

Nature stewardship on your campus as a source of learning, action, and belonging

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Land acknowledgement

Land acknowledgment and personal connection

I work in Toronto (Treaty 13), the traditional land of the Wendat (Huron), the Seneca, and the Mississaugas of the Credit.

Which of these is Garlic Mustard?



Photos: Ken Towle, from <https://www.invadingspecies.com/invaders/plants/garlic-mustard-2/>

Assignment overview

- Year 1: Integral Calculus (MAT136)
- Not for math, stats, CS majors
- Fall 2023
- Lived experience
- Math knowledge
- Community context

Assignment Question

Let a_n be the population of garlic mustard n years after 2023. Is this sequence increasing? Decreasing? Monotone? Bounded? Convergent?

Explain briefly in a way that a non-technical audience can understand.



Math knowledge

Assignment Question

Let $b_n = 100 \cdot 2^{n/4}$. Is this sequence increasing? Decreasing? Monotone? Bounded? Convergent?

Does this agree with your experience in the previous slide? Why or why not?



Two way translation lived experience and Math knowledge

- This anchors students' thinking.
- Gives them two complementary modes of thinking.
- Contextualizes knowledge (both ways!).

Central problem in assignment

Find the minimum percentage of garlic mustard that must be culled every year so that the amount of garlic mustard does not increase.



- Students extract key facts from a scientific fact sheet.
- Students are invited to a Garlic Mustard cull in their community.
- Final assignment summary question:

Assignment question

Briefly propose a policy to UTM that details the minimum percentage of garlic mustard that must be culled every year so that the amount of garlic mustard does not increase.

Your policy proposal should include justification, with a source, for why it is important to limit the spread of Garlic Mustard on campus.

Why this assignment works

- Knowledge and tasks have local context.
- See, smell, taste the math.
- Empowers students to make a difference.
- Knowledge is actionable.
- “Bullshit reading” part is short, directly relevant.
- “Bullshit writing” part is short, gives students power.

Next steps for you

- **In Ontario, Quebec, Atlantic Canada?** Use this assignment as-is (find your local culls).
- **In Prairies?** Shepard's Purse or Kochia.
- **In BC?** Purple loosestrife or Emerald Ash Borer.

Thank you! Mike Pawliuk (UTM), m.pawliuk@utoronto.ca.



Invasive species centre (Garlic Mustard) with videos, fact sheets, how to start a cull, etc.

<https://www.invasivespeciescentre.ca/invasive-species/meet-the-species/invasive-plants/garlic-mustard/>

Manitoba Master Gardener Association (Invasive Plants)

<https://www.mgmanitoba.com/invasive-plants-weeds/>

Invasive Species council of BC

<https://ibis.geog.ubc.ca/biodiversity/eflora/EFLORAinvasivespeciespage.htm>