

SEMESTER I
LSM4267 ANIMAL COMMUNICATIONS AND SENSORY ECOLOGY

Prerequisite: LSM3267

Workload: 26 lecture hours + 24 practical/tutorial hours

Animals rely on various sensory systems to detect environmental information (i.e. light, sound, odours, and heat). Although organisms rely on stimulus modalities for communication, we often fail to detect and understand their biological functions due to our limited sensitivity range (e.g. ultraviolet, ultra-infrasound) and the lack of specialized receptors (e.g. electro- and magnetoreception). This module will introduce: (i) the array of signals (from a physical and biological perspective) and (ii) the relevant technologies/methodologies involved in accurate detection, quantification/characterisation of animal/plant signals, (iii) research papers that involves signal quantification. Students are then expected to think about hypotheses relating to animal-animal and animal-plant communications from interdisciplinary sciences (e.g. behaviour, evolution, conservation, optics, agriculture, etc) and conduct a simple experiment that involves signal quantification. Some relevant industrial applications will also be introduced.

S/N	Tentative Topics	Lecture hours
1	Diversity & Questions on Animal/Plant Signals	
2	Signal Production, Propagation & Reception (i) Sound (ii) Light (iii) Chemical*	
3	Signal Detection & Analysis: measuring (i) Acoustics (ii) Light (iii) Chemical*	
4	Animal 'Supersense': (i) Magnetoreception (ii) Electroreception (iii) Infrared/heat reception (iv) Vibrations (v) Hydrodynamic stimuli	
5	Biological & Industrial Applications:	
Total Lectures:		26h
Practicals/Tutorials:		24h
Total hours:		50h

*TBC

REFERENCES (Recommended text*):

Principles of Animal Communication (Authors: JW Bradbury & SL Vehrencamp) 2e 2011

MODE OF ASSESSMENT: 60% CA; 40% Exam

MODULE CO-ORDINATOR/LECTURER:

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