

**Ph.D. in Earth System Science
Learning Outcomes**

PLO 1 – Core Knowledge (CK)

- Understand how basic sciences (physics, chemistry, mathematics, and biology) related to the major processes and systems governing Earth's climate, biogeochemical cycles, and global change
- Explain the current and projected future state of the Earth system in the context of past climate change and current human activities
- Acquire a multidisciplinary vocabulary sufficient to understand the scientific literature relevant to Earth system science.

PLO 2 – Research Methods and Analysis (RM&A)

- Understand the methods used to collect and analyze or simulate environmental data, and to interpret results in the context of underlying theory.
- Acquire sufficient specialized knowledge to conduct independent research

PLO 3 – Pedagogy (PED)

- Use pedagogical practices in discussions, lesson plans, and/or lectures to lead a group to improved understanding of scientific material

PLO 4 – Scholarly Communication (SC)

- Effectively communicate scientific knowledge in talks, posters, and manuscripts

PLO 5 – Professionalism (PROF)

- Work collaboratively to understand and address complex problems related to the Earth system

PLO 6 – Independent Research (IR)

- Design and conduct original high quality research