).

06 Prompting and Task Briefs

Bar Charts Compare values

Line Charts Show trends over time

Pie Charts Show parts of a whole

Dashboards Combine multiple insights

Recognize limitations
Make informed, not assumption-based, decisions

Key Takeaway: Good data leads to better insights, which lead to smarter decisions.

6 Effective AI Prompting and Task Brief Development

A Structured Approach for Better Results



Learning Objective

Learn how to create clear, structured task briefs and effective prompts to get more relevant and useful AI-generated outputs.

The 7 Essential Elements of a Task Brief

1. **Problem or Task**
   Clearly describe what you want to accomplish.
2. **Intended Audience**
   Identify who the output is for.
3. **Desired Outcome**
   Explain what you want the AI to produce.
4. **Available Inputs**
   Include any relevant data, files, or context.
5. **Constraints**
   Specify limitations (e.g., length, tone, style, tools).
6. **Expected Output Format**
   Indicate the preferred format (e.g., list, table, report).
7. **Success Criteria**
   Explain what a good result looks like.

A Simple Framework

- Problem or Task
- Intended Audience
- Desired Outcome
- Available Inputs
- Constraints
- Expected Output Format
- Success Criteria

Example: Vague vs. Well-Structured Prompt

Vague Prompt

"Tell me about AI in business."

Well-Structured Prompt

"Explain how small businesses can use generative AI to improve marketing. Write for entrepreneurs with no technical background. Provide 3 practical examples in bullet points, and keep it under 300 words."

Key Takeaways

- **Be clear and specific**
- **Provide relevant context**
- **Set expectations**
- **Iterate and refine**
- **Evaluate the output**

07 Responsible AI Use

Tools have different strengths and capabilities.

Capabilities may depend on product versions and subscriptions.

Many tools integrate with other applications.

Choose tools based on your specific needs and goals.

7 Responsible, Ethical, and Secure AI Use

Build Trust, Ensure Fairness, and Make Informed Decisions

Learning Objective

Understand the key ethical, privacy, and security considerations when using AI and digital analytics tools.

Data Privacy and Confidentiality

Protect personal, sensitive, and proprietary information. Avoid sharing confidential data with public AI tools.

Accuracy and Independent Verification

AI outputs may contain errors or unsupported claims. Always verify important information.

Bias and Fairness

Be aware of potential bias in training data and outputs. Strive for fair and inclusive use.

RESPONSIBLE AI USE

Transparency and Accountability

Understand how AI tools work, be transparent about their use, and hold humans accountable for decisions.

Intellectual Property and Attribution

Respect copyright and intellectual property rights. Give proper credit for AI-assisted content.

Human Oversight and Responsible Decision-Making

Use AI as a support tool, not a replacement for human judgment.

Responsible AI Use Checklist

- Protect sensitive data
- Verify outputs
- Check for bias
- Use AI transparently
- Attribute sources
- Maintain human oversight

Key Takeaway: Use AI and digital analytics tools responsibly to build trust, ensure fairness, and achieve better, more reliable outcomes.

08 Literacy in Action

Key Takeaway: AI and digital analytics can help solve real-world problems and create meaningful value across many sectors.

8 AI and Digital Analytics Literacy in Action

A Practical Workflow from Problem to Decision



Learning Objective

Apply AI and digital analytics tools using a structured, step-by-step workflow to solve real-world problems.

1 Define the Problem
Clearly identify the question or challenge.

2 Identify Data
Determine what data is needed and where to find it.

3 Select Appropriate Tools
Choose AI or analytics tools based on the task.

4 Develop Prompts or Analytical Procedures
Create effective prompts or analysis steps.

5 Analyze Results
Review and interpret the outputs.

7 Communicate Findings
Present insights clearly and appropriately.

6 Verify and Outputs
Check for accuracy completeness.

8 Make Informed Decisions
Use insights to take action and measure impact.

Example Scenario: Helping a Small Business Improve Marketing

Problem
Increase online sales.

Data
Website traffic, sales data, customer feedback.

Tools
ChatGPT, Excel, Power BI.

Prompt
Analyze the data and suggest 3 marketing strategies.

Analyze
Identify trends and opportunities.

Verify
Check results and assumptions.

Communicate
Create a dashboard and summary report.

Decide
Implement strategies and track results.

Key Takeaway: A structured workflow helps you use AI and analytics tools effectively to solve problems and make better decisions.