UCSD Climate Change Course and Pro-Environmental Behavior among Undergraduate Students

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Objective

To examine the influence of climate change courses offered to undergraduate students at UC San Diego on fostering pro-environmental behavior related to climate change

Introduction

- Between 2030-2050, climate change (CC) is expected to cause approx. **250,000 additional deaths** per year[1]
- CO2 emissions account for **80%** of all US greenhouse gas emissions due to human activities which is major contributor to climate change outcomes (EPA)[2]
- UCSD created a solution to require climate change education for all undergraduate students beginning with freshman admitted in Fall 2024 but excludes transfer students[3]
- Research shows effective climate change education (CCE) can influence behavior, but there is no current research on whether UCSD's current CCE affects undergraduate students' behavior
- We hypothesize that those who have taken at least one undergraduate climate change course will engage in more pro-environmental behavior

Methods

- A 15 question cross-sectional anonymous online Qualtrics survey was distributed to UCSD undergraduate students in-person at Geisel Library, as well as on online platforms including Discord and Reddit
- Inclusion criteria = current UCSD undergraduate student
- Data Collection occurred during April 2024
- **Exposure Variables:** Whether or not student has completed an undergraduate climate change course
  - Yes = they have taken CC course(s) at UCSD
  - No = they have not taken CC course at UCSD
- **Outcome Variable:** Pro-environmental behavior change
- Demographics, behavior change, and completion of a CC course were surveyed
- Ordinary least squares (OLS) regression analysis was conducted in R Statistical Software (Version 4.4.0)

Results

- Participants who had taken a CC course (58.3%) and participants who had not taken a CC course (41.7%) were mostly upper classman (78.7%) and female (73.1%; **Table 1)**
- Those who had taken a CC course scored higher in pro-environmental behavior change (3.31 vs 2.93 [95%CI = 0.04, 0.72]; **Figure 1)**
- To assess the association between whether or not a participant has taken a CC course and their pro-environmental behavior change, OLS regression was run with adjustment for sex, race/ethnicity, undergraduate level, and major. Compared to participants who had not taken a CC course, those who had taken a CC course were observed to have increased behavior change scores (B 0.38 [95%CI = 0.03, 0.73], p = 0.034; Table 2)

Table 1: Sample Population Characteristics

Characteristic	N = 108†
Taken climate change course	
No	45 (41.7%)
Yes	63 (58.3%)
Sex	
Male	29 (26.9%)
Female	79 (73.1%)
Undergraduate level	
Lower Classman	23 (21.3%)
Upper Classman	85 (78.7%)
Race/Ethnicty	
White	43 (39.8%)
Asian	42 (38.9%)
Hispanic	11 (10.2%)
Multiracial/Other	12 (11.1%)
Major	
Public Health	43 (39.8%)
Non-Public Health	65 (60.2%)

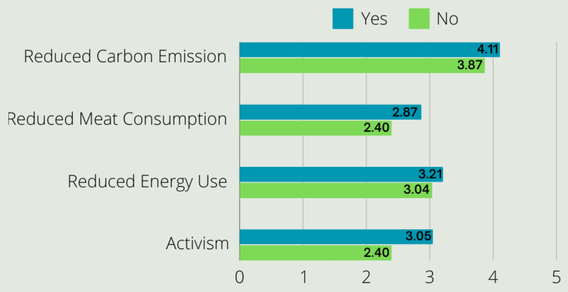
† n (%)

Table 2: Linear regression analysis

Characteristic	Beta	95% CI†	p-value
Taken Climate Change Course			
No	—	—	
Yes	0.38	0.03, 0.73	0.034
Sex			
Male	—	—	
Female	0.13	-0.27, 0.53	0.52
Race/Ethnicity			
White	—	—	
Asian	-0.05	-0.43, 0.33	0.81
Hispanic	0.26	-0.35, 0.87	0.40
Multiracial/Other	0.26	-0.31, 0.83	0.37
Undergraduate Level			
Lower Classman	—	—	
Upper Classman	-0.26	-0.69, 0.17	0.23
Major			
Public Health	—	—	
Non-Public Health	-0.14	-0.52, 0.24	0.47

† CI = Confidence Interval

Figure 1: Mean scores of each behavior



- 0 = strongly disagree
- 5 = strongly agree (higher scores indicate more pro-environmental behavior change)
- Average score for 'Yes' group = 3.31
- Average score for 'No' group = 2.93

Conclusions

- Those who have taken a CC course at UCSD engage in more pro-environmental behavior change compared to those who have not taken an undergraduate CC course
- After adjusting for confounding variables, with public and non-public health majors, our results show that non-public health majors were observed to have slightly decreased pro-environmental behavior change, however this was not statistically significant B-0.14 [95%CI = -0.052, 0.24], p = 0.47)

Policy Implications

- UCSD should require CCE for transfer students to encourage more pro-environmental behavior change
- Behavior change evidence should be studied across all UC schools and presented to the UC Board of Regents to establish CCE requirements throughout the UC system

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References

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