AI Integration in Interdisciplinary Academic Programs

NSF LEVEL UP AI Workshop Recommendations

July 2026

Introduction

As part of the NSF LEVEL UP AI project, the Computing Research Association (CRA) and New Mexico State University convened educators, researchers, and professionals across the computing community to build consensus on strategies to increase capacity for undergraduate Artificial Intelligence (AI) education. The LEVEL UP AI Atlanta (December 2025) and Phoenix (January 2026) design workshops addressed key bottlenecks in AI education infrastructure, which had been identified in Spring 2025 roundtable discussions (Cowit et al., 2025). The *Designing the "AI + X" "X + AI" Model* in-person design workshops in Atlanta and Phoenix were attended by 30 participants from 29 institutions (Link to Contributors). Utilizing a backwards design methodology (Wiggins & McTighe, 2005), these two sessions facilitated the creation of this recommendations document.

AI is an important, often critical, area of study for students across all disciplines. In most cases, regardless of discipline, success at AI integration into academic curricula hinges on students being more than passive users of generative AI tools. One way to increase capacity in AI education is the development of AI-augmented disciplinary programs, incorporating AI in a non-AI discipline, such as Biology, Psychology, Economics, Music, History, Business, and even other computing areas like Cybersecurity. In contrast, interdisciplinary AI programs suggest that a non-AI discipline can contribute domain content (e.g., narrative writing, historical perspective) and other skills (e.g., critical and ethical reasoning) to an AI-focused degree.

This document addresses the question of what should be included in rigorous and effective interdisciplinary AI programs and AI-augmented disciplinary programs courses and pathways. As such, it may help reorient faculty and student identities to enhance instruction, learning, and practice in their disciplines for a quickly changing AI-infused educational ecosystem. This document does not cover a large swath of highly contextualized considerations that would be desirable in creating such programs. For a more in-depth discussion on interdisciplinary AI recommendations, we encourage you to read “Building Educational Capacity in AI Across Disciplines: Summary of a Workshop” (Grumbling et al., 2026). This document begins with broad suggestions for organizational units, ranging from the larger institution to smaller academic units. Then, this document provides additional suggestions for interdisciplinary AI

programs and AI-augmented disciplinary programs. Finally, this document lists considerations for making faculty work arrangements that will facilitate interdisciplinary AI curricula.

1. Institutional-Level and Administrative/Academic Unit Recommendations

a. Identify AI-relevant champions

i. Identify *administrative* champions of AI education that span units across the institution and that exercise varying degrees of power to support curricular change and maintenance involving AI.

ii. Identify *academic* champions of AI education that span units across the institution; be inclusive, i.e., determine who has actually taught AI across the institution, as represented, for example, in course syllabi.

b. Develop a framework and guidelines for AI education, thus establishing a shared vision on AI

i. Develop a shared understanding, perhaps through mechanisms of professional development (see 1.c), of AI *literacy* and AI *fluency,* often interpreted differently, which includes attention to vocabulary, knowledge, skills, ethical considerations, societal implications, history, role of data in AI, and human-AI collaboration strategies and incidental interactions.

ii. Create institution- or unit-level AI policies that can be adapted, as desired, to local contexts, disciplinary requirements, and diverse pedagogical practices.

iii. Guidance on AI use should also address overlapping courses, such as varying writing courses, and varying statistics courses, which are often offered in different academic programs and overlap in content -- attention to (in)consistency of allowable AI use is particularly relevant in such cases.

c. Develop a community of AI education stakeholders that supports development and shares resources

i. Develop professional development (PD) in AI literacy and fluency for faculty in fields beyond AI, and AI PD for institutional staff and administrators (see LEVEL UP AI report (Touretzky et al., 2026) for further recommendations on PD).

ii. Consider developing complementary PD for AI faculty on communicating AI to a non-AI "public," even if only within an institution.

iii. Create a culture that supports interdisciplinary, bottom-up collaboration between AI-related and other programs to launch new AI degrees. Notably, if an AI program already exists on campus, incentivize that program to involve other disciplines to create joint courses and pathways. For example, a component in such a culture could be campus-wide learning communities, where instructors of AI-related courses share knowledge and resources, and design pilot interdisciplinary courses. This interdisciplinary collaborative culture will support the development of courses as described here (see 2.f).

2. Core considerations (i.e., common to interdisciplinary AI programs and AI-augmented disciplinary programs)

a. Develop a foundational technical AI course (e.g., such as the ones in (Eaton & Epstein, 2024)), which would count for a *general education requirement,* to increase access and minimize loss of credits for students who exit an AI pipeline early. While technical, this course should include integrated socio-technical content.

b. Develop a socio-technical AI literacy course (e.g., (Tadimalla & Maher, 2025)) that covers responsible use and is different from the AI foundational course mentioned in 2.a, to both inform and recruit students to an interdisciplinary AI program of study.

c. Develop a designated course that frames AI as a socio-technical system, with substantial ***ethical, professional, and societal implications.*** Topics this course should address include privacy, bias, accountability, environmental effects, and possibly domain-specific issues with respect to the non-AI discipline. Ideally, such a course would be appropriate to AI-augmented disciplinary programs as well.

- ❖ Alternatively, or in addition to an ethics and society course, consider the pedagogical model of infusing ethical, professional, and societal topics throughout the courses of the Interdisciplinary AI (and AI-augmented disciplinary) curriculum.

d. Develop Interdisciplinary AI senior capstone projects that require students to integrate their expertise in real-world applications of AI in other disciplines.

e. Infuse AI-related, high-impact practices beyond formal coursework, such as in undergraduate research, internships, co-ops, first-year seminars, living learning communities, and capstones.

f. Develop an Interdisciplinary AI *minor* for computing and non-computing students as a curricular option.

3. Interdisciplinary AI Definition and Implementation Recommendations

Interdisciplinary AI centers expertise in AI, augmented with literacy, tools, concepts, and methodologies from a non-AI domain, with goals to define and align foundational courses (e.g., mathematics, statistics, programming, computer science, business), core AI courses, advanced AI courses, and a coherent set of applied Interdisciplinary AI courses.

a. Consider whether disciplines that overlap with AI, such as computer science and data science, may be considered as interdisciplinary when Interdisciplinary AI is to be a formalized addition to a curriculum (e.g., major, double major, minor).

b. Ensure degree pathways have shared requirements (for example, statistics) that satisfy both AI and non-AI disciplinary expectations, whenever possible, to reduce redundancy and increase curricular capacity.

i. Consider whether a bridging or "transition" course is necessary to provide AI-focused students with foundational knowledge of a non-AI discipline.

ii. Consider modular one-credit "AI labs" that function as co-requisites to support hands-on integration of AI methods within core or non-AI courses.

iii. Consider requiring a "Math for AI" type of course, as discussed in another LEVEL UP AI recommendation report (Peterson et al., 2026).

c. Consider developing applied interdisciplinary courses that involve different non-AI disciplines and that use authentic problems, data, and practices

sourced through collaboration with faculty, partners, and resources in the non-AI domain.

i. Develop webinars or workshops on the identity tension that students face in interdisciplinary AI programs, from not feeling a sense of belonging to either AI or their non-AI specialization.

ii. Create structures that help AI specialists learn the language, methods, and challenges of the non-AI domain; these can include team-taught modules, coordinated co-teaching, or cross-departmental appointments. See the previous discussion on professional development (i.e., 1.c).

4. AI-Augmented Disciplinary Definition and Implementation Recommendations

An AI-augmented disciplinary program centers expertise in a non-AI field and integrates AI literacy, tools, and methodologies into that field.

a. Consider the audiences that the AI-augmented disciplinary program will speak to. Will the audience exclusively be specialists in a non-AI discipline and students interested in AI to advance the state of the art in this non-AI discipline?

b. Identify barriers, including courses, which may discourage the participation of non-AI learners, and define support for learners to progress through these bottlenecks. For example, consider introducing AI courses specifically grounded in the non-AI discipline.

c. Consider AI-augmented disciplinary courses that are focused on the non-AI discipline, but dive into the use of AI in each course's covered topics. For example, designated courses on collaborative problem solving with AI, including prompt engineering, prompt patterns, and agentic AI, all with respect to the non-AI discipline, if not otherwise covered in an AI literacy/fluency/foundations course suggested in (1.b).

d. Teach students how best to communicate with both technical AI specialists and specialists in the non-AI discipline.

e. Address ethical/societal issues that are discussed in (2.c).

5. Institutional Structures to Support Cross-Disciplinary AI Education

a. Encourage cross-training by pairing AI faculty with colleagues in other fields to design and teach courses together.

b. Consider cross-appointments and formal incentives that allow AI experts to bridge multiple departments.

c. Provide incentives for faculty in non-AI disciplines to undergo professional development in AI and design interdisciplinary AI and AI-augmented disciplinary curricula.

d. Create a revenue sharing agreement to promote collaboration between AI and non-AI disciplines/academic units.

e. Provide seed grants or other compensation structures to support cross-disciplinary curricular development.

f. Establish campus-wide communities of practice for instructors of AI-related courses to facilitate knowledge and resource sharing.

g. Explore the roles of institutional entities (e.g., library, center for teaching and learning) to maintain institutional AI knowledge that captures expertise and course materials across the institution. See (1.a) as an example.

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