

Teaching,



Learning



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Centre for Climate Studies



COURSES

CM 621

Ocean Dynamics

Enrolment: 13

A theory-heavy graduate class exploring ocean circulation patterns and how they influence earth's climate.

CM 402

Earth's Climate: Past, Present, and Future

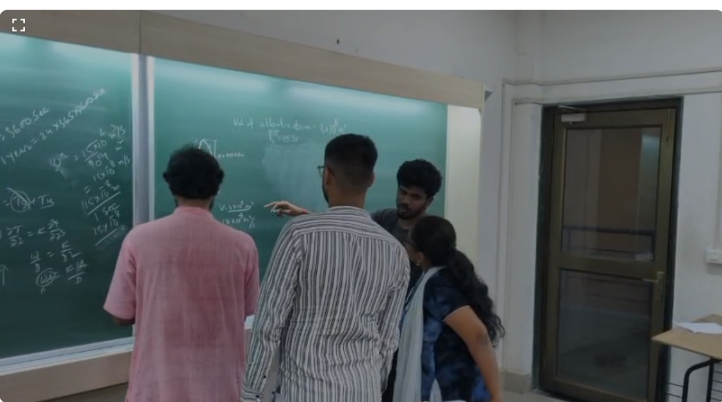
Enrolment: 59

An undergraduate elective class focusing on the theory of climate and how it has changed over the earth's history.

CM 621

Peer Learning

Was great as a formative assessment tool. I was able to talk to each group and give them immediate feedback.



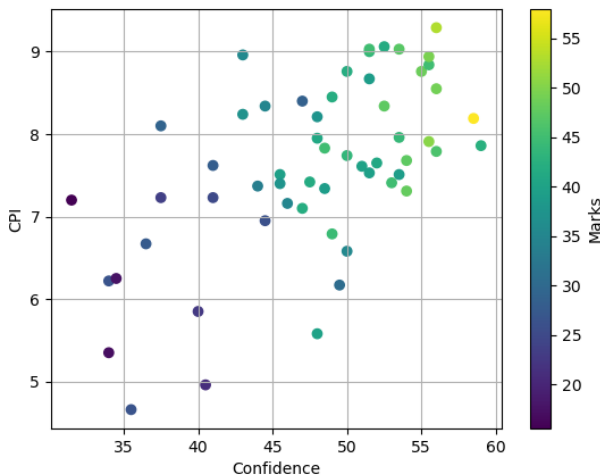
Confidence-Graded Assessment

Confidence Level	If Correct	If Incorrect
1.0 (High Confidence)	+1.0 Point	-0.5 Points
0.5 (Low Confidence)	+0.5 Points	0 Points

How to choose your Confidence Level:

- **Select 1.0** if you are certain or very likely to be correct. Note that a wrong answer at this level will reduce your total score by 0.5.
- **Select 0.5** if you are unsure or making an educated guess. There is **no penalty** for a wrong answer at this level, but the reward for a correct answer is halved.
- **Blank Answers:** Result in 0 points. Since there is no penalty for an incorrect answer at the 0.5 level, it is in your best interest to provide an answer for every question.

- Challenged students to evaluate their own understanding and highlighted critical gaps between perceived and actual mastery.
- Required students to pair every structural answer with a declared confidence level.
- High confidence with a correct answer earned full points; high confidence with an incorrect answer incurred a penalty.



Confidence range: 30-60, Marks range: 0-60

Alignment of confidence and marks indicated students were self-aware of their cognition.

COMMON PRACTICES

Intended Learning Outcomes (ILOs)

Every lesson began by defining measurable milestones. The assessments were designed to ensure that the students met the milestones. This transparent mapping ensured students identified exactly what skills they were meant to acquire.

Intended Learning Outcomes

- After taking this course, students will have a thorough understanding of vertical structure of the ocean, its large-scale circulation, and ENSO dynamics.
- They will also become proficient in analysis of oceanic datasets.
- They will be able to setup and run numerical simulations of ocean circulation scenarios

Backward Design

Course structures were systematically mapped from the endpoint forward: mapping out final competencies first, followed by objective grading criteria, and finally formulating daily lecture schedules.

CM 402

Two-Stage Exam (2/3-1/3 split)

- Implemented solo and cooperative modules back-to-back during midsem and endsem.
- Solo module measured absolute mastery, while immediate re-test as a team addressed blind spots via instant peer learning.
- Partially transforms a summative assesment into a formative one.



STUDENT VOICES

10. Please suggest improvements, if any, to course delivery or on any other related matter.

- great teaching. nothing can be better than this
- Nil
- More group based activities
- Really enjoyed the way the theory was covered with real world applications and how the oceans behave - sort of establishing a correlation between the equations we derive and how the oceans behave. Please continue that for the next iterations of the course
- NA
- Sweetest prof around - derives from scratch and keeps at it till he gets it. He's an inspiration to observe in lectures. Quizzes and discussions always thought-provoking. 13/10 for this man.
- It would have been helpful if we had received more exercises during the class or as assignments.

5. What did you like/dislike about the course? Please include any specific comments regarding the course, the course contents and the assessments.

- This is a very nice course that has been offered. It was helpful.
- board work
- -
- Midsems felt tougher for an UG student, especially since it was their first time taking up this domain.
- Loved the assignments on ARGOS. The reference books were real good. Course covered a lot efficiently.
- Need more simulations, group based activities
- As someone without a background in climate science, I found some of the topics a bit challenging to follow. The group quizzes were especially helpful, as they made the material easier to understand and discuss.