Integrating Climate Change into Accounting Programs

Accelerating Climate Education (ACE) Curriculum Brief

JANUARY 2026

UNIVERSITY OF WATERLOO | WATERLOO Climate Institute

ACKNOWLEDGEMENTS

CONTRIBUTORS

WRITING AND EDITING

MICHELE MARTIN, Waterloo Climate Institute

ADWOA APPIAH, University of Waterloo

DEBORAH KRAFT, University of Waterloo, School of Accounting and Finance

ADAM VITALIS, University of Waterloo, School of Accounting and Finance

DESIGN AND LAYOUT

NATALIE SMITH, Waterloo Climate Institute

ANUSHKA KSHIRSAGAR, Waterloo Climate Institute

This brief was produced as part of the Accelerating Climate Education for the Next Generation of Professionals (ACE) project being implemented by the University of Waterloo Climate Institute, with funding support from Natural Resources Canada's Climate Change Adaptation Program.

Natural Resources Canada | Ressources naturelles Canada

Canada

OVERVIEW

The Waterloo Climate Institute's Accelerating Climate Education (ACE) project is a three-year initiative (2024-2026) to support the rapid integration of climate change adaptation knowledge and skills into professional degree programs at universities and colleges across Canada. The ACE project focuses primarily on accounting, architecture, engineering and planning programs and is intended to contribute to the implementation of Canada's National Adaptation Strategy: Building resilient communities and a strong economy. The project creates opportunities for dialogue, networking and collaboration with other higher education institutions across Canada to support and share efforts and to engage with professional accreditation bodies to support broader integration of climate adaptation competencies into these professions. Visit the ACE project website for more information.

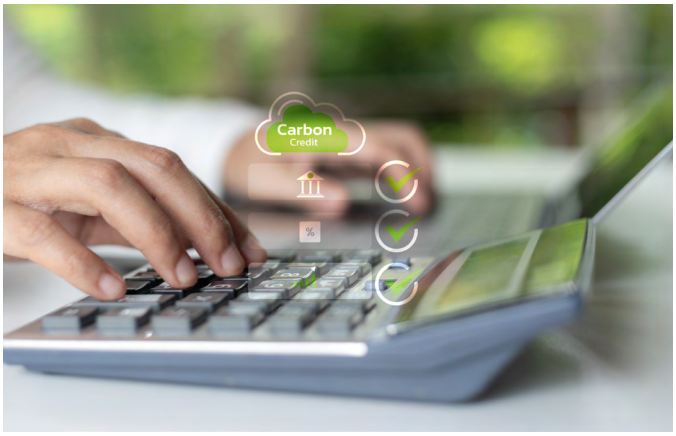
Integrating climate adaptation into the curriculum creates opportunities to embed justice, decolonization, and reconciliation perspectives within existing programs and courses, while also strengthening and connecting to ongoing climate, biodiversity and sustainability education initiatives across Canadian post-secondary institutions.

This curriculum brief is not prescriptive. It is intended to provide a catalyst for dialogue about curriculum revisions in Accounting programs in Canada and can be used as a starting point to consider possible content and pedagogical approaches. It is organised into four sections:

1. **The Curriculum Challenge** - an overview of the relevance of climate change to accounting education
2. **Climate Change Competencies** - a list of competencies based on current accreditation guidance and Canada's Climate Action Competency Framework (CACFv2)
3. **Further Reading** - a bibliography of current literature on climate change and accounting education
4. **Resources** - websites, toolkits, guidebooks and other resources that can be used to develop teaching/learning activities for accounting courses

1 - The Curriculum Challenge

Canada's National Adaptation Strategy asserts the hope that by 2027, 70% of all practicing accountants will have "the capacity to apply climate change adaptation tools and information and communicate the business case for adaptation measures to their clients or target audiences." To meet this target, it is critical that undergraduate accounting programs work on the integration of climate education (alongside sustainability education) into the curriculum and existing competencies required by accreditation bodies.



The impetus for addressing climate change in post-secondary accounting programs is quite clear:

- CPA Canada identifies two forms of risk climate change presents for the financial sector, both of which are relevant for accounting education programs:

  Transition Risks: *"Transition risks are risks arising from the transition to a low-carbon economy, including risks from new regulatory requirements, enforcement proceedings and civil litigation, the use of new technologies for reducing emissions, market pressure due to changes in demand and supply for goods and services and reputational risks as customer and community views preferences adjust."*

  Physical Risks: *"Physical risks include acute risks such as damage to assets and disruption of operations caused by more frequent and severe extreme weather, including from wildfires, heat waves, flooding and storm surges, and chronic risks due to changes in water availability and quality, biodiversity and sea levels*." (CPA Canada, 2022)
- CPA BC notes that Canada will soon be following in the footsteps of Europe and integrating ESG (Environmental and Social Governance) reporting into standard reporting, and that all Canadian CPAs need to develop the skills to do this. (CPA BC, Nov 2024) In the same article, they highlight that in 2024, Canada announced mandatory climate-related financial disclosures for large, federally incorporated private companies – setting the stage for more widespread adoption of this practice, and the need for preparation of new graduates to be ready for this.
- A national survey of climate change in accounting, engineering, planning and architecture programs at Canadian universities led by the Waterloo Climate Institute found that the integration of sustainability and climate competencies into accounting programs in Canada is not common. However, 70% of accounting program respondents (directors and faculty) indicated that climate change knowledge and skills are very relevant to their students' careers. See Figure 1 for more information about the survey findings.

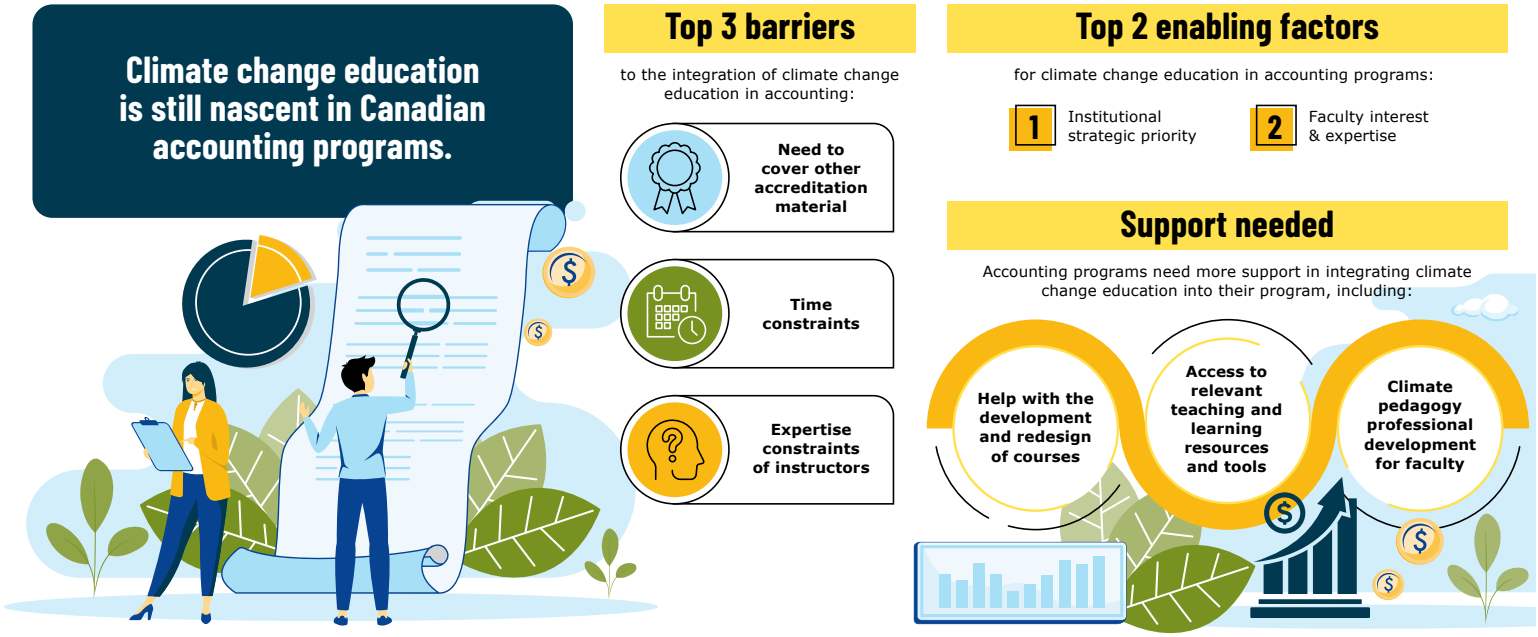


Figure 1. The status of climate change education in accounting programs across Canada

Like many professional degree programs, the accounting curriculum is governed by competencies defined by a professional accreditation body, the Chartered Professional Accountants (CPA) Canada and their related provincial/regional bodies. CPA Canada is very aware of the challenge and considering strategies for integrating climate considerations into the next iteration.

In the meantime, accredited accounting programs across Canada are exploring strategies to incorporate sustainability and climate change considerations into their course offerings, albeit with limited resources and guidance. Galluscio et al. (2020) report on the urgent need for more research on climate change and accounting, including on reporting, risk management, and management practices, which would also provide useful resources and guidance for curriculum development.

Clearly, there is a bit of mismatch between the acknowledgment of the importance of climate change considerations in the professional accounting profession and the limited attention this crucial issue currently has in accredited undergraduate and graduate accounting programs in Canada. Climate change can be integrated in different ways including:

1. Requiring a core/mandatory course on sustainability and climate change
2. Integrating climate change and sustainability competencies into existing courses
3. Collaborating with other faculties to develop new interdisciplinary courses and/or encouraging students to take climate courses offered by other faculties
4. Looking at ways to incorporate extra-curricular climate learning opportunities on campus into existing core courses

2 - Climate Change Competencies for Accountants

What climate change knowledge and skills should accountants have?

CPA Canada's competency maps make reference to sustainability learning outcomes that provide opportunities for integrating climate change education into the accounting curriculum. For example:

Table 1. Alignment between CPA sustainability outcomes and climate education opportunities

CPA Sustainability Outcome	Opportunities for climate education
a) Explains the role of the board in an entity's social responsibility and sustainability strategy	• Teach how boards govern climate-related risks and why accurate climate data from accountants matters. • Show how a board's climate strategy affects valuations, provisions, and other accounting judgments. • Introduce reporting frameworks and how boards rely on them for transparency. • Connect the board's responsibility for honest sustainability reporting with the accountant's ethical duties. • Teach how to calculate and verify key indicators used by boards use (e.g., emissions, energy use). • Explain how trustworthy climate reporting supports board decision-making and requires accountant involvement.
b) Explains the potential impact of emerging issues, sustainability and technologies in strategy and governance	• Explore how new regulations, climate impacts, and stakeholder expectations shape strategy. • Teach how boards embed sustainability considerations into oversight, risk management, and decision-making. • Demonstrate how digital tools and new technologies (e.g., emissions tracking, AI analytics) support sustainable strategy and governance.
c) Assesses the impact of decisions on the entity's sustainability	• Teach how decisions affect environmental impacts like emissions, resource use, and waste. • Investigate social impacts (e.g. how choices influence employees, communities, and other interest holders).

(Note: This table was generated with support from ChatGPT on December 8, 2025)

CPA Canada is updating its' competencies to include more sustainability content, and this will provide more opportunities for consideration of climate action through an accounting lens. Table 2 (below) provides a summary of these new foundational competencies and a list of possible activities and/or assessments that instructors might consider using to teach them.

Table 2. Climate education activities aligned with new CPA Canada foundational competencies

New Foundational Competencies from CPA Canada	Examples of climate education activities or assessments
Describe the role of sustainability in business and organisations	• Review a short case of a company with sustainability or climate goals and identify how those goals influence operations, costs, and strategy. • Examine a real company's sustainability report and present 2–3 ways sustainability and climate action shapes its business decisions. • Debate whether sustainability creates value or cost for businesses, helping them articulate its role in modern organisations.
Describe key terms and concepts related to sustainability including environmental, social and governance (ESG), planetary boundaries, ecosystems, natural assets and public sector regulation	• Match sustainability terms (ESG, planetary boundaries, ecosystems, natural assets, regulation) to simple definitions and real-world examples. • Create mind maps showing how key concepts connect (e.g., how planetary boundaries relate to ESG risks). • Critically examine a key accounting article or text to consider if any of these concepts are addressed. • Undertake a group project to identify how climate and sustainability terms are relevant to a real-world case study/example.
Explain the need to protect and preserve natural resources, biodiversity and the delicate balance of Earth's ecosystems	• Analyze a scenario where resource depletion or climate change affects asset values, provisions, or future cash flows, and explain why preserving natural resources reduces financial risk. • Compare the financial impact of practices that reflect business as usual vs climate mitigation and resilience to understand how environmental protection and climate action ties into cost management and long-term profitability. • Review a sample annual or sustainability report to identify climate-related risks and discuss why companies must disclose and manage these impacts to maintain sustainable operations. • Visit a natural area and learn about how it is financially managed, including actions to mitigate and adapt to climate change.
Explain the importance of planetary boundaries and ecosystems in achieving sustainability	• Link each planetary boundary (e.g., climate, freshwater use, biodiversity) to specific business and financial risks (asset impairment, supply-chain disruptions, compliance costs), showing why staying within boundaries supports long-term value. • Using a business as a case study, identify key ecosystem services it relies on (water, soil fertility, forests, pollination) and explore how climate change might impact them, and how the loss of these services would affect costs, revenues, and sustainability reporting. • Critically analyse a company's sustainability or annual report to locate references to ecosystem impacts or natural resource dependencies and their importance.

Describe how sustainability practices can enhance business reputation, reduce risks, attract investment and contribute to long-term success	• Review an exemplary company and investigate how sustainability/ climate action practices improved reputation, reduced risks, and attracted investors. • Analyze hypothetical scenarios showing how sustainable practices (e.g., energy efficiency, climate resilience efforts, waste reduction) affect costs, risk exposure, and long-term profitability. • Explore how sustainability and climate practices might influence the perceptions of key interest groups (investors, customers, regulators) and support of the business, linking it to long-term strategic success.

(Note: This table was generated with support from ChatGPT on December 8, 2025)

As another resource for curriculum development, Natural Resources Canada suggests using the Climate Action Competency Framework (CACF v2) to help develop program and course learning outcomes for accounting education. This framework was developed by the Resilience by Design Lab at Royal Roads University in collaboration with many partners from academic, industry and government. The framework is organised under 6 themes: 1) Working Together; 2) Climate Action Leadership; 3) Capacity Building; 4) Climate Risk Assessment; 5) Solution Design; and 6) Effecting Change.

3 - Further Reading on Sustainability/Climate in Accounting & Finance Education

André, R. (2020). Teaching climate leadership: Promoting integrative learning in courses on strong sustainability. Journal of Management Education, 44(6), 766-793.

Belinga, R., & Morsing, M. (2020). Teaching Sustainable Finance. Stockholm School of Economics, 26. Available at: https://www.hhs.se/contentassets/0442e753dd9e45f6b3e0aa79c24b1126/teaching-sustainable-finance-2020_misum_rachelle-belinga_final2.pdf

Boulianne, E. and Keddie, S.L. (2018), "Where Is Sustainability within the Canadian CPA Education Program?", Sustainability Accounting (Advances in Environmental Accounting & Management, Vol. 7), Emerald Publishing Limited, Bingley, pp. 71-112. https://doi.org/10.1108/S1479-359820180000007004

Bunch, K. J. (2020). State of undergraduate business education: A perfect storm or climate change?. Academy of Management Learning & Education, 19(1), 81-98.

Canevari-Luzardo, LM, Berkhout, F, Pelling, M. (2020). A relational view of climate adaptation in the private sector: How do value chain interactions shape business perceptions of climate risk and adaptive behaviours? Bus Strat Env. 29: 432– 444. https://doi.org/10.1002/bse.2375

Cho, C.H., Kim, A., Rodrigue, M. and Schneider, T. (2020), "Towards a better understanding of sustainability accounting and management research and teaching in North America: a look at the community", Sustainability Accounting, Management and Policy Journal, Vol. 11 No. 6, pp. 985-1007. https://doi.org/10.1108/SAMPJ-08-2019-0311

Collier, E., Odell, K. E., & Rosenbloom, A. (2022). Teaching sustainable development: An approach to rapidly introducing the UN sustainable development goals into an undergraduate business curriculum. Journal of Global Responsibility, 13(4), 361-379.

De Aguiar, T. R., & Fearfull, A. (2010). Global climate change and corporate disclosure: Pedagogical tools for critical accounting?. Social and Environmental Accountability Journal, 30(2), 64-79.

Edwards, M., Brown, P., Benn, S., Bajada, C., Perey, R., Cotton, D., ... & Waite, K. (2020). Developing sustainability learning in business school curricula–productive boundary objects and participatory processes. Environmental Education Research, 26(2), 253-274.

Ferdous, L. T., Rakeeb, F. R., & Wakefield, L. (2024). Incorporating Climate Change and Disaster Education into Accounting Curriculums. In Disaster and Climate Risk Education: Insights from Knowledge to Action (pp. 109-128). Singapore: Springer Nature Singapore Gulluscio, C., Puntillo, P., Luciani, V., & Huisingh, D. (2020). Climate change accounting and reporting: A systematic literature review. Sustainability, 12(13), 5455.

Hay, R., & Eagle, L. (2020). Impact of integrated sustainability content into undergraduate business education. International Journal of Sustainability in Higher Education, 21(1), 131-143.

Hindley, A. (2022). Understanding the gap between university ambitions to teach and deliver climate change education. Sustainability, 14(21), 13823.

Hoffman, A. J. (2021). Business education as if people and the planet really matter. Strategic Organization, 19(3), 513-525.

Hong, H., Karolyi, G. A., & Scheinkman, J. A. (2020). Climate finance. The Review of Financial Studies, 33(3), 1011-1023.

Khosa, Amrinder; Pandey, Rakesh; Wilkin, Carla (2023). Accounting curricula and climate crisis: Evidence from Australia and New Zealand. University of Tasmania. Conference contribution. https://hdl.handle.net/102.100.100/599580

Li, H., & Cui, J. (2025). Educating future accountants: a cross-curricular, flipped classroom approach to integrating global warming knowledge into an accounting curriculum. Humanities and Social Sciences Communications, 12(1), 1-11.

Martin, M., Sanderson, J. and Diouri, M. (2025). The Status of Climate Change Education in Canadian Accounting, Architecture, Planning and Engineering Programs. University of Waterloo Climate Institute.

Molthan-Hill, P., Hope, A., & Welton, R. (2020). Tackling climate change through management education. The SAGE Handbook of Responsible Management Learning and Education. London: SAGE, 165-183.

Powell, L., & McGuigan, N. (2024). Looking within: cultivating compassion for shaping sustainable mindsets in accounting education. Meditari Accountancy Research, (ahead-of-print).

Sabuncu, B. (2024). The effects of climate change on accounting and reporting. In New Approaches to CSR, Sustainability and Accountability, Volume V (pp. 293-307). Singapore: Springer Nature Singapore.

Sroufe, R., Hart, S. L., & Lovins, H. (2021). Transforming business education: 21st century sustainable MBA programs. Journal of Management for Global Sustainability, 9(1), 3.

Twyford, E. J., Musundwa, S., Tanima, F. A., & George, S. (2024). Bridging the gap: sustainable development goals as catalysts for change in accounting education and society. Meditari Accountancy Research, 32(5), 1758-1786.

4 - Resources

CPA Canada:

- CPA Briefs on Climate Change and Accounting/Business:
  - Brief 1: Climate Change and Canadian Business: The Good, the Bad, and the Realistic.
  - Brief 2: Four Ways Climate Change is Affecting your Organisation... and what you can do.
  - Brief 3: The Five Stages of Climate Change Adaptation and Roles for Accountants.
- Business Case Studies on Adapting to Climate Change:
  - Frontiers North Adventures.
  - Translink.
  - Mountain Equipment Co-op.
- A role for audit committees in oversight of climate change (2022)
- Nature is Everyone's Business (2022).
- Understanding Voluntary Carbon Markets (2023).
- Net zero disclosures: Challenges and opportunities (2022).
- Disclosing the impacts of climate change: A process for assessing materiality. (2019).
- Climate-related risks of an audit of financial statements: Audit and assurance alert (2021).
- GHG emissions management: Linking strategy, risk, & performance management (Guideline) (2021).

Government of Canada:

- Canada's Climate Adaptation Platform.
- Canada's National Adaptation Strategy: Building resilient communities and a strong economy. (2023) https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/national-adaptation-strategy.html.
- 2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy.(2022). https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/climate-plan-overview/emissions-reduction-2030.html.
- Climate Change Strategies and Initiatives.
- Canada in a Changing Climate Reports.
- Canada's Fourth Biennial Report on Climate Change to the UNFCC (2022).

Useful tools and websites:

- The University of Waterloo's HUB for Sustainability Integration, a platform bringing together initiatives to embed sustainability into every business decision across industries, organisations and geographies.
- Accounting for Sustainability website and the A4S Guide: Valuations and Climate Change (2021).
- C40 Knowledge Hub. Finance and Economics.
- Canadian Climate Institute. Climate Costs Tracker.
- Climate Insight – platform for climate ready housing and infrastructure in Canada – section on costs here.
- CanAdapt - a collective of Canadian professionals, organizations, and networks working to help Canadian communities and industries adapt to climate change and become more sustainable.
- Federation of Canadian Municipalities. Climate and Sustainability.
- UNCCe-Learn: Free online module: Carbon Taxation.
- World Bank. (2021). Assessing the benefits and costs of nature based solutions for climate resilience. Available here.