AI Literacy Guidelines

October 2025

AI Literacy

AI Literacy (Digital Education Council, 2025): The essential knowledge and skills needed to understand, interact with, and critically assess AI technologies. AI literacy includes the ability to use AI tools effectively and ethically, evaluate their output, ensure humans are at the core of AI, and adapt to the evolving AI landscape in both personal and professional settings.

Understanding AI and Data

Critical Thinking and Judgment

Ethical and Responsible Use

Human-Centricity, Emotional Intelligence, and Creativity

Domain Expertise

These AI Literacy Guidelines are grounded in and should be applied in conjunction with the VT Responsible and Ethical AI Principles. Throughout your development of AI literacy, refer to these principles to ensure your use of AI aligns with Virginia Tech's values.

Based on Digital Education Council, DEC AI Literacy Framework, 2025

AI Literacy Guidelines Defined

Understanding AI and Data	Encompasses understanding how AI systems work, the principles of data collection, processing, and interpretation, and the implications of AI-generated output. Proficiency in this area enables individuals to critically engage with AI tools, assess their capabilities and limitations and make informed decisions about their use.
Critical Thinking and Judgment	Focuses on the ability to evaluate AI-generated content, discern biases, and apply logical reasoning when using AI in decision-making. It includes skills such as verifying sources, identifying misinformation, recognizing limitations in AI-generated insights, and ensuring that human judgment remains central to AI-supported processes. Critical thinking ensures that AI is used as a tool for augmentation rather than blind reliance.
Ethical and Responsible Use	Covers the ethical considerations and governance frameworks necessary for responsible AI adoption. It includes understanding AI ethics principles (such as fairness, transparency, accountability, and privacy), recognizing potential risks (such as bias, discrimination, and misinformation) and implementing responsible AI use practices. It also involves navigating regulatory and institutional guidelines to ensure compliance and integrity in AI applications.
Human-Centricity, Emotional Intelligence, and Creativity	Emphasizes the importance of human skills in an AI-driven world, including empathy, adaptability, communication, lifelong learning, and mindset. As AI automates tasks, human-centered skills become critical in maintaining ethical decision-making, fostering inclusive and diverse AI practices and ensuring AI aligns with societal values. It also includes managing AI's impact on human interactions and well-being in educational and professional environments.
Domain Expertise	Focuses on the specialized knowledge and skills required to understand, assess, and manage the impact of AI within a specific academic or professional context. It includes the ability to critically evaluate AI applications within a given discipline, adapt AI tools to enhance professional practices, and navigate domain-specific ethical, regulatory, and operational challenges.

Based on Digital Education Council, DEC AI Literacy Framework, 2025

AI Literacy Competency Levels

	Level 1	Level 2	Level 3
Understanding AI and Data	AI and Data Awareness	AI and Data In Action	AI and Data Optimization
Critical Thinking and Judgment	Question AI Output	Evaluate AI Output	Challenge AI Output
Ethical and Responsible Use	Understand Risks	Apply Responsible Practices	Shape Responsible Practices
Human-Centricity, Emotional Intelligence, and Creativity	Awareness of Human-AI Interaction	AI as Collaborative Tool	Develop Human-Centered AI Practices
Domain Expertise	Applied AI Awareness	AI Application in Professional Contexts	Strategic AI Leadership

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Understanding AI and Data

	Level 1	Level 2	Level 3
Description	AI and Data Awareness Individuals develop a basic understanding of AI concepts, how AI systems function, and the role of data in AI decision-making.	AI and Data in Action Individuals can select AI tools for real-world tasks, understand how AI models work, and assess the role of data in AI performance.	AI and Data Optimization Individuals critically engage with AI systems, assess their technical capabilities, and strategically integrate AI into decision-making.
Examples of Competencies	• Define AI and its key components (e.g. machine • learning, automation). • Identify common AI applications in daily life. • Understand the basics of how AI processes • data to generate output.	• Explain how AI models process data and generate output. • Identify factors affecting AI performance, such as data quality. • Understand how to apply AI tools to automate or support professional tasks.	• Compare different AI models and their applications for a variety of tasks. • Integrate AI into workflows for enhanced efficiency. • Communicate AI system capabilities and limitations to others.
Examples of Actions for Progression	• Engage with foundational AI training materials, including introductory online courses or textbooks. • Learn basic data concepts, such as structured vs. unstructured data, and how AI systems process information. • Explore and experiment how AI systems use training data. • Experiment with widely available AI tools (e.g. AI chatbots, translation tools, and recommendation systems) to observe how they function.	• Conduct comparative analysis of different AI models to evaluate their accuracy and limitations. • Use AI-driven analytics tools (e.g. machine learning models, AI-powered data visualization, or automated reporting tools) to extract insights from datasets. • Learn about data management systems and how AI interacts with structured datasets. • Work with datasets in AI applications, focusing on improving data quality for better AI performance.	• Lead projects involving AI integration, ensuring effective use of data pipelines and model selection. • Lead discussions or training sessions on AI integration, ensuring stakeholders understand AI strengths and limitations. • Contribute to institutional or policy discussions on AI and data governance. • Develop strategies for handling large datasets, and improve AI performance for the institution.

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Critical Thinking and Judgment

	Level 1	Level 2	Level 3
Description	Question AI Output Individuals can identify key evaluation criteria for AI output and understand that AI-generated content may contain biases or errors.	Evaluating AI Output Individuals critically assess AI-generated content using established evaluation criteria and identify biases or inconsistencies.	Challenge AI Output Individuals demonstrate expertise in evaluating AI-generated output with rigorous methodologies, interrogating AI's reasoning processes, and assessing AI's impact on human cognition.
Examples of Competencies	• Understand the importance of verifying AI-driven insights with human judgment. • Understand basic evaluation criteria for AI-generated content, such as accuracy, consistency, and source reliability. • Identify a number of inconsistencies or biases in AI-generated content.	• Apply evaluation frameworks to assess the validity of AI-generated insights. • Identify and articulate biases or inconsistencies in AI-generated output. • Compare AI-generated information against multiple independent sources for verification.	• Apply logical reasoning to understand how AI generates responses, analyze the strengths and weaknesses of different AI models and their output, and effectively build upon them. • Effectively leverage AI capability to enhance critical thinking skills. • Recognize and manage the nuanced impacts of AI in complex, high-stakes situations.
Examples of Actions for Progression	• Study introductory materials on AI reliability and accuracy metrics. • Compare AI-generated content with verified sources to identify discrepancies. • Engage in case studies where AI-generated information led to errors or misinterpretation. • Explore AI tools to assess their reliability and accuracy.	• Develop structured evaluation rubrics for assessing AI-generated output in an academic or professional setting. • Conduct comparative studies of different AI models to assess reliability across domains. • Engage in interdisciplinary discussions on AI evaluation methodologies. • Start applying AI assessment frameworks to real-world scenarios.	• Conduct independent evaluation of AI tools, comparing their output across multiple sources for consistency and accuracy. • Refine evaluation methodologies based on exposure to new AI advancements and emerging best practices. • Publish assessments or research papers critically examining AI reliability in a specific domain. • Apply advanced AI evaluation frameworks to real-world professional, research, or policy contexts.

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Ethical and Responsible Use

	Level 1	Level 2	Level 3
Description	Understand Risks Individuals understand fundamental AI ethics principles and can recognize potential risks, such as bias, misinformation, and discrimination.	Apply Responsible Practices Individuals apply ethical principles and frameworks to evaluate and mitigate risks associated with AI use in various professional and academic settings.	Shape Responsible Practices Individuals demonstrate expertise in evaluating, shaping, and advocating for ethical AI policies, governance frameworks, and institutional best practices.
Examples of Competencies	• Define key AI ethics principles (e.g. fairness, transparency, accountability, privacy). • Recognize how AI systems can perpetuate bias and inequality. • Identify ethical concerns in AI-driven decision-making (e.g. hiring, surveillance, law enforcement).	• Assess AI systems for compliance with ethical standards and legal frameworks. • Identify and mitigate risks related to bias, discrimination, and data privacy in AI applications. • Implement strategies to ensure fairness and accountability in AI decision-making.	• Critically evaluate ethical implications of AI adoption at an institutional or societal level. • Contribute to the development of AI governance frameworks and ethical AI policies. • Provide guidance on ethical AI adoption in professional, academic, or policy environments.
Examples of Actions for Progression	• Study introductory materials on AI ethics, including case studies of ethical failures in AI. • Reflect on personal experiences using AI tools and consider ethical implications. • Analyze a real-world case study where AI ethics were challenged, such as biased hiring algorithms or misinformation spread by AI • Engage in discussions on ethical dilemmas involving AI decision-making.	• Conduct ethical impact assessments for AI applications in an organization or research setting. • Engage in interdisciplinary discussions on responsible AI use across different sectors. • Reflect on internal guidelines for the ethical implementation of AI in a professional or academic environment. • Apply ethical AI principles in project development or policy analysis.	• Draft or contribute to ethical AI guidelines within an organization, academic institution, or regulatory body. • Publish research, reports, or policy papers analyzing ethical AI challenges and solutions. • Conduct workshops or training sessions on ethical AI adoption. • Collaborate with AI ethics advisory groups or contribute to national or international policy discussions.

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Human-Centricity, Emotional Intelligence, and Creativity

	Level 1	Level 2	Level 3
Description	Awareness of Human-AI Interaction Individuals have a foundational understanding of how AI affects human decision-making, communication, and emotional intelligence.	AI as Collaboration Tool Individuals integrate human-centered skills into AI-assisted environments to promote responsible, ethical, and fair AI use.	Develop Human-Centered AI Practices Individuals advocate for human-centered AI approaches, ensuring AI remains a tool that complements rather than replaces human skills.
Examples of Competencies	• Recognize how AI influences human behavior, decision-making, and interactions. • Identify situations where AI may lack human sensitivity (e.g. AI-generated feedback, automated decision-making). • Understand the importance of empathy and adaptability in AI-augmented environments.	• Apply effective communication strategies and human-in-the-loop strategies when using AI tools in professional and educational settings. • Identify opportunities to enhance human-centered skills and foster creative thinking with AI and propose strategies for continued development. • Assess AI tools to ensure equal and fair access for all user groups.	• Develop AI-driven workplace or education policies that safeguard human agency in decision-making. • Establish guidelines for using AI in professional or educational environments that ensure AI complements, rather than replaces, human interaction and creativity • Conduct empirical studies or pilots testing the impact of AI in human-centered roles
Examples of Actions for Progression	• Observe how AI influences human interactions in customer service, education, or workplace settings. • Reflect on personal experiences when using AI-powered communication tools (e.g. chatbots, virtual assistants). • Engage in discussions on the limitations of AI in recognizing human emotions. • Explore literature on the psychological and social impact of AI in human interactions.	• Develop case studies on human-centered AI practices and their impact in different industries. • Participate in collaborative projects where AI is integrated into human-driven decision-making. • Explore frameworks for ensuring that AI tools respect social and cultural norms. • Analyze the impact of AI on workforce skills and creativity and propose strategies for maintaining essential human abilities.	• Lead research or policy development on the role of emotional intelligence in AI-driven work environments. • Create training programs focused on balancing AI integration with human-centric skills. • Engage with industry or academic stakeholders to define best practices for human-AI collaboration. • Create reports or guides advocating for human-centered AI principles in education, governance, or business.

Based on Digital Education Council, DEC AI Literacy Framework, 2025

Domain Expertise

	Level 1	Level 2	Level 3
Description	Applied AI Awareness Individuals develop a basic understanding of how AI is used in their specific field and can identify relevant AI tools and applications.	AI Application in Professional Contexts Individuals can effectively use AI tools to support tasks, optimize workflows, and improve decision-making within their discipline.	Strategic AI Leadership Individuals develop advanced expertise in AI applications within their discipline, ensuring AI is effectively integrated into strategic decision-making.
Examples of Competencies	• Identify key AI applications relevant to a specific domain (e.g. AI in medicine, law, education, finance). • Recognize how AI is transforming professional roles and industry standards. • Understand the basic limitations of AI when applied in a particular field.	• Select and apply AI tools that enhance efficiency and accuracy in a professional or academic setting. • Assess the strengths and weaknesses of AI applications within specific processes or parts of the value chain. • Integrate AI insights into professional decision-making while understanding AI's role as a complement to human expertise.	• Evaluate and refine AI adoption strategies within the field, considering regulatory, ethical, and operational constraints. • Lead the implementation of AI-driven innovations in a professional or academic context. • Develop training materials or guidelines to enhance AI literacy among peers and colleagues in the field.
Examples of Actions for Progression	• Explore and experiment with domain-specific AI tools. • Participate in discussions or case studies related to AI applications in the field. • Engage in introductory training sessions focused on AI for a specific sector.	• Implement AI-powered solutions in professional workflows, assessing their impact on efficiency and accuracy. • Compare multiple AI tools within the field to determine best-fit applications. • Conduct small-scale research or pilot projects testing AI solutions in a specific professional setting.	• Conduct industry-level assessments of AI adoption trends and their impact on professional practice. • Publish findings on AI applications in a particular field through research, white papers, or industry reports. • Participate in advisory or policy groups to influence AI adoption and governance at an institutional level.

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AI Literacy for Faculty

(Example Case)

Domain Expertise for Faculty

	Level 1	Level 2	Level 3
Description	Foundational Applied AI Awareness Faculty develop a foundational understanding of AI's impact on higher education, their discipline, and student learning.	AI Application in Teaching and Learning Faculty integrate AI tools into their pedagogy to enhance student engagement, assessment, and personalized learning while maintaining academic integrity.	Strategic AI Leadership in Higher Ed Faculty lead institutional AI adoption, contribute to AI curriculum development, and innovate pedagogy using AI-driven methodologies.
Facilitating student critical thinking and learning	• Identify how AI impacts the ability of students to think critically. • Recognize how students engage with AI-generated content and the risks of over-reliance. • Introduce AI-awareness activities to help students distinguish between AI-generated and human-generated content.	• Design learning activities that challenge students to critically assess AI-generated content. • Embed AI literacy into assignments, requiring students to evaluate AI sources, biases, and reliability. • Teach students frameworks for verifying AI-generated claims and distinguishing AI assistance from original thought.	• Develop institutional strategies to integrate critical thinking into the curriculum as a core academic skill. • Lead faculty training on embedding AI-critical engagement into assessments and learning activities. • Conduct research on AI's impact on student cognitive development and critical thinking skills.
Promoting AI & digital literacy	• Explore and experiment with domain-specific AI tools. • Participate in discussions or case studies related to AI applications in the field. • Engage in introductory training sessions focused on AI for a specific sector.	• Implement AI-powered solutions in professional • workflows, assessing their impact on efficiency and accuracy. • Compare multiple AI tools within the field to determine best-fit applications. • Conduct small-scale research or pilot projects testing AI solutions in a specific professional setting.	• Conduct industry-level assessments of AI adoption trends and their impact on professional practice. • Publish findings on AI applications in a particular field through research, white papers, or industry reports. • Participate in advisory or policy groups to influence AI adoption and governance at an institutional level.

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Domain Expertise for Faculty (Continued)

	Level 1	Level 2	Level 3
	Foundational Applied AI Awareness	AI Application in Teaching and Learning	Strategic AI Leadership in Higher Ed
Innovating pedagogy	• Identify AI's potential to enhance pedagogy through automation, personalization, and student engagement. • Recognize opportunities to incorporate AI into classroom activities (e.g. AI-driven tutoring, automated feedback). • Experiment with AI-enhanced lesson planning and assessment design.	• Develop student-centered AI-enhanced learning experiences, using AI to support personalized instruction. • Implement AI-driven learning analytics to inform instructional decisions and improve student engagement. • Redesign assessments to align with AI's role in research and problem-solving, ensuring learning objectives remain relevant.	• Lead pedagogical innovation initiatives using AI to enhance student success and faculty effectiveness. • Conduct research on AI's impact on teaching and learning outcomes. • Contribute to institutional strategies for • AI-driven teaching transformation and faculty professional development.
Adaptability and responsiveness to change	• Recognize how AI is transforming academic disciplines, the role of educators, and workforce expectations. • Identify key AI trends relevant to one's field and their implications for students. • Introduce some curriculum adjustments to reflect AI's emerging role in the profession.	• Update curricula to reflect AI-driven industry shifts, ensuring students develop future-ready skills. • Continuously modify teaching methods and assessments dynamically to account for AI's evolving capabilities. • Encourage students to reflect on how AI is shaping professional competencies.	• Lead institutional efforts to align academic programs with AI-driven changes in industry. • Advocate for flexible curriculum models that integrate AI as a transformative force in professional education. • Conduct research on the effectiveness of AI-enhanced curricula and evolving learning needs.
Expertise in ethical and responsible AI	• Introduce students to fundamental AI ethics principles, such as fairness, transparency, and accountability. • Identify risks of AI bias, discrimination, and misinformation in academic and professional contexts. • Encourage discussions about ethical dilemmas arising from AI use in different fields.	• Guide students in applying ethical frameworks to AI use in academic and professional settings. • Require students to critically evaluate ethical risks associated with AI-generated recommendations and decisions. • Ensure that AI-assisted assignments and projects incorporate responsible AI principles.	• Lead institutional discussions on responsible AI adoption in education and research. • Develop policies and best practices for ethical AI use in teaching, assessment, and institutional decision-making. • Contribute to academic discourse on AI governance and regulation in higher education.

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