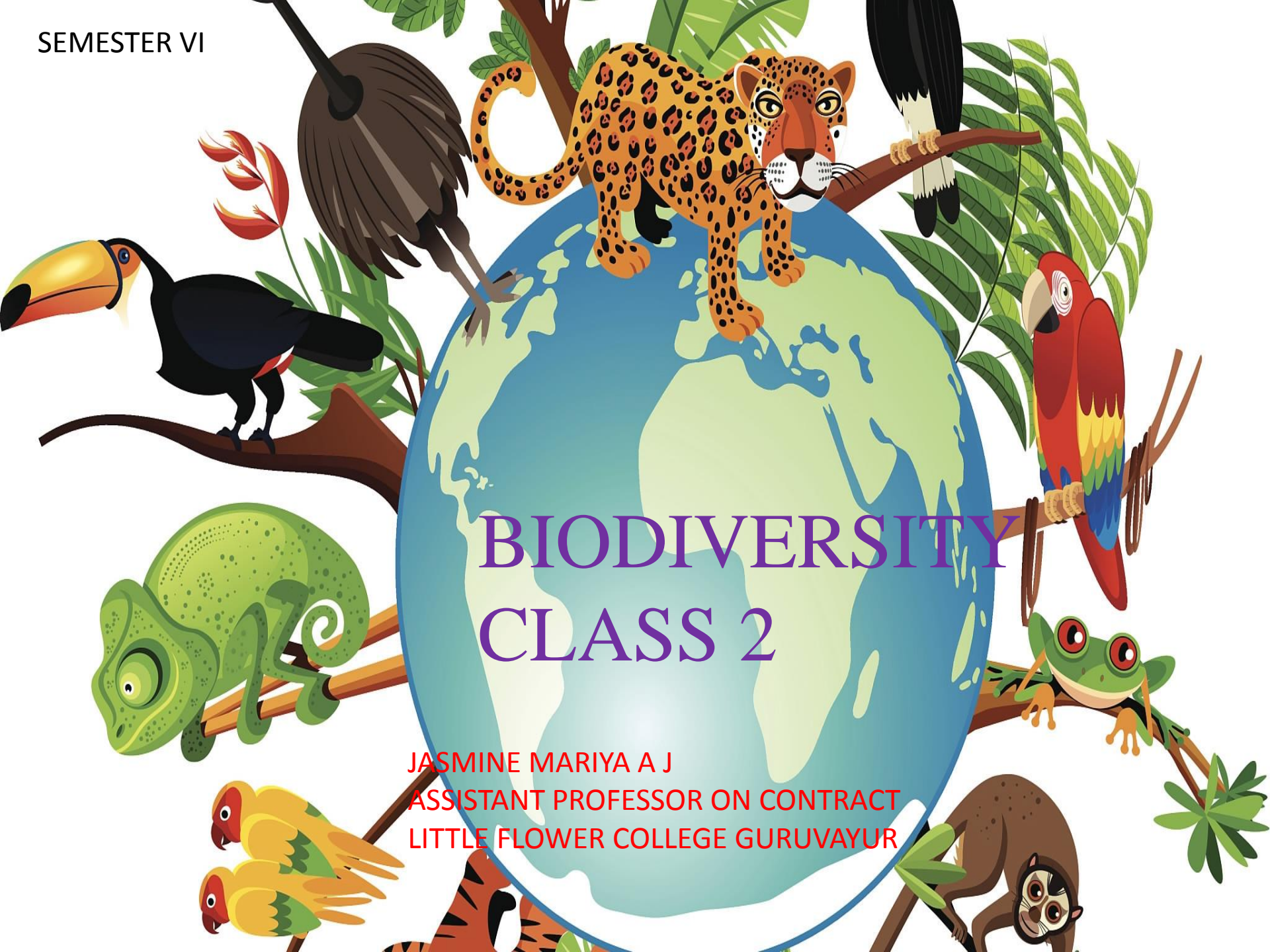


SEMESTER VI



# BIODIVERSITY CLASS 2

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# Levels of biodiversity

- Alpha diversity –
  - ❖ Diversity in species ,i.e. The number of species within a community
  - ❖ Depends on the interaction between biotic and abiotic factors
  - ❖ Also depend on the immigration from oter locations

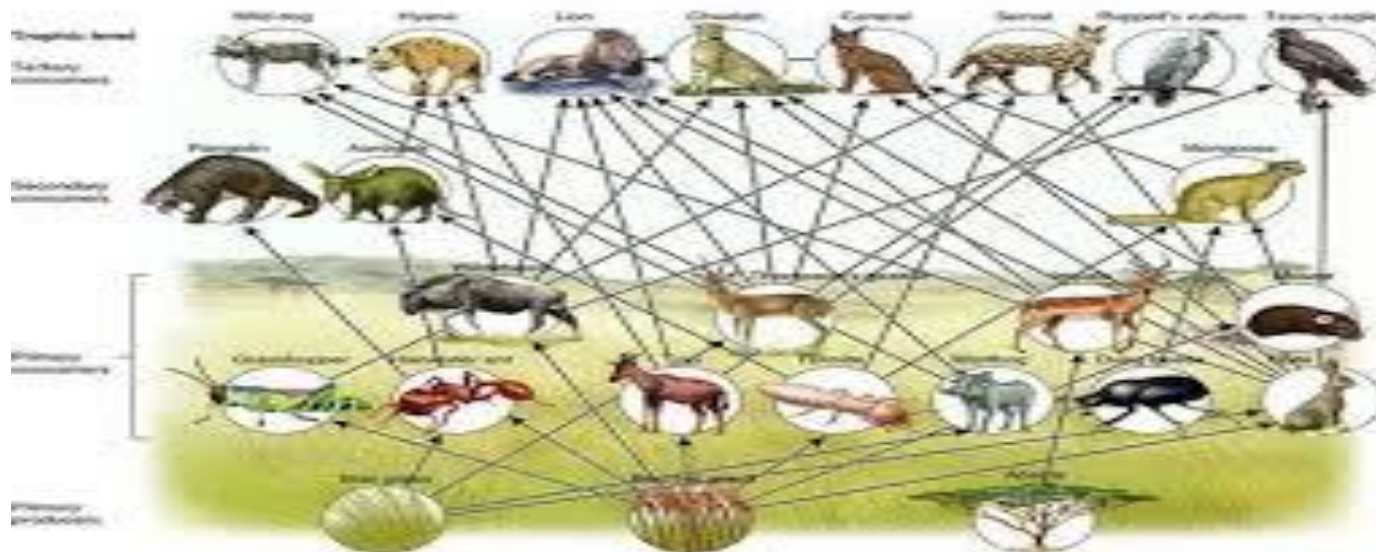
- **Beta diversity** –
  - ❖ Change in composition of species with reference to the changes in the environment
- **Gamma diversity** –
  - ❖ Diversity within several ranges of communities
  - ❖ In this both alpha diversity and beta diversity is measured

# GRADIENTS OF BIODIVERSITY

- Increases with decreases with latitude (from poles to equator)
  - Ice covered polar regions least favourable for the success and survival of species
- Decreases with increase in altitude (from plain to mountain tops )
  - There will be a drop of nearly  $6.5^{\circ}$  C with every 100 m rise in altitude

# SIGNIFICANCE OF BIODIVERSITY

- It makes food chains and food webs more complex
- More complex food chains increases the stability of ecosystems



# Uses of biodiversity

- Satisfies the commercial, industrial, aesthetic and cultural requirements
- Serve as major sources of food, medicines, pharmaceutical drugs, crops, fibres, timber, spices, oils, gums ,resins etc.
- plants are used to make several synthetic products known as *botanochemicals*.
- Provides a vast and most voluble genetic resource or genetic library for mankind



# Ecosystem services or ecological services of biodiversity

- Harvesting and fixation of solar energy
- Maintenance of atmospheric gas composition
- Control of climate
- Maintenance of stable and self-sustaining ecosystems
- Pollination of flowers
- Biological control
- Formation and protection of soil
- Purification and conservation of water
- Recharging of ground water and the protection of water heds from flood and drought
- Regulation of water cycle and nutrient cycling
- Decomposition and cycling of wastes



# VALUES OF BIODIVERSITY

## Direct uses

- *Consumptive value*
  - usefulness of biodiversity in providing goods and materials of the direct use or consumption of man and domestic animals
  - Eg; fisherman depends on marine resources  
wood for fuel



## *Productive use value*

- This is assigned to products that are commercially harvested and marketed

Ex. Drugs and medicines extracted from plants  
honey, bee wax, natural fibers

# Indirect uses

- Energy fixation during photosynthesis
- Gene flow during pollination and sexual reproduction
- Maintenance of water cycle, ground water, etc.
- Soil formation and protection of soil from erosion
- Maintenance of nutrient cycling
- Absorption and decomposition of pollutants
- Regulation of weather and climate

Indirect uses fall under two categories ,

- i) Non consumptive
- ii) Aesthetic, cultural and social values

## i) Non consumptive

- Ecological services
- Ecotourism
- Educational research
- Medical research

## ii) Aesthetic, cultural and social values

- For the beauty of the landscape
- The life indigenous people in many parts of the world still revolve around the forests