

Integrating Climate Change and Environmental Justice into the Undergraduate Nursing Curriculum

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Introduction

Climate change is one of the defining public-health challenges of the 21st century, producing direct (heat, storms, flood) and indirect (air quality, vector ecology, food/water insecurity, displacement) health impacts that disproportionately burden already-marginalized communities (World Health Organization [WHO], 2023; Romanello et al., 2021). Nursing graduates must therefore enter practice prepared not only to recognize and manage climate-driven health problems, but to apply principles of environmental justice, advocacy, systems thinking, and sustainability in clinical, community, and policy settings (American Nurses Association [ANA], 2023; American Association of Colleges of Nursing [AACN], 2021). This article describes practical ways to thread climate change and environmental justice topics through core subject areas in an undergraduate nursing curriculum, with concrete examples and suggested learning activities/assessments for each area.

Guiding Curricular Principles

Integration should be: 1) competency-based and mapped to national standards (AACN Essentials domains such as population health, leadership, and systems thinking), 2) longitudinal—introduced early and reinforced in clinical courses and capstones, 3) equity-focused—explicit about structural determinants and environmental justice, and 4) experiential—using community partnerships, simulation, and projects to translate knowledge into action (AACN, 2021; ANA, 2023).

Foundational Sciences (Anatomy, Physiology, Pathophysiology)

- **Objective:** Link environmental exposures to biologic mechanisms.
- **Examples & Activities:** Lecture modules on how heat stress affects cardiovascular physiology and how poor air quality exacerbates asthma and cardiovascular disease. Case study of an older adult with COPD who experiences exacerbation during a wildfire smoke event.

- **Assessment:** written assignment tracing the physiologic pathway from exposure to disease and proposed nursing interventions.
- **Rationale:** Grounding climate impacts in human biology helps students recognize clinical presentations and rationalize preventive measures in practice.

Pharmacology and Toxicology

- **Objective:** Teach how environmental exposures and climate events modify pharmacotherapy and increase toxic risks.
- **Examples & Activities:** Module on altered pharmacokinetics in heat-dehydrated patients. Toxicology lab exploring pesticide exposure in agricultural communities.
- **Assessment:** simulated medication reconciliation after disaster (e.g., interrupted cold chain for insulin).
- **Rationale:** Climate events and environmental contaminants influence drug safety and access—nurses must adapt medication plans responsibly.

Community Health

- **Objective:** Emphasize population vulnerability, surveillance, prevention, and adaptation strategies.
- **Examples & Activities:** Community vulnerability mapping project. Epidemiology exercise analyzing vector-borne disease trends.
- **Assessment:** community needs assessment and adaptation plan integrating environmental justice considerations.
- **Rationale:** Community health nursing is a natural place to center environmental justice—students learn to combine data, partnerships, and culturally appropriate interventions.

Mental Health and Behavioral Sciences

- **Objective:** Recognize and address climate-related psychological impacts.
- **Examples & Activities:** Seminar on eco-distress, grief, and displacement. Role-play providing counseling for a flood-displaced patient.
- **Assessment:** reflective paper connecting social determinants, mental health, and advocacy strategies.
- **Rationale:** Mental health sequelae of climate events are substantial; nurses need skills in assessment, referral, and community resilience building.

Ethics, Health Policy, and Professionalism

- **Objective:** Equip students to analyze policy, ethical obligations, and advocacy roles related to climate and environmental justice.
- **Examples & Activities:** Debate or policy brief assignment on hospital decarbonization vs. cost. Guest speaker with nurse leaders in sustainability.
- **Assessment:** policy brief advocating for climate-resilient, equitable health programs.
- **Rationale:** Nurses have both ethical obligations and professional influence to promote justice and system-level change (ANA, 2023).

Leadership, Management, and Systems-Based Practice

- **Objective:** Teach stewardship, disaster preparedness, and sustainable health-care operations.
- **Examples & Activities:** Quality improvement project auditing waste streams. Disaster simulation focusing on mass-care after a hurricane.
- **Assessment:** project deliverable with equity analysis for sustainability intervention.
- **Rationale:** Nurse leaders implement and sustain operational changes; embedding climate literacy in leadership coursework prepares nurses to lead organizational transformation.

Clinical Practicum and Simulation

- **Objective:** Practice applied assessment and intervention for climate-related conditions.
- **Examples & Activities:** Simulation scenarios (heat stroke, smoke inhalation, insulin refrigeration loss). Community clinical rotations.
- **Assessment:** Evaluate exposure history-taking and patient education.
- **Rationale:** Simulation and community placements translate theoretical knowledge into practical clinical competencies.

Research, Evidence-Based Practice, and Informatics

- **Objective:** Develop skills to evaluate climate-health evidence and use data for advocacy.
- **Examples & Activities:** Critique assignment on Lancet Countdown reports. Data project correlating heat waves and ER visits.
- **Assessment:** research poster proposing nursing-led intervention.
- **Rationale:** Nurses must interrogate evidence and contribute to knowledge translation for policy and practice.

Electives and Interprofessional Learning

- **Objective:** Encourage deeper specialization and cross-disciplinary collaboration.
- **Examples & Activities:** Elective course on climate, health, and justice. Interprofessional workshop designing community resilience plans.
- **Assessment:** capstone project with deliverables (grant pitch, toolkit, policy memo).
- **Rationale:** Climate solutions are inherently interdisciplinary; electives foster advanced competencies and networks.

Assessment, Faculty Development, and Resources

Assessment strategies should include formative and summative approaches:

case analyses, community projects, policy briefs, and reflective writing. Faculty development is essential—educators need upskilling through workshops, partnerships with public health agencies, and use of publicly available resources (WHO, 2023; Romanello et al., 2021). Institutions should incorporate sustainable procurement, climate-resilient clinical site policies, and support student-led initiatives.

Conclusion

Threading climate change and environmental justice throughout the undergraduate nursing curriculum produces graduates who can identify climate-driven health conditions, deliver equitable care, lead sustainable practices, and advocate for policy change. Integration requires intentional mapping to professional competencies, faculty development, community partnerships, and assessment aligned with real-world practice. By embedding these topics across foundational sciences, clinical courses, leadership, public health, and research, nursing programs prepare professionals capable of protecting health in an increasingly climate-impacted world. ■

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port the legislation, which now includes the New York State Nurses Association, Greater NYC Black Nurses Association, NY Organization for Nursing Leadership, NYS Association of Nurse Anesthetists, NYS Council of Perioperative Nurses, and NY League for Nursing.

While focused on this bill, we are also preparing for some uncertainty that will exist in New York next year. It is going to be a difficult budgetary year for New York, as the federal tax bill enacted in July created a \$3.9 billion budget deficit for the State in 2026 and a \$34 billion budget deficit for New York over the next five years. The Governor and the Legislature

will have to figure out how to address this budget deficit as the New York State Constitution requires New York to pass a balanced budget every year by an April 1 deadline. This is going to be a challenge next year. In addition, 2026 is an election year, when all members of the New York State Senate and Assembly as well as all Statewide Elected offices (Governor, Lieutenant Governor, Attorney General and Comptroller) are up for election. Further, the members of the New York House of Representatives will also be up for election.

As next year is a big election year, we want to remind everyone of the ANA-NY PAC, which supports candidates that sup-

port the profession and issues of importance to our members. We urge you to visit the ANA-NY PAC web site and donate.

If you have any questions about the legislative process or the priorities of ANA-NY, please contact a member of the Legislative Committee. As always, we welcome your questions, thoughts, ideas or comments on legislative ideas. ■



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