



Advancing AI initiatives in nursing academics: Case studies and insights from thought leaders



Paulina Sockolow^{a,*}, Martin Michalowski^b, Laura-Maria Peltonen^c, Lisiane Pruinelli^d, Maxim Topaz^e

^a LeBow School of Business, Department of Health Administration, Drexel University, Philadelphia, PA

^b Population Health and Systems Cooperative, University of Minnesota, Minneapolis, MN

^c Department of Nursing Science, University of Turku, Turku, Finland

^d Family, Community and Health System Science, University of Florida, Gainesville, FL

^e University Data Science Institute, School of Nursing, Columbia University, New York, NY

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ABSTRACT

Artificial Intelligence (AI) is transforming the landscape of health care and nursing research and education. As key stakeholders in this transformation, nursing faculty are crucial in driving strategic and operational AI initiatives to develop appropriate competence within the workforce to ensure the safe application of these technologies in nursing and care. To discuss the ways nursing faculty can be actively involved in AI initiatives, a panel was convened at the Third International Workshop on Artificial Intelligence in Nursing (AINurse24). The panel delved into faculty involvement in AI initiatives, including research collaborations, curriculum development, ethical considerations, and institutional policymaking. Panelists describe initiatives in their school/college. The summary presents five common themes, as informed by the workshop discussions: (a) nurses will benefit from initiating AI implementation in their school/college, (b) resource commitment to AI initiatives, (c) education to support AI competencies and workforce upskilling, (d) research, and (e) ethics.

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Artificial Intelligence (AI) is revolutionizing the landscape of health care, nursing research, and education. As key stakeholders in this transformation, nursing faculty play a crucial role in driving strategic and operational AI initiatives to develop the necessary competence within the workforce, ensuring the safe application of these technologies in nursing and care. In July 2024, a panel was convened at the Third International Workshop on Artificial Intelligence in Nursing (AINurse24) to discuss ways nursing faculty can be actively involved in AI initiatives at the undergraduate, graduate, and postgraduate levels. The first author organized the panel, and the speakers (co-authors) were members of the leadership group of the Nursing and Artificial Intelligence Leadership (NAIL) Collaborative (nailcollab.org), attending the workshop. NAIL is an international collaboration of AI experts and members of the public organized to develop a consensus paper on nursing and AI (Ronquillo et al., 2021). The AINurse24 panel delved into various aspects of faculty involvement in AI initiatives, including research

collaborations, curriculum development, ethical considerations, and institutional policymaking. The discussion also focused on strategies to foster a culture of innovation and inclusivity, ensuring that AI initiatives align with the institution's broader goals and contribute to the advancement of AI in nursing education. The presentation provided panelists and audience members a platform to share their experiences, challenges, and best practices.

This article is a continuation of the panel discussion, informed by the workshop presentations and the transcribed audience discussion. Panelists describe initiatives in their school/college using a case study format. The summary presents common themes, as informed by the workshop discussions.

Cases

Drexel College of Nursing and Health Professions

Institutional Context/Infrastructure

Drexel University, a private institution in Philadelphia, PA, is recognized as an R1 Doctoral University with Very High Research Activity by the Carnegie Classification of Institutions. With an enrollment of 21,700 students, 20% of whom are in the College of

* Corresponding author: P. Sockolow, Drexel University, 60 N 36th St, Philadelphia, PA 19104.

E-mail address: ps44@drexel.edu (P. Sockolow).

Nursing and Health Professions (CNHP), Drexel's AI expertise is concentrated in the College of Computing and Informatics, which has 1,400 students.

The initiative to introduce AI to CNHP was driven by two main factors: the University's collaboration to foster AI in research and education and the CNHP dean's effort to raise AI awareness among faculty and students, identify research and educational opportunities, and address ethical considerations. The expected deliverables included communications to raise awareness, showcases of current AI activities, and recommendations for the ethical use of AI. This ongoing task force aimed to align with university initiatives.

Process

Led by an informatics faculty member (author Sockolow), the task force recruited members via email, resulting in a diverse, interdisciplinary group of 21 individuals, comprising administrative staff, including information technology and engineering staff, as well as teaching faculty, including adjunct faculty, research faculty, and assistant and associate deans. Nursing faculty made up about half of the task force, with health professions faculty and administrative staff comprising the rest. The task force met monthly, with members volunteering their time. The task force's work was divided into working groups, initially focusing on AI awareness and adoption, with future efforts planned for ethical and policy considerations. The working groups, specified in the *NAIL* Collaboration article, included Research, Education, Clinical Practice, and Administrative tasks (Ronquillo et al, 2021). Members organized themselves into these groups, meeting weekly for 30 to 60 minutes. Almost all the clinical members joined the Education working group. Due to attrition, the Clinical Practice group ceased meeting after its initial sessions.

Communication within the task force relied on Microsoft Teams (Version 2024) and Zoom AI Companion (Version 2024) to generate meeting summaries posted in Teams. Zoom AI use among task force members was encouraged to foster familiarity with a commercially available AI product. University-level updates, working group progress reports, and upcoming decisions were discussed during task force meetings. The task force leveraged University efforts, such as an 'introduction to AI' event, to maximize efficiency.

The task force leader initially charged the working groups with conducting an environmental scan and posting relevant articles on the Teams working group site. Working groups developed and followed their own agendas. The task force leader attended working group meetings to facilitate communication and idea sharing.

Initiatives

Education Initiatives. The education working group aimed to reduce obstacles to faculty incorporating AI into the curriculum. The group initially focused on dispelling AI myths before redirecting its attention to developing guides for integrating AI into class exercises.

Research Initiatives. The research working group, which included an information technology staff member, focused on fostering collaboration between nursing and health profession researchers and computer science and data science researchers. A hurdle was addressing misaligned research goals and incentives. For example, a researcher may want to apply AI as a method, whereas the computer scientist's interest is to innovate and develop a new method.

Administrative Initiatives. The administrative working group included two technology staff members. The working group identified applications for AI, such as analyzing large Excel spreadsheets, transcribing meeting minutes, and identifying accreditation standards in meeting minutes.

Outcomes

AI awareness and adoption were promoted at both individual and institutional levels. At the college employee level, peer dissemination occurred through department, college-wide, and research faculty meetings. Institutionally, a college-wide meeting—open to the University—featured external speakers and working group presentations on AI initiatives and outputs. The task force created a Microsoft SharePoint website to provide general information accessible to University employees and restricted content to College personnel. General information included the college-wide meeting recording and articles of interest. The restricted content included the products of working groups.

The Education Working Group developed faculty resources, including an AI classroom guide with content on literacy, University policies, ethics, and tools for composing or editing text, images, video, infographics, and lesson plans tailored to nursing.

The Research Working Group created resources to help researchers assess the appropriateness of AI use in their studies and to connect with AI experts at the University. To assess appropriateness, they created a 10-point checklist with questions that addressed dataset quality, model limitations, reproducibility, ethical implications, and whether to build custom models. To facilitate collaboration with AI experts, they produced reports highlighting University researchers applying AI in health-related studies.

The Administrative Working Group evaluated Excel's AI capabilities for large datasets and tested transcription and meeting analysis tools, documenting current strengths, limitations, and acknowledging the products' rapidly evolving capabilities.

University of Minnesota School of Nursing

Institutional Context/Infrastructure

The University of Minnesota Twin Cities campus, with over 50,000 students and 20,000 faculty and staff, is an R1 doctoral university. Its AI expertise is concentrated in the Computer Science and Engineering department, with significant contributions from the Institute for Health Informatics, the Data Science Initiative, and the School of Nursing's Center for Nursing Informatics. The School of Nursing has a rich history in nursing informatics, including the Nursing Knowledge Big Data Science Initiative (NKBDS), now in its 13th year, and hosting the 18th International Conference on Artificial Intelligence in Medicine in 2020.

Process

The School of Nursing has focused on integrating AI into its curriculum. The school is also exploring the ethical implications of AI in nursing, led by a steering committee named by Dean Connie White Delaney, PhD, RN, FAAN, FACMI, FNAP. The committee, featuring national and international experts, is co-chaired by Professor Jenna Marquard, PhD, the Cora Meidl Siehl Chair in Nursing Research and author Michalowski.

Initiatives

Education Initiative. The school has added two courses, *Database Principles for Healthcare* and *Data Science for Healthcare*, to the DNP and PhD programs. These courses teach database theory, modeling, design, and manipulation, emphasizing health care applications and data science concepts, analytics, and ethical considerations. The aim is to move beyond traditionally used analytical approaches in nursing (e.g., Excel) toward modern data management and analysis approaches conducive to use with AI tools. AI concepts are also embedded into existing courses, providing hands-on experience with machine learning, natural language processing, and generative AI tools. These concepts are introduced into the curriculum as modules embedded into existing courses and taught by nursing faculty. One such example is the introduction to and use

of generative AI for developing wireframes of a digital tool to address knowledge gaps in nursing practice, embedded as a 2-week module in the *Nursing Informatics and Digital Health Technologies* course.

Research Initiative. The aim of the ethical implications of AI in nursing initiative is to produce a strategy for AI adoption in nursing, including partnerships with NKBDS leadership to inform and expand scholarship in the profession's adoption of the potentially beneficial and also risky new AI technology. The committee includes computer scientists, nursing leaders, futurists, ethicists, and economists, developing recommendations for AI use and teaching in nursing.

Outcomes. Several outcomes emerged from these initiatives. From the educational perspective, the School of Nursing has witnessed increased interest from DNP students in learning about and utilizing AI tools in their quality improvement projects. There is also a rise in PhD candidates focused on AI-specific issues, such as the explainability of AI model outputs and data collection practices for training AI models. The ethical implications research led to two journal manuscripts currently under review. These works explore the need to replace some nursing tasks with AI, but not to replace nursing with AI. They also examine existing ethical frameworks for designing AI tools within nursing and identify the gaps in available frameworks.

University of Florida College of Nursing

Institutional Context/Infrastructure

The University of Florida (UF) is the state's land-grant, flagship public university, serving approximately 57,000 students annually across 16 colleges and more than 200 centers, institutes, and bureaus. UF is classified as an R1 Doctoral University and consistently ranked among the top five public universities in the United States. It offers more than 300 degree programs, including 52 undergraduate majors, 123 master's, and 76 doctoral degrees.

In 2020, UF launched a bold, university-wide AI initiative ([UF: Defining AI for Higher Education](#)) with an investment exceeding \$100 million in AI infrastructure, faculty hiring, and interdisciplinary research. The initiative includes a strategic partnership with NVIDIA, the global leader in accelerated computing, and the deployment of HiPerGator AI, one of the fastest supercomputers in higher education worldwide. Since its inception, UF has hired more than 100 AI-focused faculty, including 34 within health-related colleges, and developed over 230 AI and data science courses available to students across disciplines.

The College of Nursing has actively aligned with this institutional vision by embedding AI across its education, research, and service missions. Nursing faculty are engaged in interdisciplinary AI initiatives with collaborators in computer science, medicine, and engineering, contributing to UF's leadership in AI in health care.

Process

To guide responsible AI integration in nursing, the College of Nursing charged an AI subcommittee under its Faculty Executive Committee. With representation from BSN, DNP, and PhD programs, the subcommittee was charged with developing guidelines for AI use in teaching, learning, and academic integrity, including assuring academic integrity. Members reviewed national standards (e.g., ANA, AACN, NCSBN), institutional policy (e.g., [UF AI BluSky Final Report, 2025](#)), and best practices in higher education. This process informed a set of deliverables, including a formal "AI Use and Academic Integrity Syllabus Statement," a supporting faculty and student guidance document "Artificial Intelligence at the UF College of Nursing," and plans for long-term integration into syllabi, student handbooks, and faculty development programs. All these resources

will become integrated into policies and guidelines and will be publicly available after the formal process for faculty governance approvals.

Initiatives

Educational Initiatives. AI has been embedded across the continuum of nursing education, research, and governance at UF College of Nursing, from foundational undergraduate content to doctoral-level inquiry and research design. The college has adopted a tiered integration strategy, aligning with UF's broader goal of universal AI literacy.

The curricular integration component includes AI-driven simulation tools to create realistic patient scenarios, adaptive learning platforms that personalize student experiences, and course modules on natural language processing, machine learning, and model explainability. Specific graduate-level courses include "Nursing Informatics and Information Management," AI methodologies-specific special topics "Natural Language Processing," and "Applied Data Science."

The faculty development component is supported by collaborations with the UF Center for Teaching Excellence, including workshops on generative AI use in assessment and simulation and a digital faculty resource hub featuring examples, toolkits, and ethical guidance.

Research Initiatives. The focus is on applying AI to address critical clinical and workforce challenges. Studies include predictive modeling of chronic pain in breast cancer survivors ([Park et al., 2024](#)), explainable machine learning for transplant survivorship, and AI-supported interventions to mitigate first-year nurse burnout and improve nursing quality metrics ([UF Nursing Researchers Explore Tactics to Combat First-Year Nurse Burnout, 2025](#); [Liu et al., 2023](#); [Lavrova et al., 2023](#); [Horowitz et al., 2025](#); [Luketz et al., 2025](#)) (e.g., falls, pain).

Policy and Governance. Activities include the implementation of a College-wide AI syllabus statement, accompanied by a transparency and disclosure framework for both students and faculty. The resources are hosted on a dedicated AI Faculty Webpage, linking to sample syllabi, disclosure templates, and UF's institutional AI policy.

Outcomes. The College of Nursing has emerged as a leader in AI-driven nursing education and research. Students across degree levels report increased exposure to and confidence with AI tools in clinical reasoning, QI projects, and dissertation work. Faculty have published educational evaluations of AI in nursing ([Bumbach et al., 2024](#); [Carrington et al., 2024](#)) and are actively engaged in federally funded, multi-institutional AI collaborations. The AI Subcommittee has fostered a transparent, inclusive culture of responsible innovation and continues to advise on faculty development, curriculum design, and academic integrity policy.

Through strategic alignment with UF's infrastructure, cross-college partnerships, and nursing-led initiatives, the UF College of Nursing is helping define the future of AI integration in nursing education, research, and workforce development.

University of Turku, Department of Nursing Science

Institutional Context/Infrastructure

The University of Turku in Finland, founded in 1920, is dedicated to academic excellence and innovation. With around 25,000 students and staff, the university integrates AI into its programs through the AI Academy ([Welcome to Turku AI Academy](#)), a multidisciplinary platform for AI research and education. The AI academy offers courses on AI principles, applications, and ethical considerations ([Multidisciplinary Study Module in Artificial Intelligence](#),

2024–2027), designed to cater to individual learning needs. The Department of Nursing Science sits within the Faculty of Medicine and is Finland's highest-ranked unit in its discipline (QS #1 FI; #39 worldwide, 2025). Research and education are anchored in the international program *Empowering Population, Patients, Professionals in Health & Care*, whose streams investigate digital and smart-technology solutions for improving care and knowledge management. The department collaborates closely with the university-wide Turku AI Academy, gaining access to high-performance computing and expertise, thereby ensuring nursing scholars can experiment with large language models under European data-sovereignty principles. On the information services side, Turku University Library now embeds AI assistants (Scopus AI, Web of Science Research Assistant) into literature search workshops used by postgraduate nursing science students.

Process

Every three years, a mixed academic–clinical group maps emerging competency needs against the bachelor's, master's, and doctoral curricula. Faculty development is driven by staff who share their knowledge and expertise in weekly meetings and dedicated workshop days. Insights from competence development sessions are continually added to a living handbook on the departmental intranet. Findings from AI-enabled studies are fed back into classroom case studies within the same academic year. All projects adhere to the University's 2024 Responsible AI policy and research ethics guidelines.

Educational Initiatives

The department has a long tradition of investing in international programs. As an example, it offered a double-degree master's program in Future Health & Technology together with Fudan University in China. This program, offered in English, focused on future health technologies, including AI, and prepared students to work in interdisciplinary teams. The interdisciplinary program included theoretical courses related to the students' major topics (technology or health), the partnering discipline's topics, interdisciplinary hands-on Capstone projects, and collaboration with industry partners.

Another example is advanced courses like Nursing Knowledge Management and Health Service Research ([University of Turku: Study guide: Nursing Knowledge Management and Health Service Research](#)), which equips doctoral researchers with skills to apply AI in health care research. This course enables students to (a) apply research methodologies (such as data analytics methods) to knowledge management in health services, (b) compare advanced technological applications focusing on AI (such as machine learning methods) in the context of health and care, and (c) critically evaluate the use of AI and other technologies in health care research. Through lectures, seminars, and practical hands-on assignments, students share experiences and develop skills to apply evidence-based smart solutions in nursing practice and research.

Furthermore, AI is embedded in all education, where appropriate. For example, by immersing students in virtual-reality scenarios during the “Multidisciplinary Leadership in a Renewing Social and Healthcare Service System” module (2024–2027), we give them hands-on experience with intelligent simulations, thereby fostering capacity, familiarity, and trust in AI-enabled tools across nursing science education (*Multidisciplinary Leadership in a Renewing Social and Healthcare Service System*).

The University is also actively engaging its faculty and students in the ongoing development of AI-related educational practices, as exemplified by organized workshops on generative AI for both students and staff since the autumn of 2023 and a recent internal survey on generative AI in education. These activities underscore the University's dedication to continuously refining its teaching methodologies to better incorporate AI technologies. The results of this

survey were used to inform curriculum development, ensuring that educators and students remain at the cutting edge of AI applications in education.

Outcomes

Beyond the surge in AI-related publications, the Department of Nursing Science has significantly strengthened its research profile, with both citation impact and success in EU-level and national grants rising sharply. Additionally, joint projects with computer science, linguistics, and clinical partners have increased. Applications to the international master's track soared alongside student satisfaction ratings, and the department's QS subject ranking has risen, collectively demonstrating the broad institutional gains resulting from its responsible strategy to strengthen AI capacity and embed it in research and education. Building on this capacity, the department maintains its technology–nursing-science collaboration as a strategic priority and continues to invest actively in strengthening these partnerships.

Columbia University School of Nursing

Institutional Context/Infrastructure

In 2024, the Columbia University School of Nursing (CUSON) established an Office of Artificial Intelligence to coordinate strategy, ethics oversight, and technical support for AI projects and teaching. The office collaborates closely with the Center for Community-Engaged Health Informatics & Data Science, providing faculty with streamlined access to clinical data and expertise across campus. CUSON's sustained investment in these structures, and its position as the top NIH-funded U.S. nursing school in recent years, provides a solid platform for innovation.

Process

Before launching new activities, the faculty conducted mixed-methods scans of student, clinician, and community needs (e.g., focus groups on generative AI risks and an internal faculty readiness survey). Findings are reviewed annually by an advisory group that includes leaders from nursing, informatics, and data science, ensuring that priorities remain aligned with both educational goals and patient safety imperatives.

Initiatives

Educational. AI content is embedded throughout the curriculum: a 15-week doctoral course provides hands-on experience with open-source notebooks and large language model assistants. At the same time, shorter modules introduce master's and DNP students to data-centric thinking. Faculty workshops and a living “AI classroom guide” support responsible use in teaching and simulation.

Research. Flagship research includes nurse-led early-warning, home-care decision-support, and virtual-scribe projects. Each project was developed in partnership with Columbia's Data Science Institute.

Outcomes. Early evaluations report improved faculty confidence in teaching with AI tools, growing student enrollment in data science electives, and several external grants now leveraging the school's clinical data infrastructure. Pilot studies of nurse-centered decision-support systems have shown measurable gains in patient safety indicators and reduced documentation time, reinforcing CUSON's reputation as a national leader in practical, ethically grounded AI for nursing practice.

Discussion

The case studies presented in this article reveal a range of strategies to introduce and advance AI initiatives in nursing educational settings. While institutional contexts varied, several cross-cutting themes emerged that offer insights and guidance for nursing schools and faculty.

Empowering Nurse Leadership for AI Implementation Matters

A consistent finding was the value of nurse-initiated AI efforts. In several cases, deans and nursing faculty took the lead despite institutional AI expertise residing in other departments. Reasons for nurse initiation emerged from both the cases and workshop participants: the need to equip nurses with relevant skills, address concerns and misconceptions about AI, and develop nursing-specific frameworks for responsible use. The cases demonstrate that nursing units need not wait for broader university action to begin meaningful work.

Resource Allocation Influences Scope and Pace

The extent of resource commitment shaped the scope of AI initiatives. In some institutions, volunteer-driven task forces achieved significant progress through collaborative, low-cost efforts. Others benefited from substantial university investments, including faculty hiring and infrastructure, which enabled more systematic planning. Together, these examples suggest that while meaningful work can begin with minimal resources, long-term integration benefits from sustained support.

Curricular Integration Is Achievable and Impactful

All cases featured curricular initiatives that integrated AI into nursing education to support AI competencies and workforce upskilling. These ranged from new graduate-level courses on data science and database principles for health care to embedded modules on generative AI in existing courses. Interdisciplinary programs have been successful in developing AI competence across disciplines and fostering interdisciplinary collaboration skills. An example is an emphasis on hands-on experience—with tools like Jupyter Notebooks, ChatGPT, or data visualization platforms—which enhances students' analytical capabilities. These curricular efforts support not only AI literacy but also readiness for evolving clinical environments.

Interdisciplinary Collaboration Enhances Effectiveness

Collaboration across disciplines was essential for building AI capacity. Partnerships with computer science, informatics, and engineering programs allowed nursing faculty to access technical expertise and co-develop educational and research initiatives. Participants noted that building a shared language is necessary for cross-disciplinary success and that such collaboration also supports faculty development, joint research, and more comprehensive student learning.

Research to Support Patients and Nurses

Research supporting patients was presented in two cases, research supporting nurses was discussed in one case, and research on adoption was described in another case. Fostering collaboration and providing resources to help researchers apply AI to their studies also was a focus. Workshop participants noted that researchers likely need to be comfortable with AI to collaborate with computer and data scientists, who tend to be faculty members outside their school

or college. Also important are the communication and collaboration skills necessary to find a common language that enables working across disciplines. As these skills require practice, interdisciplinary efforts on education are urged. Participants also suggested that the use of AI in research studies should be addressed in the guidelines for the Responsible Conduct of Research.

Ethical and Responsible Use Is Foundational

Ethical considerations were addressed at varying levels across cases—from early-stage exploration to established oversight structures. Workshop participants emphasized that responsible AI use relies on knowledge of AI gained from an understanding of how the technology works and experience of working with it. Participants also emphasized that collaboration across disciplines is essential to identify safe and effective ways to develop trustworthy solutions for implementation in practice. Nursing schools are beginning to develop policies, curriculum content, and faculty guidance focused on issues such as transparency, equity, bias, and professional responsibility.

Across these themes, a clear message emerged: AI implementation in nursing education is both necessary and achievable. Institutions starting this journey should begin by forming cross-functional teams, promoting early faculty engagement, and leveraging existing university resources. Curricular innovation, interdisciplinary partnerships, and ethical reflection must go hand in hand to prepare future nurses for an AI-integrated health care environment.

Conclusion

The nursing school and college initiatives highlight AI's potential to revolutionize nursing education, practice, and research. These efforts underscore the importance of school and university leadership support and highlight the significance of nursing faculty participation in these initiatives. Resource commitment, as an accelerant, ranged from voluntary to substantial. The educational products of these efforts are designed to equip current and future nurses with the competencies necessary to navigate and shape an AI-enhanced health care system. The research endeavors are designed to enhance patient care and outcomes, support nursing practice, and promote the adoption of AI. Amidst this good work, exploration of the ethics of AI in nursing is underway. Foundational to these initiatives is interdisciplinary collaboration, which is highly valuable and has long-term implications. For example, nurses need to connect beyond their community to enhance curriculum development and better prepare nurse staff, educators, scientists, and others for the future. As the cases and the workshop participants suggest, together, we can shape the future of AI in nursing education, research, and practice, fostering an environment that encourages innovation, collaboration, and responsible AI use.

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Declaration of Competing Interest

The authors declare no conflicts of interest.

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