ΖΩΙ
(ZOI-LIFE)

Dept. of Zoology

Auxilium College (Autonomous)
Vellore-6.

Volume-IX

2025-2026

ZΩI

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Volume – IX

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The Editorial

"Every day is a good day for Learning"

With more hope, more joy and more dreams, PG & Research Department of Zoology brings forth the IX volume of ZΩI – ZOI which means '*Life*' in Greek, for the academic year 2025-2026.

ZOI, our Department magazine, is a testimony of the academic, extracurricular and formative programs of the Students and Faculty of the Zoology Department. ZOI aims to bring out the best in our students' creativity by encouraging and supporting their ideas, talents and potentials.

We are grateful to the Lord Almighty, for enabling us through those days that felt impossible. May his blessings and grace help us to cultivate fine young minds by walking with them and learning with them.

On behalf of the faculty,

Dr. J.S. Arockiamary
Associate Professor
Department of Zoology, Auxilium College,
Vellore – 632006

CONTENTS

STAFF CORNER

KINGFISHERS - LIVING GEMS

Dr. Mary Agnes A., Head and Associate Professor,
PG & Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

Kingfishers are living Gems, ornaments in the air. Their vibrant blues and greens catch the light as they hover, wings beating so fast they seem almost still. For a moment, they hang above the water, alert and precise, then streak downward in a sudden flash. The river breaks, closes again, and the bird rises, swift and shining, carrying the water's secret in its beak.

The classification is as follows,

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Coraciiformes
Suborder: Alcedines
Family: Alcedinidae

There are about 118 species of Kingfisher, noted for their spectacular dives into water. They are worldwide in distribution but are chiefly tropical and not found in Antarctica. Kingfishers, ranging in length from 10 to 42 cm, have a large head, a long and massive bill, and a compact body and feet are small. They are brilliantly coloured, vocal and are renowned for their dramatic hunting techniques. Their eyes are protected by membranes that help them dive into water and locate their prey. Their eyes can also adjust to the light refracting from the water surface, helping them gauge the depth of a water body.

Kingfishers are renowned for the insanitary conditions of their nests, which become littered with droppings, pellets and fish bones. Many young kingfishers die within days of fledging, their first dives leaving them waterlogged so they end up drowning. Because of the high mortality of young, kingfishers usually have two or three broods a year, with as many as 10 in a brood. These colourful birds feed on fish, shrimps, crabs, and insects such as beetles, cicadas, wasps, small snakes, lizards and frogs. The largest kingfisher Kookaburra, is found in Australia known for its laughing call.

India is home to 12 species of kingfishers. Most of them are designated as Least Concern from a conservation point of view; the Blyth's Kingfisher being the only resident species that has a Near-threatened conservation status. The population trend for a majority of the species is decreasing. Fragmentation of forest land and pollution of water bodies is greatly affecting their local populations.

KINGFISHERS FOUND ACROSS THE GLOBE.

		
Chloroceryle amazona **Amazon kingfisher**	***Alcedo euryzona*** **Javan blue-band kingfisher**	***Ceyx fallax*** **Sulawesi dwarf kingfisher**
		
Pelargopsis macropterus **Brown-winged kingfisher**	***Tanysiptera galatea*** **Paradise kingfisher**	***Todiramphus godeffroyi*** **Marquesan kingfisher**
		
Dacelo novaeguineae **Laughing kookaburra**	***Halcyon chelicuti*** **Striped kingfisher**	***Tanysiptera sylvia*** **Buff-breasted paradise kingfisher**
		
Chloroceryle americana **Green kingfisher**	***Todiramphus pyrrhopygius*** **Red-backed kingfisher**	***Megaceryle maxima*** **Giant kingfisher**

KINGFISHERS OF INDIA		
		
Ceyx erithaca **Oriental Dwarf kingfisher**	***Ceryle rudis*** **Pied kingfisher**	***Megaceryle lugubris*** **Crested kingfisher**
		
Pelargopsis amauroptera **Brown-winged kingfisher**	***Halcyon pileate*** **Black-capped kingfisher**	***Todiramphus chloris*** **Collared kingfisher**
		
Alcedo atthis **Common kingfisher**	***Alcedo Hercules*** **Blyth's kingfisher**	***Alcedo meninting*** **Blue-eared kingfisher**
		
Pelargopsis capensis **Stork-billed kingfisher**	***Halcyon coromanda*** **Ruddy kingfisher**	***Halcyon smyrnensis*** **White-throated kingfisher**

MASTERS OF NOCTURNAL LIFE

Dr. Arockiamary J.S., Associate Professor,
PG and Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

Owls are intriguing birds that easily capture the attention and curiosity of bird watchers. With over 200 species found across the globe, Owls have adapted to nearly every ecosystem on the planet. There are 134 known species of owls in the world, with the Eurasian eagle owl being the largest and the elf owl being the smallest. Although owls share many of the same characteristics, there are some notable differences in behavior between species. Two-thirds of owl species are nocturnal and the remaining third are diurnal.

They possess a suite of intriguing traits that make them masters of nocturnal life. Owls are a diverse and captivating group of birds known for their unique physiological adaptations, specialized hunting techniques, and rich presence in human culture and mythology. The oldest known owl fossils are from the Miocene, which occurred 38 to 54 million years ago. Though typically solitary outside of the breeding season, some owl species will congregate. A group of owls is known as a "*parliament*," possibly because of their wise and studious reputation.

Owls have one of the most highly developed auditory systems in the animal kingdom. Many species, like the barn owl, possess asymmetrical ear openings, with one ear set higher than the other. This allows the owl to precisely triangulate the location of sounds, even those made by a tiny rodent under a foot of snow or hidden in dense vegetation. Their flat, disc-shaped face also acts as a satellite dish, channeling sound waves to their ears.

The feathers on an owl's wings are specially adapted to muffle the sound of their wingbeats. Serrated edges on the primary feathers disrupt airflow, while a soft, velvety texture on the wing surface dampens sound. This stealthy flight allows them to swoop down on unsuspecting prey without warning. Their feathers allow for silent flight and the ability to strike quietly in pursuit of prey, which include animals several times heavier than themselves.

While many owls are nocturnal, others are crepuscular (active at dawn and dusk), and some species, like the Northern Hawk Owl and Burrowing Owl, are diurnal (active during the day). While not blind in the daytime, owls have remarkable night vision. Their large, tubular eyes are fixed in place by a bony structure, giving them a narrow but powerful binocular field of view. To compensate for their immovable eyes, a specialized vascular system and 14 neck vertebrae allow them to rotate their heads up to 270 degrees in either direction without cutting off blood flow to the brain. Their retinas are packed with light-sensitive rod cells, giving them a significant advantage in low-light conditions.

Owlets have heads that are disproportionately heavy for their small bodies, so they often sleep lying face-down on their stomachs. As they grow stronger, they begin to sleep upright like adults.

Owls are opportunistic carnivores whose diet depends on the species and habitat. Most eat small mammals and insects, but some species specialize in fish, while larger owls can prey on larger birds, and small foxes. Smaller birds, which are often prey for owls, will sometimes "mob" an owl by attacking and harassing it in groups to drive it away. When food is plentiful, owls may store or "cache" surplus prey in hiding spots like tree holes or clumps of grass, returning for it later. Owls swallow their prey whole or in large chunks, using their sharp, hooked beaks and powerful talons to kill and tear. Indigestible parts, such as bones, fur, and feathers, are later compacted into a pellet and regurgitated.

Owls are zygodactyl, meaning they have two forward-facing toes and two backward-facing toes. This allows for a powerful, vice-like grip on branches and struggling prey. They can also pivot their outer toe forward to walk on the ground.

Not all owls hoot. Different species have unique calls, including screeches, hisses, barks, and trills, to communicate specific messages. These calls help them find mates, announce territory, or warn of threats.

Instead of building their own nests, most owls will take over abandoned nests made by other birds or find shelter in tree cavities, rock crevices, or even abandoned woodpecker holes. Some, like burrowing owls, live in burrows on the ground.

During the mating season, male owls may bring food to the female as part of their courtship rituals. As a mating display, males may clap their wings together while flying to impress females. Hooting often serves a territorial purpose, signaling the male's presence to other owls.

When alarmed, an owl may stretch its body into a slim, elongated posture to blend in with its surroundings. If threatened, it will reverse the tactic, ruffling its feathers and spreading its wings to appear larger and more intimidating.

Their silent flight, exceptional senses and diverse cultural symbolism contribute to their enigmatic nature.

Eurasian Eagle Owl

Elf Owl

Hawk Owl

Barn Owl

SEMELPARITY

Dr. N. Uma Chandra Meera Lakshmi, **Assistant Professor,**
PG and Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

Semelparity is a reproductive strategy in which an organism reproduces only once in its lifetime and then dies. The term was coined by evolutionary biologist Lamont Cole and comes from the Latin words semel (once) and pario (to beget). It is also known as "big-bang reproduction" because the single reproductive event is usually massive and energetically costly, often leading to the death of the organism. An extreme form of semelparity is called suicidal reproduction, in which the organism invests all its energy into reproduction, sacrificing its own life to ensure the survival of its offspring.

Suicidal Reproduction in Mammals

Suicidal reproduction is rare in mammals but occurs in some marsupials such as Antechinus. In these species, males mate intensely during a very short breeding season. Their bodies release extremely high levels of stress hormones, which suppress the immune system and cause internal bleeding, infections, and organ failure. After mating, the males die.

This strategy is driven by sperm competition. Since the breeding season is short and many males compete for the same females, males invest all their energy into mating rather than surviving to breed again. Although they die, their genes are passed on through successful fertilization.

Suicidal Reproduction in Pacific Salmon

In Pacific salmon, both males and females die after spawning.

Energy depletion: Salmon stop eating once they enter freshwater and use all their stored energy to swim upstream and reproduce.

Physiological sacrifice: Hormonal changes trigger rapid aging and organ failure, leading to death after spawning.

Males die mainly from exhaustion while fighting for mates. Females die after laying eggs, as their bodies become weak and deteriorated. Their dead bodies enrich the river ecosystem, providing nutrients for plants and young fish.

Suicidal Reproduction in Octopus

In most Octopus species, both males and females die after reproduction, but at different times.

Male Octopus: After transferring sperm to the female, males stop eating. Their bodies rapidly deteriorate, and they die within weeks or months.

Female Octopus: After laying eggs, the female guards and cleans them continuously. She stops eating and survives by breaking down her own body tissues. After the eggs hatch, the exhausted female dies from starvation and physical breakdown.

Suicidal Reproduction in Spiders

Spiders show some of the most dramatic examples of suicidal reproduction.

Male Suicidal Reproduction (Sexual Suicide): In widow spiders (Latrodectus), males somersault into the female's mouth during mating, ensuring longer sperm transfer. In some species, males leave parts of their genital organs inside the female to block other males from mating. In Argiope spiders, males may die during copulation due to extreme reproductive effort. These strategies increase the chances that the male's sperm will fertilize the eggs, even at the cost of his life.

Female Suicidal Reproduction (Matriphagy): In Stegodyphus spiders, mothers first feed their young with regurgitated food. Later, the offspring consume the mother's body. This provides essential nutrients and increases the survival of the young, especially when food is scarce.

Suicidal reproduction is a remarkable evolutionary strategy in which organisms sacrifice their lives to ensure the survival of their offspring. Although the parent dies, this extreme investment allows the next generation to thrive. It demonstrates the powerful role of natural selection in shaping life-history strategies and highlights extraordinary parental sacrifice in nature.

THE QUICK AND THE DEAD: UNPACKING THE COCKROACH ESCAPE SYSTEM!

Ms. Anuradha M., Assistant Professor,
PG & Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

The cockroach, an ancient survivor and one of the fastest running insects on Earth, owes much of its evolutionary success to a truly remarkable biological innovation: a dedicated, hardwired neural circuit for escaping danger with almost supernatural speed. This defense mechanism, known as the cercal-Giant Interneuron system (GI system), is a classic model in neuroscience for studying reflex action, sensory processing, and fast behavioral responses. The American cockroach, *Periplaneta americana*, can initiate an escape run in as little as $1/100^{th}$ of a second (10 milliseconds), a reaction time that makes it virtually impossible for a predator to predict.

The Sensory Trigger-The Cercal Wind Detectors: The entire escape sequence begins with an exquisitely sensitive, directional sensory array located at the rear of the cockroach's abdomen- the cerci. The cerci are a pair of small, horn-like appendages covered with hundreds of tiny hairs called filiform hairs. These hairs are perhaps the most crucial component of the system.

Mechanosensory Transduction: Each filiform hair acts as a miniature anemometer. They are mounted on a flexible socket, and their movement is linked directly to a sensory neuron. The

slightest puff of air, such as the air displacement created by an approaching predator, deflects these hairs.

Directional Sensitivity: Crucially, the hairs are highly specialized. They are organized into columns, and the receptor cell associated with each hair is most sensitive to air movement in a specific direction. This precise tuning allows the cockroach to instantly perceive not just that something is approaching, but from what direction the threat is coming. This directional information is the key to executing an effective, opposite turn.

The Central Relay: The Giant Interneurons: The signals generated by the cercal hairs are immediately relayed to the central nervous system (CNS) through a super-fast pathway, bypassing the complex and time-consuming processing of the brain.

The Terminal Ganglion: The sensory neurons from the cerci synapse in the terminal abdominal ganglion. Here, they make electrical and chemical contact with a set of extraordinarily large neurons called the Giant Interneurons.

Properties of GIs: Large Axon Diameter: The GIs have massive axon diameters (up to 50 μm in diameter in the cockroach), which dramatically reduces the electrical resistance and increases the speed of the action potential (nerve impulse). This large size is the reason they are called "giant" and are central to the system's phenomenal speed.

Rapid Integration: The GIs are the dedicated integrators of the escape system. The cockroach has seven bilateral pairs of GIs, each pair preferentially excited by wind from a specific range of directions. For example, some GIs on the left side might fire most vigorously when the wind comes from the left-rear, while others respond best to a frontal stimulus.

Directional Coding: The pattern of firing across the population of GIs acts as a Population Vector Code. The combined activity of the GI population instantaneously informs the downstream motor circuits about the precise angle of the air puff, determining the required escape trajectory.

The Motor Response: Turn and Run: The signal transmission from the cerci to the GIs, and then from the GIs to the motor neurons in the thorax, occurs via a minimal number of synapses, enabling the near-instantaneous response.

Synaptic Transmission: The connection between the GIs and the motor neurons in the thoracic ganglia which control the legs is often mediated by electrical synapses (gap junctions) in addition to chemical synapses. Electrical synapses transmit signals faster than chemical ones, further minimizing the time lag.

The Orienting Turn: Upon receiving the signal from the GIs, the thoracic motor neurons activate the leg muscles. The first and most critical stage of the escape is a rapid orienting turn (a body pivot). The pattern of GI (giant interneuron) firing dictates which legs are activated and with what force, causing the cockroach to rotate away from the threat in a fraction of a second. Studies show that cockroaches utilize a set of preferred escape trajectories (e.g., turns of 90^o, 120^o, 150^o or 180^o away from the stimulus), adding an element of tactical unpredictability for the predator.

Running Initiation: Immediately following the turn, the motor system switches to a high-speed-continuous running phase, allowing the cockroach to flee from the danger zone.

Significance and Broader Implications: The cockroach escape system is a triumph of engineering simplicity and speed.

A Model System: For neuroscientists, it provides a powerful, accessible model for studying the neural basis of a complete behavior, from sensory input to motor output, using a small, identifiable network of cells. Understanding how the GI system achieves sub-10-millisecond reflexes offers insights into the fundamental principles of rapid information processing in all nervous systems.

Bio-Inspired Robotics: The system is also a source of inspiration for robotics and sensor design. The ability of the cercal-GI circuit to use a few sensory inputs to generate a rapid, complex, and directionally appropriate motor command is a template for creating small, autonomous robots that can react quickly and effectively to dynamic environments.

In essence, the cockroach's nervous system has evolved a biological tripwire—a dedicated neural shortcut that prioritizes survival above all else. When a predatory air current trips that wire, the resulting reaction is not a thought-out decision, but a ballistic, lightning-fast reflex that remains one of the fastest and most efficient escape systems in the animal kingdom.

BIOLOGY IN THE AGE OF ARTIFICIAL INTELLIGENCE: A CALL TO EVOLVE…

Sr. Irene Towle, Assistant Professor,
PG & Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

In biology, we teach our students one of the most fundamental truths of life: “Those who adapt, survive and flourish”. Ironically, today it is we the educators who are being called to live this principle more deeply than ever before. Artificial Intelligence, a once distant concept, has quietly entered our classrooms, laboratories, and learning platforms. It now shapes how students access information, conduct experiments, and construct knowledge.

This moment is not just going to be a passing phase, but an evolutionary turning point in education. AI has brought remarkable opportunities to biology teaching: virtual dissections, molecular simulations, genome databases, adaptive assessments, and personalised learning pathways. Complex processes have become visible, and abstract concepts come alive. Yet, amid this technological surge, one truth remains unchanged: no machine can replace a teacher’s heart.

AI can classify species, analyse data, and predict performance, but it cannot recognise a student’s anxiety at the microscope, awaken wonder at the elegance of an animal cell, or inspire reverence for life. Education is not merely information transfer; it is the formation of minds, values, and character. That human dimension remains irreplaceable.

The role of the teacher, however, is evolving. The future will move from mass instruction to personalised learning, from rote evaluation to data-informed assessment, from memorisation to inquiry and problem-solving. In biology classrooms, this means guiding students to ask

meaningful questions, design experiments, interpret data, and reflect ethically on scientific discovery.

Those who will thrive in this era are educators who embrace 'lifelong learning'. Understanding digital tools, simulations, and basic AI applications will become as essential as understanding physiology or genetics. Equally important is cultivating ethical awareness, guiding students in responsible data use, academic integrity, and critical evaluation in a digital world.

The competencies we must strengthen are clear: empathy, creativity, curiosity, collaboration, and moral judgement; qualities no algorithm can replicate. AI should become our collaborator, not our competitor: assisting in lesson planning, data analysis, and personalised feedback, while we remain mentors, guides, and inspirers.

Educational systems too must evolve. We need a "Human + AI Education Ecosystem" where technology complements, not replaces, the teacher. Curriculum reform, inclusive digital infrastructure, and strong ethical governance are essential to ensure that scientific progress remains aligned with human values. In essence, AI will transform how we teach biology and how students learn it. But the soul of educating life science must remain deeply human. As zoology educators, we are entrusted not only with explaining life, but with cultivating respect for life.

Let us not fear this age of Artificial Intelligence. Let us evolve with it; wisely, ethically, and compassionately. For while machines may accelerate discovery, only teachers can inspire wisdom.

IDENTICAL TWINS

Dr. Hannah Elizabeth S., Assistant Professor,
PG and Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

Identical twins, or monozygotic twins, represent one of nature's most fascinating biological phenomena. Unlike fraternal twins, who develop from two separate eggs fertilized by two different sperm, identical twins begin their journey as a single zygote. Shortly after conception, this fertilized egg undergoes a mysterious and spontaneous split, resulting in two separate embryos with virtually identical genetic blueprints. Because they share 100% of their DNA, they are almost always the same sex and share striking physical similarities, from the arch of their eyebrows to the specific pitch of their voices. However, they are not carbon copies; environmental factors and epigenetic changes—the way genes are turned on or off—begin to differentiate them even in the womb, ensuring that while they may share a genome, they possess unique fingerprints and distinct individualities.

Identical twins occur when one sperm fertilizes one egg to create a zygote. At some point in the first 14 days of development, this single zygote spontaneously splits into two separate embryos. The timing of this split is critical because it determines how the twins will share their "living space" in the womb: At Days 1–3, each twin usually gets its own placenta and amniotic sac (Dichorionic-Diamniotic). Days 4–8, the twins share a placenta but have separate sacs (Monochorionic-

Diamniotic). This is the most common type (60-70%). Days 8–13, the twins share both the placenta and the sac (Monochorionic-Monoamniotic). This is rare and requires close medical monitoring. After day 13, if the split is incomplete, it may result in conjoined twins. While identical twins share 100% of their DNA at conception, they are not perfect copies. Several factors create differences:

- **Epigenetics:** Think of DNA as a massive library of instructions. Epigenetics is the system that decides which "books" (genes) are actually read. Even in the womb, one twin might be exposed to slightly different levels of nutrients or hormones, causing certain genes to "turn on" or "off" differently than their sibling.
- **Fingerprints:** While their DNA is the same, fingerprints are shaped by the physical environment. As the fetuses move, the pressure of the amniotic fluid and the contact with the sac wall create unique ridges. This is why identical twins cannot be identified by each other's fingerprints.

BENEFITS OF GOOD NUTRITION DURING CANCER TREATMENT

Dr. Rajalakshmi A., Assistant Professor,
PG and Research Department of Zoology, Auxilium College (Autonomous), Vellore-6.

Many people with cancer become malnourished. This is because cancer can increase your metabolism but decrease appetite at the same time. In addition, side effects from treatment like mucositis, diarrhoea nausea, and taste changes can make it harder to eat. Eating well while you're being treated for cancer might help- Feel stronger, keep up your energy, maintain your weight and your body's store of nutrients, better tolerate treatment-related side effects, lower risk of infection and recover faster.

Eating well means eating the right foods to get the nutrients the body needs to fight cancer. These nutrients include proteins, fats, carbohydrates, water, vitamins, and minerals.

Supplements: Be sure to talk with doctor first before taking any dietary supplements. Taking certain vitamins, minerals, herbs and other supplements can be harmful. In fact, taking large doses of some vitamins and minerals can make chemotherapy and radiation therapy less effective.

Antioxidants: Antioxidants help protect the body from free radicals, molecules that can damage normal cells. They include vitamins A, C, and E, selenium, and zinc. Body also makes enzymes to protect from free radicals. The best way to get antioxidants is by eating fruits and vegetables. Antioxidant supplements are often not recommended while getting cancer treatment.

Phytonutrients: Phytonutrients are compounds in plant-based foods that are thought to decrease the risk of chronic diseases, like cancer. Phytonutrients are found in plants such as fruits and vegetables, or things made from plants, like tofu or tea. It is best to get them by eating food rather than taking supplements or pills.

Herbs: Many herbal supplements claim to improve your health or fight disease, but it's hard to know if they are safe and effective or can cause harmful side effects. Also, some herbal supplements can interfere with cancer treatments and recovery from surgery. They might also interact with other medicines are given during cancer treatment. If you're thinking about using products containing herbs, talk with doctor to make sure they won't interfere with the treatment.

Protein is one of the most important nutrients in the diets of cancer patients. "Protein helps build and maintain muscle, which is important for cancer patients who might be having problems eating and are losing weight," Schreiber says. "When they lose weight, it's often muscle and not fat, so protein is vital during treatment". Protein is needed for body maintenance, growth, and repair. Protein is in most cells and has many functions, such as making and maintaining muscles, connective tissues, red blood cells, enzymes, and hormones, transporting many body compounds, as well as medications, keeping the fluid balanced in the body and fighting infections and strengthening immunity.

NANOPARTICLES ARE CHANGING MODERN SCIENCE

Dr. Anu K., Assistant Professor,
PG and Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

Nanoparticles are extremely small particles that range in size from 1 to 100 nanometers. To understand how small this is, a nanometer is one-billionth of a meter. At this tiny scale, materials show unique physical, chemical, and biological properties that are very different from their bulk form. Because of these special properties, nanoparticles are playing a major role in transforming modern science and technology.

One of the most important areas influenced by nanoparticles is medicine. In modern healthcare, nanoparticles are used for targeted drug delivery, allowing medicines to reach specific cells or tissues in the body. This improves treatment effectiveness and reduces side effects. Nanoparticles are also widely used in cancer therapy (Abraxane, NanoKnife System), medical imaging, and vaccines. For example, lipid nanoparticles have been used to deliver mRNA vaccines, which has greatly advanced vaccine technology (COVID-19 mRNA Vaccines Pfizer & Moderna). Nanotechnology is also helping in early disease detection through nanosensors and advanced diagnostic tools (Nano Silver Antibacterial Bandages (Band-Aid Brand) – silver nanoparticles for infection control).

Nanoparticles are also revolutionizing electronics and energy technology. In electronics, they are used to make smaller, faster, and more efficient devices. Quantum dots, a type of nanoparticle, are used in high-quality display screens and solar cells (Tesla Battery Cells – nano-structured lithium-ion materials). In the field of energy, nanoparticles improve battery performance, fuel cells, and solar panels by increasing energy storage capacity and efficiency. These advancements support the development of sustainable and renewable energy sources. Environmental science has also benefited greatly from nanoparticles. They are used in water purification systems to remove harmful pollutants, bacteria, and heavy metals. Nanoparticles help in air purification and

environmental cleanup by breaking down toxic substances. In agriculture, nano-fertilizers (IFFCO Nano Urea) and nano-pesticides (NanoPesticides (BASF) – controlled release nano formulations) improve crop productivity while reducing chemical waste, making farming more efficient and environmentally friendly.

In addition, nanoparticles are widely used in everyday consumer products. They are found in sunscreens(Sunscreen (Neutrogena Ultra Sheer Dry-Touch SPF 100 uses *zinc oxide & titanium dioxide nanoparticles*), cosmetics(L'Oréal Revitalift Cream – nanosomes for deeper skin penetration), clothing (Nano-Care Shirts (Dockers / Van Heusen, Silver Nano Socks (Adidas ClimaCool), and food packaging. Silver nanoparticles are used for their antibacterial properties, while nano-coatings (Ceramic Pro Nano Coating) make surfaces water-resistant, stain-resistant, and durable. These applications improve product quality and daily life.

Despite their many benefits, the use of nanoparticles also raises concerns about health, safety, and environmental impact. Due to their small size, nanoparticles can enter living organisms easily, and their long-term effects are still being studied. Therefore, proper regulation, testing, and responsible use of nanotechnology are essential.

In conclusion, nanoparticles are changing modern science by opening new possibilities in medicine, technology, environment, and industry. Their unique properties enable innovations that were once impossible. With continued research and responsible development, nanoparticles have the potential to shape a healthier, more sustainable, and technologically advanced future.

THE CURIOUS CASE OF THE XENOPAROUS ANT

Dr. Stuti, **Assistant Professor,**
PG and Research Dept. of Zoology, Auxilium College (Autonomous), Vellore-6.

It is a truth universally accepted among naturalists that *"*like begets like.*"* A sparrow lays eggs that hatch into sparrows. A lioness brings forth cubs of her own kind. This law of inheritance has long stood as the bedrock upon which the divergence of species is understood to rest. Yet, Nature does not invariably adhere to the rigid boundaries drawn by human classification. In the arid soils of Southern Europe, a most extraordinary exception has been brought to light, the harvester ant, *Messor ibericus*, which forces the observer to reconsider the very nature of individuality and the species barrier (in Juve et. al., 2025).

A singular difficulty presents itself regarding the distribution of these ants. The workers of *Messor ibericus,* that toil in the sun to collect seeds, appear upon close genomic inspection to not be of pure constitution. They are, in fact, hybrids, possessing the blood of their mother, *Messor ibericus,* and a father of a different species, *Messor structor.* These two lineages diverged some five million years ago, a chasm of time nearly as vast as that separating man from the chimpanzee.

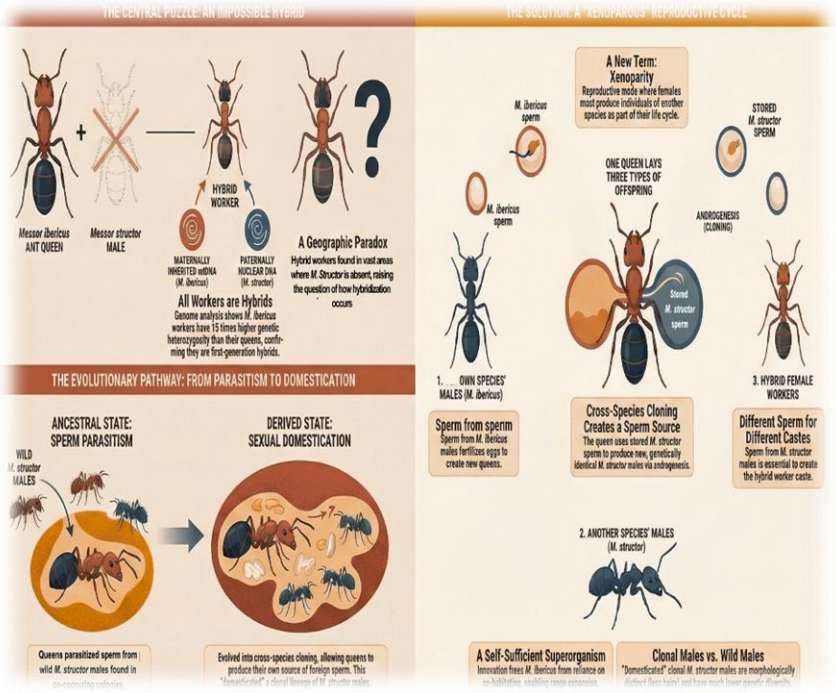
For a queen to produce such hybrid workers, she must mate with a male of this foreign species. In regions where both species coexist, this arrangement, though curious, is explicable. However, a great paradox arises. These hybrid colonies flourish in lands where the paternal species, *Messor*

structor, is *entirely absent*! In the isolated island of Sicily, for instance, the *ibericus queens* reign supreme, yet they continue to produce hybrid daughters. How, it must be asked, does a queen obtain the seed of a father who does not exist in her domain?

The answer lies within the dark chambers of the ant nest, in a phenomenon so unique it demands a new name: *Xenoparity*, or the birthing of the stranger.

When observing the males emerging from these colonies, a distinct dimorphism is visible to the naked eye. Some males are hairy, resembling their mother, the true sons of *Messor ibericus*. But others are hairless, distinct in form and constitution. These hairless males are pure *Messor structor*. They are not hybrids, nor are they sons of the queen in the genetic sense. Through a mechanism known as androgenesis, the queen utilizes the sperm stored within her, obtained perhaps generations ago by her ancestors, to clone the male genome. She provides the egg, but creates a son that bears none of her own inheritance. She is a mother giving birth to a different species.

This arrangement may be viewed as a form of *"*sexual domestication.*"* Just as humans keep cattle for their milk or sheep for their wool, the *Messor ibericus* queen keeps a lineage of *Messor structor* males within her colony. She does not rely on the chance encounters of the wild. She farms them. By producing these foreign males herself, she ensures a constant supply of the specific sperm required to produce her worker caste. This allows her colony to expand into new territories, free from the geographical tether of her mate's wild ancestors.



The colony becomes a two-species superorganism, an integrated unit where two distinct evolutionary lineages are locked in a struggle that has become a cooperation. The males are trapped, reduced to the status of living organelles, propagated only for their genetic utility. It is a struggle for existence resolved not by the extinction of one form, but by the absolute assimilation of one form into the life cycle of the other. Truly, there is grandeur in this view of life, where from so simple a beginning, forms that are most beautiful and wonderful, but stranger than ever imagined, have been, and are being, evolved.

ENDOWMENT LECTURES

LIST OF ENDOWMENT LECTURES FOR THE ACADEMIC YEAR 2025-2026

S.No.	Date	Resource Person	Topic	Name of the Lecture
1	16.07.2025	Mrs. Alice Sony, Professor & Former Head, OBG Nursing, Nursing Superintendent, College of Nursing, CMC, Vellore.	Reproductive Health and Wellness.	Sr. Helen Fernandez Endowment Lecture for UG & PG Zoology Students
2	08.09.2025	Dr. Kiruthiga V, Assistant Professor of Zoology D.K.M. College for Women (Autonomous), Vellore.	The role of Physiology in Animal Health and Disease.	Sr. Regina Colombo Endowment Lecture for the III B.Sc., Zoology Students.
3	09.10.2025	Dr. Vidhya G, Assistant Professor of Zoology**,** D.K.M College for Women (Autonomous), Vellore.	Molecular and cellular basis of human genetic syndrome: from chromosome to clinic.	Sr. Antoinette Aloysius Endowment Lecture for the II B.Sc., Zoology Students.
4	28.11.2025	Dr. Rekha V, Assistant Professor of Zoology**,** D.K.M College for Women (Autonomous), Vellore.	Microplastics: A Global Environmental Concern.	Sr. Maria Fino Endowment Lecture for I B.Sc., Zoology Students.
5	09.12.2025	Dr. Arunkumar Pitchaimani, Associate Professor Senior, CBCMT, Vellore Institute of Technology, Vellore.	Biomimetic Nanomedicine for Targeted Breast Cancer Therapy.	Sr. Ethelvina Endowment Lecture for PG Students.
6	19.12.2025	Dr. Yogendra Pratap Singh, Assistant Professor, School of Healthcare Science and Engineering, Vellore Institute of Technology, Vellore.	From cells to organs: Engineering living tissues through 3D Bioprinting.	Sr. Cleofe Fassa Endowment Lecture for PG Students.

REPRODUCTIVE HEALTH AND WELLNESS

Mrs. Alice Sony
Professor & Former Head, OBG Nursing, Nursing Superintendent, CMC, Vellore.

More than the absence of diseases state of complete physical, mental and social wellbeing in all matters relating to the reproductive system. It involves knowledge, choices and care at every stage of life especially during adolescence and early adulthood.

Importance

Understanding and knowing your body is crucial for maintaining overall health. Recognizing normal vs. abnormal changes, detecting potential issues early is important. This knowledge also helps break social taboos and myths, empowers individuals to make responsible choices, fosters self-confidence, and ultimately contributes to building healthier future generations.

Menstrual health and Hygiene

Maintaining good menstrual hygiene is crucial for overall health and well-being, involving practices like using clean sanitary products, changing them regularly, and keeping the genital area clean to prevent infections and promote comfort during the menstrual cycle. Prioritizing menstrual health involves addressing common issues like dysmenorrhea and irregular periods, maintaining a balanced diet and lifestyle, breaking the stigma surrounding periods through open conversations and education, and focusing on emotional and mental well-being, sexual health, and building healthy relationships based on respect, consent, and safety.

Reproductive tract infections

Reproductive tract infections can be caused by various pathogens, often sexually transmitted, and may present with symptoms like unusual discharge, itching, and abdominal pain, emphasizing the importance of early detection, treatment, and preventive measures such as HPV vaccination, good menstrual and personal hygiene, and proper care of undergarments. Mostly treatable but more important they are preventable**.**

Reproductive Disorders

Polycystic Ovary Syndrome (PCOS), hormonal disorder that can cause irregular periods, excess facial and body hair, acne, weight gain, and difficulty becoming pregnant, affecting many women's reproductive and overall health.

Management

Reproductive disorders such as Polycystic Ovary Syndrome (PCOS) can be managed through a combination of a healthy diet, regular exercise, and weight management, with even a 5-10% weight loss potentially restoring periods and improving ovulation, while medical interventions like hormonal therapy and regular check-ups are also crucial. Other disorders like Premenstrual Syndrome (PMS) can be managed through diet, exercise, counseling, and medications to alleviate symptoms like mood swings and bloating. Pelvic inflammatory disease (PID) requires prompt treatment to prevent long-term damage, and conditions like ovarian cysts, uterine fibroids, cervical and ovarian cancer emphasize the importance of early detection and treatment, including HPV vaccination. Additionally, anemia, often caused by menstrual blood loss, poor diet, or skipping meals, can be addressed through dietary changes and iron supplementation, while urinary tract infections require timely medical attention to prevent complications.

Causes

Urinary tract infections (UTIs) can be caused by factors such as a short urethra, poor hygiene, and dehydration, leading to symptoms like burning during urination, lower abdominal and back pain, and fever, and can be managed through good toilet habits, wearing cotton underwear, maintaining hygiene, staying hydrated, and seeking medical help when necessary.

Common symptoms

Common symptoms of anemia include tiredness, pallor, breathlessness, headaches, poor concentration, and poor memory. Management involves deworming and consuming iron-rich foods like green leafy vegetables (spinach, moringa), beetroot, dates, pomegranate, jaggery, ragi, beans, eggs, and meat (especially liver).

Mental and Emotional health

Preconception care is essential to prepare for a healthy pregnancy, involving screening for conditions like anemia, infections, and diabetes, maintaining ideal body weight through nutrition and BMI monitoring, and avoiding harmful substances like smoking, alcohol, and chemicals to reduce risks of birth defects and complications. Additionally, breast health awareness is crucial, including regular self-examinations to detect any changes or abnormalities, and seeking help if symptoms like lumps, nipple discharge, or pain persist. A balanced lifestyle and informed health practices can significantly contribute to overall well-being and reproductive health.

Rights, Dignity and empowerment

Empowering individuals, especially women and girls, involves recognizing and asserting their rights to education, health, safety, expression, and equality, while promoting dignity and self-respect. By valuing oneself and supporting others, individuals can make informed choices, build

confidence, and advocate for their rights, ultimately fostering a culture of gender equality and improved mental health. Reproductive health is not just about the body – it's about choice, respect and the power to live fully. Know it. Own it and protect it.

ROLE OF PHYSIOLOGY IN ANIMAL HEALTH AND DISEASES

Dr. V. Kiruthiga

Assistant Professor of Zoology, D.K.M. College for Women (Autonomous), Vellore.

Physiology is the branch of biology that deals with the study of normal functions and mechanisms operating within a living organism. It helps us understand how the body of an animal works—from the cellular level to complex organ systems. Knowledge of physiology is fundamental to maintaining animal health, diagnosing diseases, and developing effective treatments.

In healthy animals, physiological processes such as respiration, circulation, digestion, excretion, reproduction, and nervous coordination work in perfect balance. This state of equilibrium is known as homeostasis, which is essential for survival. Any disturbance in these physiological mechanisms leads to the malfunctioning of organs and ultimately results in disease.

For example, an understanding of respiratory physiology helps in identifying problems related to oxygen deficiency, such as in pneumonia or respiratory distress. Similarly, circulatory physiology provides insight into heart diseases, blood pressure regulation, and shock conditions. Digestive physiology is crucial for understanding nutritional disorders, while renal physiology aids in diagnosing kidney failures or dehydration. Neurophysiology explains how nerve damage or hormonal imbalance affects behaviour and body regulation.

Physiological research also forms the basis for the development of medicines, vaccines, and disease prevention strategies. It assists veterinarians in interpreting symptoms, performing diagnostic tests, and planning therapies. Moreover, comparative physiology—studying different species—helps in understanding adaptive mechanisms and in applying findings from animal models to human medicine.

In conclusion, physiology acts as a bridge between normal biological function and disease. It enables us to detect abnormalities, understand the cause of diseases, and design proper remedies. Hence, physiology plays a vital and indispensable role in ensuring animal health, welfare, and longevity.

MOLECULAR AND CELLULAR BASIS OF HUMAN GENETIC SYNDROMES: FROM CHROMOSOME TO CLINIC

Dr. G. Vidhya
Assistant Professor, Department of Zoology, DKM College, Vellore.

Human genetic syndromes represent a diverse group of disorders that arise due to abnormalities in the genome. These defects can involve entire chromosomes, specific genes, or regulatory regions that control gene expression. The impact of these genetic alterations is reflected in the structure and function of cells, tissues, and organs, eventually producing distinct clinical symptoms that define each syndrome. The study of these syndromes from a *chromosome-to-clinic* perspective connects three key levels of biological organization:

- Chromosomal alterations – affecting gene dosage or arrangement,
- Molecular defects – influencing protein structure and function,
- Cellular consequences – leading to physiological and clinical abnormalities.

Chromosomal Basis of Genetic Syndromes

Chromosomal abnormalities are a major cause of congenital anomalies, developmental delay, and infertility. They can be broadly classified into numerical and structural changes.

Numerical Chromosomal Abnormalities

Numerical abnormalities result from non-disjunction during meiosis or mitosis, leading to an abnormal number of chromosomes (aneuploidy).

- Trisomy: presence of an extra chromosome (47 instead of 46)
- Down Syndrome (Trisomy 21): Extra chromosome 21; features include intellectual disability, flat facial profile, short stature, and congenital heart defects.
- Edwards Syndrome (Trisomy 18): Severe developmental delay, clenched fists, and heart abnormalities.
- Patau Syndrome (Trisomy 13): Cleft lip/palate, microcephaly, and severe neurological defects.
- Monosomy: loss of one chromosome
- Turner Syndrome (45, X): Affects females; short stature, webbed neck, and underdeveloped ovaries.

Sex Chromosome Aneuploidy

- Klinefelter Syndrome (47, XXY): Affects males; tall stature, gynecomastia, and infertility.
- Triple X Syndrome (47, XXX): Usually mild symptoms; may include learning difficulties.

Structural Chromosomal Abnormalities

Structural changes occur when chromosomes break and rejoin incorrectly.

Deletion- Loss of a chromosome segment

eg- *Cri-du-chat syndrome* (deletion of 5p) – cat-like cry, microcephaly

- Duplication- Extra copy of a gene or region

eg- *Charcot–Marie–Tooth disease type 1A*

- Translocation- Exchange of segments between non-homologous chromosomes
  eg- *Chronic Myeloid Leukemia (CML)* – Philadelphia chromosome (9;22)
- Inversion- Segment breaks and reattaches in reverse orientation
  eg-*Chronic Myeloid Leukemia (CML)* – Philadelphia chromosome (9;22)
- Ring chromosome- Ends of chromosome fuse to form a ring
  eg- May disrupt gene function or cause infertility, seizures and developmental delay

Structural rearrangements can disturb normal gene expression, disrupt regulatory sequences, or alter chromosomal pairing during cell division.

Molecular Basis of Genetic Syndromes

At the molecular level, syndromes are caused by mutations in DNA that affect the structure or function of gene products—mainly proteins or functional RNAs. These mutations can be classified into several types.

Single Gene Disorders

It is caused by defects in one particular gene.

- Dominant Diseases: Single gene disorders that occur when an individual has one altered copy of the relevant gene and one healthy copy. Eg: Huntington's disease.
- Recessive Diseases: Single gene disorders that only occur when an individual has two altered versions of the relevant gene. Eg: Cystic Fibrosis.
- X- linked Disorders: Single gene disorders that reflect the presence of an altered gene on the X chromosome. X-linked disorders are more common in males because they only have one X- chromosome. Eg: Muscular Dystrophy.

Mitochondrial inheritance disorders

A group of genetic conditions caused by mutations in the mitochondrial DNA (mtDNA), which are inherited solely through the maternal line. Unlike most genetic disorders, which are inherited through the nuclear DNA passed from both parents, mitochondrial disorders are transmitted from mother to offspring because mitochondria (the energy-producing organelles in cells) are inherited only through the egg cell.

- Mitochondrial DNA: This mitochondrial DNA encodes genes involved in energy production. Mutations in this mitochondrial genome can lead to various health issues.
- Maternal Inheritance: Because sperm cells contribute little to no mitochondria (mostly just nuclear DNA), mitochondria—and therefore mitochondrial DNA mutations—are inherited exclusively from the mother. This is called maternal inheritance.
- Impact on Energy Production: Mitochondria are the powerhouses of the cell, responsible for generating most of the cell's energy. Mutations in mitochondrial genes can impair energy production, affecting tissues and organs with high energy demands, such as muscles, nerves, and the brain. (LHON- Leber's Hereditary Optic Neuropathy, MELAS - Mitochondrial Encephalomyopathy, Lactic Acidosis, and Stroke-like Episodes)
- Multifactorial genetic inheritance disorders:

Health conditions caused by a combination of genetic and environmental factors. Unlike single-gene disorders or chromosomal abnormalities, these conditions involve multiple genes (polygenic) and non-genetic influences such as lifestyle, diet, environment, or infections.Caused by multiple genes (polygenes) interacting together. Environmental factors play a significant role (e.g., diet, smoking, physical activity, pollution).Tend to run in families, but don't follow clear Mendelian (dominant/recessive) inheritance patterns.

Diagnostic and Analytical Approaches

Modern genetics combines cytogenetic and molecular techniques to identify the cause of genetic syndromes.

Cytogenetic Techniques

- Karyotyping: Detects large chromosomal abnormalities (>5 Mb).
- Fluorescence In Situ Hybridization (FISH): Identifies specific DNA sequences or translocations.
- Comparative Genomic Hybridization (CGH): Detects copy number variations.

Molecular Diagnostic Tools

- Polymerase Chain Reaction (PCR): Amplifies specific DNA regions for mutation analysis.
- Sanger Sequencing & Next-Generation Sequencing (NGS): Determines the exact nucleotide sequence.
- Whole Exome/Genome Sequencing: Comprehensive mutation detection.
- DNA Methylation Analysis: Studies imprinting disorders and epigenetic syndromes.

Prenatal and Carrier Screening

- Amniocentesis and Chorionic Villus Sampling (CVS) for fetal karyotyping.
- Non-invasive prenatal testing (NIPT) using cell-free fetal DNA.
- Carrier testing in families with known genetic disorders.

Clinical Management and Genetic Counseling

While most genetic syndromes are not curable, understanding their molecular and cellular mechanisms enables targeted care.

- Supportive therapy: Physiotherapy, speech therapy, and surgery for congenital defects.
- Enzyme Replacement Therapy (ERT): For lysosomal storage disorders (e.g., Gaucher disease).
- Gene Therapy: Experimental correction of defective genes.
- Pharmacogenomics: Personalized medicine based on genetic makeup.
- Genetic Counseling: Educating families about inheritance patterns, risks, and options.

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Human genetic syndromes are complex disorders rooted in the genome’s architecture. From chromosomal aberrations to single-gene mutations and epigenetic defects, each alteration disrupts molecular pathways and cellular processes, manifesting in distinct clinical syndromes. Understanding these mechanisms not only improves diagnosis and treatment but also illuminates the intricate relationship between our genes, cells and health.

MICROPLASTICS

Dr. V. Rekha
Assistant Professor of Zoology, D.K.M. College for Women, Vellore.

Microplastics are very tiny pieces of plastic, measuring less than 5 mm. They come from several common sources, including synthetic clothes (textiles), product packaging, car tire wear, and the fragmentation (breaking down) of larger plastic items. These plastics break down into microplastics due to things like sunlight (UV radiation), heat, and friction.

The Danger of Microplastics:

Persistence: Microplastics are highly resistant to breakdown (chemically stable and slow to degrade) and remain persistent in marine waters.

Toxic Sponges: They act like small sponges, able to soak up and carry dangerous substances such as toxic chemicals, heavy metals, and persistent organic pollutants (POPS).

Food Chain Contamination: Once in the environment, they cause food chain contamination and ecosystem disruption. They are eaten by tiny animals (like zooplankton) that consume the sea's plants (phytoplankton). The plastic then moves up the food chain from herbivores to carnivores (like sardines and snapper) and eventually to the ocean's top predators (like tuna and sharks).

Human Health: This means the problem eventually affects us, too, because if fish eat plastic, we eat the fish. Disturbingly, microplastics have been detected in human breast milk.

Conclusion: Microplastics pose a serious global threat due to their persistence, ability to adsorb toxic chemicals, and contamination of the food chain, with risks extending to human health. Remediation efforts are focusing on eco-friendly, in-situ degradation using the biopolymer Chitosan and plastic-degrading microbes, potentially utilizing marine zooplankton for localized cleanup.

BIOMIMETIC NANOMEDICINE FOR TARGETED BREAST CANCER THERAPY

Dr. Arunkumar Pitchaimani
Precision Nanomedicine & Microfluidic Lab, Centre for Biomaterials, Cellular & Molecular Thernostics (CBCMT), Vellore Institute of Technology (VIT), Vellore.

Nature designed extracellular vesicles from the mammalian cells plays key roles in various extracellular communications. Especially, the nano-sized Exosomes plays a prominent role in cell-cell communication and as well as in genetic exchange. Current Nano research focus is on the utilization of these exosomes for its possible application in drug delivery and biomedical applications. Exosomes derived from Mesenchymal Stem cells (MSc) have functions similar to that of parent MSC cells in repairing tissue damage, inflammatory response and immune system modulation. More specifically, it shows enhanced tumour accumulation potential by targeting efficiency. Herein, we investigate the role of MSC EXO in delivering therapeutic doxorubicin non-

invasively for the targeted triple negative breast cancer therapy. Human adipose derived MSCs were isolated following the protocols developed at CIMA, University of Navarra (Spain). Further, EXO were isolated from the MSCs via a differential ultracentrifugation. The protein profile was analysed using western blots and LC-MS (Proteinase-K method). Rhodamine-EXO were used for studying differential cellular uptake in macrophages (RAW 264.7), neuronal cells (Neuro-2A) and in Triple negative breast cancer cell lines (MDA-MB-231) via confocal and flow cytometry. Doxorubicin was loaded into EXO and tested its encapsulation efficiencies and release rates using HPLC. The exosomes isolated from the hADSCs were spherical in shape with an average diameter of 119 ±7 nm under cryo-EM. The dynamic light scattering analysis showed exosomes with a hydrodynamic diameter of 130 ± 18 nm and the surface zeta potential around – 30 ± 2mV. The characteristic functional protein markers exposed of the exosome membrane, CD-9 and CD-81, were clearly identified through western blot and mass spectroscopy analyses. Further, confocal microscopy and flow cytometry analyses showed that significant levels of naïve exosome were taken up by RAW 264.7, Neuro-2A and MDA-MB-231 cells, as compared to the PK treated EXO. The cytotoxicity of DOX-EXO was comparable to that of the free drug. This preliminary work demonstrates that human adipose stem cell-derived exosomes can be efficiently loaded with a chemotherapeutic molecule. The biodistribution of the exosomes and the therapeutic activity of doxorubicin loaded exosomes is comparable with the free drug molecule and can be used as a versatile biological nanocarrier for personalized medicine.

FROM CELLS TO ORGANS: ENGINEERING LIVING TISSUES THROUGH 3D BIOPRINTING

Dr. Yogendra Pratap Singh
Assistant Professor, School of Healthcare Science and Engineering (SHINE),
Vellore Institute of Technology (VIT), Vellore.

Can we build organs the way the body builds them? This fundamental question lies at the heart of modern regenerative medicine and forms the central theme of this lecture. By drawing inspiration from nature's own design principles, advances in 3D bioprinting and nature-derived biomaterials are enabling the controlled assembly of living cells into tissue-like structures that closely mimic native form and function. The talk explores how bioengineered scaffolds, cellular self-organization, and biophysical cues can be integrated to fabricate vascularized, functional, and immuno-compatible constructs. Through selected works spanning tissue regeneration, disease modeling, and translational biofabrication, the session highlights how insights from developmental biology and engineering can inform next-generation tissue engineering strategies. Moving beyond conventional two-dimensional cell cultures, 3D bioprinting offers physiologically relevant platforms for studying complex cell-cell interactions, immune responses, and tissue maturation. Designed for students, researchers, and educators, this lecture provides a forward-looking perspective on how interdisciplinary science is reshaping the future of organ engineering, personalized medicine, and translational biotechnologies.

FACULTY ACHIVEMENTS

FDP/Orientation / Refresher Course/ Webinars/ Resource Person/ Conference 2025-26

S. No.	Date	Name of the Staff	Title of the Programme	Organized by
1	07.07.2025 to 11.07.2025	Dr. Uma Chandra Meera Lakshmi N.	The Five Days International Virtual Faculty Development Programme (IVFDP) on Harnessing Generative AI: Smart Tools for Teaching, Learning, Evaluation & Research (TLE&R).	Department of Computer Science, St. Joseph's College (Autonomous), Tiruchirappalli – 620 002, Tamil Nadu, India and South Asia Centre, Globethics, Bengaluru, Karnataka, India.
2.	25.07.2025	Dr. Arockiamary J.S. Dr. Mary Agnes A. Dr. Uma Chandra N. Ms. Anuradha M. Dr. Hannah Elizabeth S. Dr. Rajalakshmi A. Dr. Anu K. Dr. Stuti Sr. Irine Towle J.	International Conference on "Conservation of Coastal Ecology-ICCCE25", sponsored by EIACP, Department of Environment and Climate, Government of Tamil Nadu.	PG and Research Department of Zoology, Biochemistry and Department of Botany, Auxilium College (Autonomous), Gandhi Nagar, Vellore-6 and in association with Research and Education for Environmental Foundation, Tambaram, Tamil Nadu, India.
3.	05.08.2025 to 09.08.2025	Dr. Mary Agnes A.	"Innergize: Fueling Faculty Wellness with Cognitive Renewal" an International Five Days	The Department of Psychology, Holy Cross College (Autonomous), Affiliated to Bharathidasan University, Tiruchirappalli

			Faculty Development Programme.	– 620 002. Tamilnadu, India.
4.	22.09.2025 to 26.09.2025	Dr. Hannah Elizabeth S. Dr. Anu K. Ms. Anuradha M.	"The Art of Proposal Writing".	Research Colloquium, Madras Christian College (Autonomous), East Tambaram, Chennai-59.
5.	22.09.2025 to 28.09.2025	Dr. Arockiamary J.S. Dr. Mary Agnes A. Dr. Uma Chandra N.	Seven days International Faculty Development Programme on "Indian Knowledge System and Resourcefulness of Tamil".	Department of Tamil, Auxilium College (Autonomous) Gandhi Nagar, Vellore -6.
6.	27.10.2025 to 31.10.2025	Dr. Mary Agnes A.	International Level One Week Online FDP on "Biotechnology Innovations – Progress, Risks and Opportunities for Sustainability (BIOPROS)".	The Research Department of Zoology & Department of Botany, Seethalakshmi Ramaswami College (Autonomous), Affiliated to Bharathidasan University, Tiruchirapalli.
7.	27.10.2025 to 02.11.2025	Dr. Arockiamary J.S. Dr. Mary Agnes A. Ms. Anuradha M. Dr. Hannah Elizabeth S. Dr. Rajalakshmi A. Dr. Anu K.	Online FDP on "Empowering Research Integrity & Innovation".	Committee for Research Ethics, Publication & IPR, Auxilium College (Autonomous), Vellore-632 006, Tamil Nadu, India.
8.	06.01.2026 to 10.01.2026	Dr. Mary Agnes A. Dr. Uma Chandra N. Dr. Hannah Elizabeth S. Dr. Rajalakshmi A.	Five Days Online FDP on Advanced Trends and Innovations in Modern Life Sciences.	PG & Research Department of Biochemistry, Sacred Heart College (Autonomous), Tirupattur-635 601.

INTERNATIONAL CONFERENCE – ICCCE-25

INTERNATIONAL CONFERENCE ON CONSERVATION OF COASTAL ECOLOGY (ICCCE25)

On 25th July 2025, International conference on Conservation of Coastal Ecology (ICCCE25) was organized jointly by PG and Research Department of Zoology, Biochemistry and Botany, in association with Research and Education for Environmental Foundation (REEF), Tambaram. The conference was sponsored by EIACP, Department of Environment and Climate Change, Government of Tamil Nadu on 25th July 2025. 500 saplings were distributed by the Government of Tamil Nadu, Forest Department in the conference.

The main aim of the conference was to bring together leading academicians, researchers, technocrats, practitioners and students to exchange and share their experiences and research outputs on the aspects of coastal ecology. It was also meant to provide a premier interdisciplinary platform in the field of Life Sciences to present and discuss the most recent trends, innovations, concerns and practical challenges encountered in the sustainability of coastal ecology.

Principal Dr. (Sr.) Arokia Jayaceli. A delivered the Presidential address, Secretary, Dr. (Sr.) Mary Josphine Rani. A, felicitated the REEF representatives and addressed the gathering with her welcome message. The conference proceedings were released by Dr. Muthukumar, Programme Officer, EIACP. Dr. A. Mary Agnes, Convenor, Head and Associate Professor of Zoology, gave the welcome note and conference overview.

Dr. S. Ramachandraprabhu, Program Director, REEF, gave the dynamics of the conference. Dr. K. Muthukumar, Programme Officer, EIACP, Department of Environment, Government of Tamil Nadu, gave the inaugural address. Mr. Justin S, Quality Assurance Manager (Asia), A Thai Union Company, gave the keynote address. Dr. Arockiamary. J.S, Associate Professor of Zoology, concluded the inaugural session with a formal vote of thanks.

Dr. Madhu Magesh K, CMLRE, Kochi, gave insights on the Topic "Marine Megafauna Conservation: Strategies and Challenges in Sea Turtle and Dugong Protection along Indian Coasts". Dr. Umer Khalifa, Engineer, Altimetrik, Toronto, Ontario, Canada, gave keynote lecture to students on the Topic "Blue Carbon and Coastal Resilience: Role of Mangroves and Seagrasses in Climate Mitigation".

A total of 17 Papers and 50 posters were presented by researchers and academicians from various institutes, best paper and best posters were selected and three cash prizes was given for the winners during the valedictory session. Dr. M. D. Lakshmipriya, Convenor, Head and Assistant Professor of Biochemistry delivered the vote of thanks.


Auxilium College, Vellore.
PG and Research Dept. of Zoology, Biochemistry and Botany
25-07-2025
jakbegs.photo@gmail.com - 99949 17367, (96775 11697 - GPay)


Auxilium College, Vellore.
PG and Research Dept. of Zoology, Biochemistry and Botany
25-07-2025
jakbegs.photo@gmail.com - 99949 17367, (96775 11697 - GPay)


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BIOEXCELLENCE - 4

BioexCELLence-4

Date : 03.02.2026

Event : BioexCELLence - 4, State Level Intercollegiate Competition, "Celebrating Diversity in Nature".

Beneficiaries : 200

Department of Zoology organized a State Level Intercollegiate Competition, "BioexCELLence-4 : Celebrating Diversity in Nature" on 03.02.2026. Dr. Sr. Mary Josephine Rani A, Secretary, Inaugurated the Event and addressed the gathering. Dr. Sr. Amala Valarmathy. A, Vice Principal, Students and Faculty members of the Department of Zoology were present during the Inauguration. Students from different colleges participated in the programme. The following competitions were organized and the winners were awarded:

Drawing Competition: Topic: "Threats to Biodiversity"

Vegetable carving: Topic: "Keystone species"

Quiz Competition: Topic: "Life Science"

Poster: Topic: "Impact of climate change on biodiversity"


WELCO
THANKYOU


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ANKYOU
GPS Map Camera
Vellore, Tamil Nadu, India
X44r+5mj, 17th East Cross Rd, Suthanthira Ponvizha Nagar, Gandhi Nagar, Vellore, Tamil Nadu 632006, India
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BioexCELLence 4
DEPARTMENT OF ZOOLOGY


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Vellore, Tamil Nadu, India
Surabhi Illam, No:206/a, Lakshmi Puram St, Near Auxilium College, Suthanthira Ponvizha Nagar, Lakshmi Puram, Gandhi Nagar, Vellore, Tamil Nadu 632006, India
Lat 12.957586° Long 79.147428°
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ONLINE COURSES

ONLINE COURSE ODD SEMESTER 2025-2026

I B.Sc., ZOOLOGY

S.No	Register Number	Name	Course Title	Completion Date	Duration	Institution
1	30525U33001	AALIYA BANU A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
2	30525U33002	ABINAYA V	Introduction to Computers	10.01.2026	6 months	IIT Bombay
3	30525U33003	AFREEN G	Introduction to Computers	10.01.2026	6 months	IIT Bombay
4	30525U33004	ANANTHI T	Introduction to Computers	10.01.2026	6 months	IIT Bombay
5	30525U33005	ARCHANA P	Introduction to Computers	10.01.2026	6 months	IIT Bombay
6	30525U33006	ATSHAYA A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
7	30525U33007	DEEPIKA N	Introduction to Computers	10.01.2026	6 months	IIT Bombay
8	30525U33008	DEEPIKA U	Introduction to Computers	10.01.2026	6 months	IIT Bombay
9	30525U33009	DHARANYA M	Introduction to Computers	10.01.2026	6 months	IIT Bombay
10	30525U33011	FARZANA R	Introduction to Computers	10.01.2026	6 months	IIT Bombay
11	30525U33012	GAYATHRI D	Introduction to Computers	10.01.2026	6 months	IIT Bombay
12	30525U33013	HAJEERA BANU S	Introduction to Computers	10.01.2026	6 months	IIT Bombay
13	30525U33014	HARSHIYA A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
14	30525U33015	HEMA E	Introduction to Computers	10.01.2026	6 months	IIT Bombay
15	30525U33017	HEMAVATHI S	Introduction to Computers	10.01.2026	6 months	IIT Bombay
16	30525U33018	INDUMATHI P	Introduction to Computers	10.01.2026	6 months	IIT Bombay
17	30525U33020	JANANI P	Introduction to Computers	10.01.2026	6 months	IIT Bombay
18	30525U33023	KAMATCHI V	Introduction to Computers	10.01.2026	6 months	IIT Bombay
19	30525U33024	KANISHKA K	Introduction to Computers	10.01.2026	6 months	IIT Bombay

20	30525U33025	KEERTHANA T	Introduction to Computers	10.01.2026	6 months	IIT Bombay
21	30525U33026	KOUSALYA A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
22	30525U33028	MADHUMITHA K	Introduction to Computers	10.01.2026	6 months	IIT Bombay
23	30525U33032	NAGINA FIRDOSE B	Introduction to Computers	10.01.2026	6 months	IIT Bombay
24	30525U33033	PAVITHRA R	Introduction to Computers	10.01.2026	6 months	IIT Bombay
25	30525U33036	PRASANNA C	Introduction to Computers	10.01.2026	6 months	IIT Bombay
26	30525U33037	PREETHI E	Introduction to Computers	10.01.2026	6 months	IIT Bombay
27	30525U33040	SANDHIYA K	Introduction to Computers	10.01.2026	6 months	IIT Bombay
28	30525U33041	SHAFIA TABASUM M	Introduction to Computers	10.01.2026	6 months	IIT Bombay
29	30525U33043	SHANMUGA PRIYA S	Introduction to Computers	10.01.2026	6 months	IIT Bombay
30	30525U33044	SHYLAJA S	Introduction to Computers	10.01.2026	6 months	IIT Bombay
31	30525U33045	SINDHUMATHI D	Introduction to Computers	10.01.2026	6 months	IIT Bombay
32	30525U33046	SRIPRIYA A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
33	30525U33047	SWATHI S	Introduction to Computers	10.01.2026	6 months	IIT Bombay
34	30525U33048	THAMARAI SELVI A	Introduction to Computers	10.01.2026	6 months	IIT Bombay
35	30525U33050	VIJIYALAKSHMI P	Introduction to Computers	10.01.2026	6 months	IIT Bombay
36	30525U33053	ZUHA KAUSAR V K	Introduction to Computers	10.01.2026	6 months	IIT Bombay

II B.Sc., ZOOLOGY

S.No	Register Number	Name	Course Title	Completion Date	Duration	Institution
1	30524U33002	ARCHANA K	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
2	30524U33003	ARCHANA R	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
3	30524U33007	ELAKKIYA E G	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
4	30524U33008	ELAKKIYA G	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
5	30524U33009	ESTHER CAROLINE A C	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
6	30524U33010	FIRDOSE F	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
7	30524U33011	GAYATHRI V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
8	30524U33013	HARSHINI S	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
9	30524U33014	HINA ANJUM G	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
10	30524U33015	JAYASHREE K	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
11	30524U33016	JAYASRI V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
12	30524U33017	KEERTHANA D	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
13	30524U33020	LOKESHWARI V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
14	30524U33021	MADHANIKAA V R	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
15	30524U33022	MAHALAKSHMI S	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
16	30524U33023	MANISHA V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
17	30524U33024	MARGREAT JERINA J	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
18	30524U33025	NEERAJA R	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
19	30524U33026	NEHA LUCK KUJUR	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
20	30524U33028	NIVETHA R	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
21	30524U33029	PATEL MEHAR TAHREEM M	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
22	30524U33030	PRINCY K	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
23	30524U33032	RAKSHA N	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay

24	30524U33033	RAMYA M	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
25	30524U33035	RUCHI K	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
26	30524U33036	SABIHA N	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
27	30524U33037	SAJEEVENA S	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
28	30524U33038	SANDHIYA S	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
29	30524U33039	SAVITHIRI M	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
30	30524U33040	SHAFRIN S	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
31	30524U33041	SHAINAS M	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
32	30524U33042	SHARMILA P	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
33	30524U33043	SNEGA V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
34	30524U33044	SNEHA DEEPHA V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
35	30524U33045	SUBHASREE A	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
36	30524U33046	SUPRIYA A	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
37	30524U33047	THAHASIN TAJ N	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
38	30524U33048	VIJAYALAKSHMI N	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
39	30524U33049	YAMUNA M	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay
40	30524U33050	YOUVASRI V	Libreoffice Suite Draw 6.3	20.01.2026	6 months	IIT Bombay

I M.Sc., ZOOLOGY

S. No	Register Number	Name	Course Title	Completion Date	Duration	Institution
1.	30525P23001	ANU PRIYA. R	Cellular biology	Registration date: 20.11.2025	8 Weeks	NPTEL
2.	30525P23002	CHANDRIKA.J	Adolescent health and well-being - a holistic approach	12/09/2025	4 Weeks	NPTEL
3.	30525P23003	GUNA.D	Plant developmental biology	Registration date: 22.11.2025	4 Weeks	NPTEL
4.	30525P23004	HEMASRI.A	Plant developmental biology	Registration date: 22.11.2025	4 Weeks	NPTEL
5.	30525P23005	LITHIKA R	Adolescent health and well-being - a holistic approach	12/09/2025	4 Weeks	NPTEL
6.	30525P23006	NANDHINI. P	Adolescent health and well-being - a holistic approach	12/09/2025	4 Weeks	NPTEL
7.	30525P23007	NIVEDHA. V	Adolescent health and well-being - a holistic approach	12/09/2025	4 Weeks	NPTEL
8.	30525P23008	RAMYAPRIYA. M	Adolescent health and well-being - a holistic approach	12/09/2025	4 Weeks	NPTEL

STUDENTS CORNER

CHONDROCLADIA LYRA

Chondrocladia lyra, commonly known as the harp sponge or lyre sponge, is an unique carnivorous deep-sea sponge first discovered off the coast of Northern California at depths of about 3,300–3,500 meters. Its structure resembles a harp or lyre, with horizontal stolons and vertical branches forming a striking, elegant shape that helps maximize its ability to capture prey. The sponge uses velcro-like hooks and spines on its surface to snare small crustaceans and copepods, which it then digests with a specialized membrane. *Chondrocladia lyra* reproduces using terminal balls filled with spermatophores, which are released and caught by filaments on other sponges to facilitate fertilization. It is anchored to the seafloor by a root-like rhizoid and is found in soft abyssal sediments, often on slopes or in narrow crevasses where currents funnel prey. This species challenges typical sponge biology by being an active predator rather than a passive filter feeder.

Dhivya Sri. B
III B.Sc., Zoology

DOLPHINS - THE OCEANS FRIENDLY COMMUNICATION

Dolphins are some of the most loved animals in the sea. Their curved mouths make them look like they are smiling, but there is much more to dolphins' friendly appearance - like deeply social, highly intelligent and excellent communicators. Dolphins live in groups called pods, which can include a few individuals to more than fifty. These pods act like families. They travel together, hunt together and protect each other from danger. Dolphins have strong bonds and some can last for many years. Their intelligence also set them apart, the dolphins can learn new task and solve problems. In the wild they use clever strategies to hunt. For example, one dolphin may scare a school of fish while others wait to catch them, these teamwork shows how well dolphins understand group behaviour. Dolphins are known as nature's underwater communicators. They talk using clicks, whistle and body movements. Clicks help them to find food or objects in dark cloudy water, while whistle are used to send messages to other dolphins. One of the most interesting is the unique signature of whistles which are special sounds that act like names. It often work together to survive. If a dolphin is sick or injured others may stay beside it and help them to reach the surface to breathe. They also protect younger dolphins teaching them how to swim, hunt and avoid predators. Dolphins are built for speed and agility. Their smooth, streamlined bodies move quickly in water and swim up to 35 km per hour. Their skills, teamwork and kindness towards each other make them one of the oceans most remarkable animals. Understanding and protecting dolphins reminds us how important it is to care for the sea and the life it holds.

Sarisha. H
II M.Sc., Zoology

PROBLEM-SOLVING IN BIRDS AND SMALL MAMMALS

Intelligence in animals is often underestimated, but many birds and small mammals show impressive problem-solving abilities. These skills help them survive in the wild, find food, avoid danger, and adapt to changing environments. Their behaviours reveal that smart thinking is not limited to humans alone.

Crows and Ravens: Bird Geniuses

Crows and ravens are known for their remarkable intelligence. They can create tools from sticks and wires, solve multi-step puzzles, and understand cause and effect. Their ability to plan and use logic makes them some of the most intelligent birds on Earth.

Parrots: Memory and Reasoning Experts

Parrots, especially African Greys, show strong memory, learning skills, and reasoning. They can recognize shapes, colours, and patterns, and they remember solutions for a long time. Their ability to mimic and learn makes them excellent problem solvers.

Pigeons: Everyday Birds with Smart Skills

Pigeons may look ordinary, but they are surprisingly smart. They can navigate complex city areas, identify human faces, and learn simple mathematical patterns. Their quick learning ability helps them survive in crowded urban environments.

Squirrels: Masters of Planning

Squirrels show strategic thinking when storing food. They hide hundreds of nuts in different places and remember where each one is kept. They even pretend to bury food to confuse animals watching them. This clever behaviour helps them survive tough seasons.

Rats: Quick Learners and Thinkers

Rats are known for solving mazes, remembering routes, and learning from experience. They understand trial and error and communicate danger to other rats. Their adaptability and memory make them excellent problem-solvers.

Birds and small mammals show impressive intelligence through problem-solving skill. Their creativity and quick thinking help them survive in challenging environments.

Harini. S
III B.Sc., Zoology

ARCTIC TERN – NATURE'S GREATEST MIGRATORY BIRD

The Arctic Tern is a remarkable migratory seabird that is famous for making the longest journey of any animal in the world. This small bird breeds in the cold Arctic regions during the summer months and then migrates to the Antarctic region when winter approaches. Every year, the Arctic Tern travels nearly 70,000 kilometers as it moves between these two extreme ends of the Earth. The main purpose of this long migration is to escape severe weather conditions and to find areas rich in food. By migrating, the Arctic Tern experiences more daylight than any other animal on Earth, which helps it find food easily.

Arctic Terns mainly feed on small fish, crustaceans, and marine insects. They catch their prey by hovering over the sea and diving swiftly into the water. Their long, pointed wings and lightweight body help them fly great distances with very little effort. These birds often travel in groups and follow ocean currents and wind patterns to save energy during their journey. Arctic Terns are also known for their sharp vision and excellent flying skills, which help them survive over vast oceans.

One of the most amazing facts about the Arctic Tern is its long lifespan. Many Arctic Terns live for more than 30 years, and during their lifetime, they can travel millions of kilometers—almost equal to flying to the moon and back several times. To navigate such long distances, they use natural cues like the position of the sun, stars, and Earth's magnetic field. This natural navigation system allows them to travel accurately even across open seas without landmarks.

Despite their incredible abilities, Arctic Terns face several threats today. Climate change affects sea temperatures and reduces food availability. Pollution, plastic waste, and oil spills also harm marine life, indirectly affecting these birds. In some regions, human disturbance and loss of safe nesting sites pose serious challenges. Protecting Arctic Terns and their habitats is important because they are an essential part of marine ecosystems. The Arctic Tern stands as a powerful symbol of endurance, adaptation, and the beauty of migration in the natural world.

Hemalatha. E
III B.Sc., Zoology

KOALA – THE GENTLE TREE-DWELLER

The Koala (*Phascolarctos cinereus*) is one of Australia's most iconic marsupials, known for its cuddly appearance and calm lifestyle. Koalas are often called "koala bears," but they are **not bears**. They are marsupials, meaning they carry and nurse their young in a pouch. Koalas have soft, wool-like grey fur, round fluffy ears, and a large leathery nose that gives them an adorable look. Their strong limbs and sharp claws help them climb and grip branches with ease. Koalas live mostly in **eucalyptus forests**. These trees provide both shelter and food. A koala spends most of its life perched on branches, resting or feeding. Koalas eat almost only **eucalyptus leaves**, which are low in nutrients. Because of this, they conserve energy by sleeping 18–20 hours a day. Despite their sleepy nature, koalas are excellent climbers. A baby koala, called a **Joey**, is born very tiny and lives in its mother's pouch for about six months. After that, it rides on the mother's back while

learning to eat leaves. Koalas face threats like habitat loss, climate change, and forest fires. Conservation programs aim to protect their forests and support their population.

Husna. K
III B.Sc., Zoology

MOM'S MAGIC

A garden of the heart.
She planted all the good things
They gave my life its start.
She turned me to the sunshine
And encouraged me to dream.
Fostering and nurturing
The seeds of self-esteem.
And when the winds and rain came,
She protected me enough.
But not too much because she knew
I'd need to stand up strong and tough.
Her constant good example
Always taught me right from wrong.
Markers for my pathway
Thank you for making me.

Mahalakshmi. S
II B.Sc., Zoology

THE WEIRDOS ON THE EARTH

CARNIVOROUS CATERPILLARS:

Usually, the caterpillars are herbivorous. But the caterpillar stage of *Eupithecia orichloris* is carnivorous. They are insectivorous, feeding on insect for their nutrient. The caterpillar has two abdominal appendages which serve as trigger to initiate a backward motion by which it grasps the prey. Addition to this they exhibit camouflage. Some species mimic twigs or leaves.

THE POKEMON ANIMAL

Costaella kurroshime also known as leaf sheep or leaf slug is a marine mollusc under the Class Gastropoda. They are found in the tropical and subtropical region where algae grow in abundance. They are small, some species are 7mm in size. They are very different from other animals. They are popularly known for their photosynthetic activity. These animal steal the photosynthetic organelles [Chloroplast] from the algae and perform photosynthesis within their own cells. The sea slug uses its radula like mouth to pierce algae cells. Instead of digesting everything they retain the chloroplast of the algae in the diverticula to perform photosynthesis. They can survive days, months, or even years by the energy produced by photosynthesis. They have the ability to regenerate their body parts. Some species can even regenerate their heart.

THE WATER BEAUTIES:

Nudibranch are molluscs of the Class Gastropoda. There are about 3000 named species of nudibranch. They live both in shallow and deep water. They are the beautiful creatures of the sea with extraordinary colours and patterns. The brightness of the animal protects it from the prey. Their appendage are used for feeding, respiration, digesting and defence purposes. Some nudibranch feeds on the jellyfish and stores the stinging cells of the jelly fish in the tips of the serata for defence purposes. They are hermaphrodites.

INSECT PREYING ON BIRDS:

Praying mantis are insects of the Order Mantises. They are related to cockroach and termites. Their upright posture resembles praying posture hence they are called as praying mantis. The eyes of the insect are well developed. They use their vision to locate their prey. Their vision is so powerful. There are so many different species of praying mantis. The Orchid mantis found in the tropical forest of southeast Asia. They get the name orchid mantis because the females mimic the orchid flowers. Their flowery appearance lures pollinating insects to them. They feed on small insects to large ones, to lizards, frogs and even birds. The contain strong mandibles which work like scissors which can slice through strong materials like exoskeleton and bones. The praying mantis has a single ear, located on the underside of its abdomen between its legs. They can only hear ultrasonic frequencies between 25-50khz. The males even after cut into half can use their bottom half to pass the sperm to the female.

Nandhni Periyannan
I M.Sc., Zoology

A SHORT BIOGRAPHY OF ANTON VAN LEEUWENHOEK

Born in Delft, the Netherlands, Leeuwenhoek's father was a basket maker, and his mother worked in a family of painters. He received a practical, not formal, education and was sent to Amsterdam to become an apprentice to a linen draper at age 16. He worked as a cloth merchant for most of his life, a job that required him to use magnifying glasses to inspect the quality of cloth by counting threads. This early exposure to magnifying glasses sparked his interest in optics and the unseen world. He later began making his own single-lens microscopes that could achieve magnifications of up to 300x. He is recognized as the first acknowledged microscopist and microbiologist. He crafted simple yet powerful microscopes that allowed him to see a world previously hidden from human eyes.

Leeuwenhoek was the first person to observe and describe bacteria, protozoa, and red blood cells. He documented his findings in a series of letters to the Royal Society, where he first described bacteria from his own mouth in 1683. His observations provided evidence against the long-held theory of spontaneous generation. For example, he showed that fleas hatch from eggs and are not spontaneously created from sand. He also made discoveries in anatomy, describing the structure of muscle fibers, nerves, and blood cells. Due to his pioneering work, he is considered the "Father of Microbiology". His detailed observations and correspondence helped lay the foundation for the fields of microbiology and microscopy. His contributions were so significant that he was elected a member of the Royal Society in 1680.

Nivethitha. S
III B.Sc., Zoology

ANTIBIOTIC-RESISTANT SUPERBUGS

Antibiotics have changed modern medicine and helped to save millions of lives. However, the misuse and overuse of antibiotics have led to the rise of "superbugs"- bacteria that are resistant to multiple antibiotics. This worldwide health problem could make even simple infections untreatable. Superbugs are strains of bacteria that have evolved to resist the effects of antibiotics. Examples include MRSA (Methicillin-Resistant Staphylococcus aureus), CRE (Carbapenem-resistant Enterobacteriaceae), and XDR-TB (Extensively Drug-Resistant Tuberculosis). When we use antibiotics incorrectly, we accidentally help the strongest bacteria survive and multiply. These resistant bacteria are often called "superbugs".

Overuse of antibiotics in humans and animals, incomplete antibiotic courses, Use of antibiotics in livestock for growth promotion, Poor infection control in hospitals and clinics are the major reasons for antibiotic resistance. This leads to increased hospital stays and mortality also Infections become harder and more expensive to treat.

WHO’s Global Action Plan on antimicrobial resistance include, Promoting responsible use of antibiotics, Research and development of new antibiotics, Surveillance and infection prevention measures.

Taking antibiotics for illnesses they cannot cure, like the common cold or the flu, which are caused by different strains of viruses, If you stop taking the medicine early because you feel better, the weakest bacteria die, but the stronger ones may survive and learn to fight against the drug, Giving antibiotics to healthy animals to make them grow faster, which creates resistant bacteria that can spread to humans through food or the environment are some practices that have to be discouraged.

One must avoid self-medication and unnecessary antibiotic use, Complete the full course of antibiotics, Maintain hygiene and vaccination, Support awareness programs and policies to prevent this problem.

If antibiotics stop working, common problems like ear infections, strep throat, or small cuts could become life-threatening again. Modern medical procedures like surgeries, cancer treatments, and organ transplants also become much riskier because they rely on antibiotics to prevent infections.

Antibiotic-resistant superbugs pose one of the biggest threats to global health. Immediate action from governments, health professionals, and individuals is crucial to control their spread. Responsible use of antibiotics today will protect future generations.

Patel Mehar Tahreem. M
II B.Sc., Zoology

GIRAFFE

The giraffe is an extraordinary animal, whose most defining feature, its long neck, has fascinated scientists and observers for centuries, not only because of its length but because of the complex adaptations. Although a giraffe's neck can be over two meters long, it contains the same number of vertebrae as a human's, just greatly elongated and supported by powerful muscles and ligaments. This unique structure allows giraffes to reach food sources high in trees, giving them access to leaves that few other herbivores can eat and reducing competition for food. Their long legs contribute to their height and enable them to move gracefully across vast African landscapes, while also allowing them to run surprisingly fast when threatened. Beneath their calm appearance, giraffes possess highly specialized cardiovascular systems: an exceptionally strong heart and tight skin around the legs help manage blood pressure and prevent fainting when they bend down to drink. Their patterned coats are not just beautiful but practical, aiding in camouflage and helping regulate body temperature by controlling blood flow beneath the skin. Socially, giraffes live in flexible groups that change often, allowing them to adapt to shifting environments and food availability. Despite their size and strength, giraffes are generally gentle animals, spending much of their day feeding, walking, and quietly interacting with others in the herd. However, they face growing threats from habitat loss and human activity, making conservation efforts increasingly important to ensure that these tall, graceful animals continue to thrive in the wild that make it functional.

Sasikala. B
II M.Sc., Zoology

A LIVING SURVIVOR - THE DEEP-SEA GREENLAND SHARK

Deep within the frigid depths of the Arctic and North Atlantic lies a remarkable creature the Greenland Shark. This ancient survivor is believed to live for over 400 years, originating long before the advent of electricity or modern medicine. This extraordinary shark began its life in the early 1600s, a time when many nations were yet to be established as we know them today. Scientists have uncovered the secrets of the Greenland Shark's astonishing longevity, making it a subject of fascination and study. Its slow growth and resilience in harsh conditions provide valuable insights into marine biology and the history of our planet. The Greenland Shark serves as a living testament to the mysteries of the ocean and the endurance of life through centuries.

Saraswathi. S
II M.Sc., Zoology

ZOOLOGY

From buzzing bees to roaring lions,

Life unfolds in endless forms and ions

Zoologists watch, record, and learn,

How each creature twist and turns.

In forest green and oceans deep,

Creatures wake while others sleep,

From tiny ants to mighty whales,

Every journey in nature prevails

Nature's book in wide and vast,

Every species links the past.

Shainas. M
II B.Sc., ZOOLOGY

BRAIN: THE ENERGY-HUNGRY ORGAN

The human brain is one of the most energy-demanding organs in the body. Although it accounts for only about 2% of total body weight, it requires roughly one-fifth of the body’s daily energy supply to function. This energy fuels billions of neurons that continuously communicate to support thought, memory, learning, and essential processes such as breathing and heartbeat.

Research published in 2025 has reshaped our understanding of how the brain meets these high energy demands. A study in Nature Metabolism titled “Triglycerides Are an Important Fuel Reserve for Synapse Function in the Brain” demonstrated that brain cells can draw energy from fat stores, especially when glucose availability is reduced. Another 2025 study, “New Insights into

the Energy Balance of Brain Neurons," revealed real-time changes in neuronal energy levels during stressful conditions like stroke.

Together, these findings highlight the brain's remarkable ability to adapt its energy use, a feature closely linked to neuroplasticity. Healthy lifestyle practices, including sufficient sleep, balanced nutrition, regular physical activity, and mental stimulation, play a crucial role in supporting efficient brain energy metabolism and long-term cognitive health.

Kolo Athiphro
II M.Sc., Zoology

LYNX

The lynx is one of the most mysterious and beautiful wild cats in the world, known for its short tail, long legs and black ear tufts. The Lynx is perfectly built for life in forests and snowy mountains. Its thick fur and large, furry paws help it walk silently on snow, making it a skilled hunter. Lynxes are solitary animals living alone and hunting mostly at night. Their sharp eyesight and hearing allow them to spot even the smallest movement. They feed mainly on rabbits, birds, and small mammals, keeping nature's balance in place.

There are four main types of lynx: The Eurasian lynx, Canadian lynx, Liberian lynx, and bobcat. Among these, the Liberian lynx is one of the rarest cats on earth.

The lynx is called the "ghost of the forest" because it moves so quietly. Its ear tufts help it hear sounds that humans cannot detect the lynx can see six times better than humans at night. They can survive in temperature below $-37^{O}C$ due to their thick fur. Lynxes help the ecosystem by controlling wildlife populations. They can live up to 14 to 17 years in the wild, and even longer in captivity.

Swathi. V
III B.Sc., Zoology

INSOMNIA

"*Insomnia is a gross feeder, it will nourish itself on any kind of thinking,*
Including thinking about not thinking."

Insomnia means a sleep disorder in which a person has difficulty falling asleep, staying asleep, or waking up too early, even when there is enough time and opportunity for sleeping. It involves difficulty initiating or maintaining sleep, resulting in non-restorative sleep and daytime impairment.

Causes of insomnia include, Stress, anxiety or depression, excessive thinking or emotional disturbances, irregular sleep schedule or poor sleep habits, excessive use of caffeine, alcohol or nicotine, medical conditions such as pain, asthma or hormonal disorders, use of certain medications, excessive use of mobile phone or screen before sleep.

Insomnia could be of different kinds; Acute insomnia is a short time sleep disorder in which a person has difficulty falling asleep lasting days to a few weeks, it occurs due to stressful life events such as exams, work pressure, illness, travel, emotional stress, or sudden changes in routine. Chronic insomnia is a longtime sleep disorder in which a person has persistent difficulty falling asleep, staying asleep, or waking up to early.it occurs due to stress, anxiety, chronic pain, medical condition (asthma, heart issues), and longtime stress.

Common symptoms are sleep issues, day time tiredness, cognitive problems, mood changes, physical sign, mental health (anxiety, depression), physical health (high blood pressure, weak immune system), poor performance.

Insomnia treatment focuses on lifestyle changes, counselling like cognitive behavioral therapy for insomnia (CBT-I) and sometimes medication, starting with good sleep habits (consistent schedule, calm environment, limited coffee and alcohol, relaxation (meditation, yoga).

Lithika. R
I M.Sc., Zoology

THE FASCINATING WORLD OF SQUIRRELS

Squirrels are one of the most ubiquitous and beloved creatures in our environment. With their bushy tails, agile movements and nutty antics, it’s no wonder they are a favorite among nature enthusiasts. But beyond their adorable exterior lies a complex and fascinating world, full of surprising facts and behaviors.

Super memory, the squirrel’s secret weapon; One of the most impressive aspects of squirrels is there incredible memory. These rodents have been known to recall the locations of thousands of nuts they have buried, even months after the fact. This remarkable ability allows them to survive during times of scarcity, making them one of the most successful species in the animal kingdom.

Deceptive behavior, the art of misdirection; Squirrels have also been observed exhibiting deceptive behavior, pretending to bury nuts to throw off potential thieves. This clever tactic showcases their intelligence and adaptability, making them formidable opponents in the game of survival.

Flying squirrels take the concept of agility to new heights, literally. These nocturnal creatures can glide through the air for distances of up to 150 feet, using a membrane of skin between their legs. This remarkable ability allows to traverse vast distances with ease, making them one of the most skilled gliders in the animal kingdom.

Squirrels are primarily herbivores, feeding on nuts, seeds, fruits and insects. However, they have also been known to consume bird eggs and small vertebrates, making them opportunistic omnivores. Their love for nuts is legendary, and their ability to crack open shells with their sharp teeth is a testament to their resourcefulness.

Squirrels use scent glands to mark their territories, communicating with other squirrels and warning potential intruders to stay away. This complex system of communication is a fascinating aspect of squirrel behavior, highlighting their social nature. By burying nuts and seeds, squirrels inadvertently contribute to forest regeneration and ecosystem balance. This crucial role makes them a vital component of their importance cannot be overstated.

As we marvel at the fascinating world of squirrels, it's clear that these creatures are more than just their adorable exterior. Their remarkable abilities, intelligence, and adaptability make them a joy to watch and study. As we continue to learn more about these incredible animals, we are reminded of the importance of preserving and protecting their habitats and appreciating the crucial role they play in our natural world.

Gnanashri. G
II M.Sc., Zoology

GIANT RATS: NATURE'S UNEXPECTED ENGINEERS

Giant rats are among the most fascinating yet misunderstood mammals on Earth. Unlike common house rats, these rodents can grow to the size of a small cat, with body lengths exceeding 90 cm including the tail. Found mainly in Africa, Southeast Asia, and parts of Papua New Guinea, giant rats have evolved remarkable adaptations that allow them to survive in diverse habitats ranging from rainforests to savannahs.

One of the most notable species, the African giant pouched rat (*Cricetomys gambianus*), is known for its exceptional intelligence and sense of smell. These rats possess expandable cheek pouches that help them transport food efficiently over long distances. Their sharp cognitive abilities have led humans to train them for practical purposes, such as detecting landmines and diagnosing tuberculosis, making them valuable contributors to public health and conservation efforts.

Ecologically, giant rats play a crucial role as seed dispersers and soil aerators. By hoarding food and digging extensive burrows, they enhance soil fertility and promote plant regeneration. Their burrowing activities also improve water infiltration and create microhabitats for smaller organisms, highlighting their importance in maintaining ecosystem balance.

Despite their benefits, giant rats often face negative perceptions due to their resemblance to pest species. Habitat loss, hunting, and illegal wildlife trade threaten their populations in several regions. Conservationists now emphasize the need to study and protect these rodents, not only for biodiversity preservation but also for their potential contributions to science and sustainable development.

In conclusion, giant rats are far more than oversized rodents—they are intelligent, ecologically significant mammals with unique abilities. Understanding and conserving them can reshape our perception of rodents and reinforce the importance of even the most overlooked species in nature.

Gayathri. S
II M.Sc., Zoology

FROM CURIOSITY TO CONFIDENCE: *MY JOURNEY AS A ZOOLOGY STUDENT*

This article reflects my journey. I did not choose Zoology because I had a clear plan or a fixed dream. I decided to do it because I was curious. Curious about life, about how a tiny cell grows into a complex organism, about why nature works in such perfect balance. At that time, curiosity was my only strength. Confidence came much later.

In the beginning, everything felt overwhelming. New subjects, scientific terms, diagrams, practical classes, and the pressure to "do well" made me question myself. I often wondered if I truly belonged here. Around me were students who seemed smarter, faster, and more confident. I silently compared myself with them and felt smaller every day.

There were moments when I doubted my choice. Late-night study sessions, confusing concepts, and exam stress tested my patience. Sometimes I studied hard but still did not get the results I expected. Those moments hurt the most. I learned that effort does not always give instant rewards, and that realisation was difficult to accept. But Zoology slowly taught me lessons beyond textbooks. When I studied animal behaviour, I learned about the concept of adaptation. When I learned about evolution, I understood that growth takes time. Nature never rushes, yet everything is accomplished. That idea stayed with me.

I realised that confidence is not something you are born with. It is built—quietly and slowly—through persistence. Every practical I completed, every concept I finally understood, every small improvement added a brick to my confidence. I stopped trying to be the best and started trying to be better than yesterday.

There were failures along the way. Marks that disappointed me, days when I felt exhausted, and moments when quitting felt easier. But each failure taught me something important: failure does not mean the end, it means learning has begun. Just like organisms evolve through challenges, students grow through struggles.

One day, I noticed a change. I was no longer afraid to ask questions. I started trusting my understanding. I began to enjoy learning rather than fearing exams. The same student who once doubted herself was now standing stronger—not because everything became easy, but because I became stronger.

Zoology shaped my mindset. It taught me patience, observation, and resilience. It taught me that progress is not always visible, but it is always happening. Like a seed growing underground, my confidence was developing silently.

Today, I may not know exactly where my journey will lead, but I know this: I am no longer unsure of my worth. I have learned to respect my pace and believe in my efforts. Curiosity brought me here, but confidence is what keeps me moving forward.

To every student who feels lost, confused, or not "good enough," remember this: confidence is not loud, and growth is not instant. Trust your journey. If nature takes time to create life, you can take time to create your future.

Harthi. M
Research Scholar

FROM NATURE TO MEDICINE: HOW PLANTS ARE BECOMING FUTURE CANCER DRUGS

Cancer remains one of the most challenging diseases faced by modern medicine. Despite major advances in chemotherapy, radiation, and targeted therapies, issues such as drug resistance, toxicity, and high treatment costs continue to limit their effectiveness. In this context, nature has emerged as a powerful source of inspiration for developing safer and more effective anticancer drugs.

Plants have been used in traditional medicine for thousands of years. Ancient systems such as Ayurveda, Traditional Chinese Medicine, and Unani medicine relied heavily on plant-based remedies to treat various ailments. Modern science has now begun to scientifically validate many of these traditional practices, leading to the discovery of potent anticancer compounds derived from plants.

Several well-known anticancer drugs have natural origins. For example, paclitaxel, derived from the Pacific yew tree (*Taxus brevifolia*), is widely used in the treatment of breast and ovarian cancers. Vincristine and vinblastine, obtained from *Catharanthus roseus*, are essential drugs in leukemia and lymphoma therapy. These discoveries highlight the enormous potential of plants as sources of novel therapeutic agents.

Plants produce a wide range of bioactive compounds such as alkaloids, flavonoids, terpenoids, and phenolics. These compounds can inhibit cancer cell growth by inducing apoptosis, arresting the cell cycle, reducing oxidative stress, and suppressing tumor-promoting signaling pathways. Unlike many synthetic drugs, plant-derived compounds often exhibit lower toxicity and better biocompatibility.

Recent advances in biotechnology and molecular biology have further strengthened plant-based drug research. Techniques such as phytochemical screening, cell culture assays, molecular docking, and gene expression analysis help scientists identify and validate bioactive compounds with anticancer potential. Additionally, sustainable extraction methods and green chemistry approaches ensure that drug development does not harm the environment.

The future of cancer treatment lies in integrating traditional knowledge with modern scientific research. Medicinal plants offer a vast, largely unexplored reservoir of therapeutic molecules that can lead to safer and more effective cancer therapies. However, systematic research, clinical validation, and ethical utilization of plant resources are essential to translate laboratory findings into clinical success.

In conclusion, plants are not merely passive components of nature but active contributors to medical advancement. By exploring and preserving plant biodiversity, humanity can unlock new

possibilities in cancer treatment. The journey from nature to medicine reflects the powerful synergy between traditional wisdom and modern science, offering hope for more effective and sustainable cancer therapies in the future.

Radhika. M
Research Scholar

STORY OF KITO – THE LITTLE TIGERFISH

Deep in a wide African river lived a young tigerfish named Kito. Unlike the older tigerfish, whose scars told stories of endless battles, Kito was curious more than fierce. He loved racing the current and watching sunlight ripple across the water's surface.

One morning, the river changed. The water rushed faster than usual, carrying branches and leaves from a distant storm. Smaller fish hid among the reeds, and even the crocodiles stayed still. Kito felt the pull of the current and knew this was a test of strength. Instead of fighting the river, Kito swam with it—twisting, turning, and using his powerful tail wisely. As he moved, he noticed a school of frightened fish trapped near rocks. Remembering how the elders used skill, not just power, Kito circled wide and guided them toward calmer water. By the time the river slowed, Kito was exhausted but proud. The elders watched silently, then nodded. Kito had learned the true way of the tigerfish: speed with control, strength with awareness. From that day on, the river knew his name—not just as a hunter, but as a master of the current

Gayathri. S
III B.Sc., Zoology

THE AMUR LEOPARD

The Amur Leopard native to remote forests of the Russian Fareast and northeastern China, is considered one of rarest big cats on the planet. With fewer than 100 adult individuals surviving in the world, the species stands on the edge of extinction.

Unlike its African relatives, the Amur Leopard has a thick pale, and beautifully patterned coat, perfectly adapted to freezing temperatures and snowy terrains. Its long legs help it leap across rugged landscapes making it a true master of agility and stealth.

Rapid deforestation, forest fires, and land conversion for agriculture have drastically shrunk the Amur Leopard's natural habitat. As forests disappear, the leopards lose their hunting grounds and shelter. The stunning coat of the Amur Leopard has long made it a target for illegal wildlife trade. Poachers also kill it's prey species, such as row deer and sika deer, leaving the leopard with limited food. As human settlements expand, leopards sometimes stray into villages in search of food. This leads to conflict, retaliatory killings, and further decline in their population.

Conservation teams in Russia and China are working urgently to protect this species. Anti-poaching patrols, strict wildlife laws, and protected areas like the land of the leopard National park

have already increased survival chances. Scientists are also focusing on captive breeding programs and exploring ways to connect isolated forest patches allowing leopards to roam and reproduce safely.

Priyadharshini. A
III B.Sc., Zoology

VOICE OF THE WILD

I used to run, I used to fly,

I sang my song beneath the sky.

Through forest deep and ocean wide,

I lived my life with quiet pride.

The tiger's steps are hard to find,

The panda's world is far behind.

The whale still sings beneath the sea,

But fewer now can sing with me.

The trees are gone, the skies are gray,

The places where I lived fade away.

You may not see me every day,

But still, I have some things to say:

Please hear my voice before it's gone,

Before the night replaces dawn.

I need your help to stay alive—

So I can swim, or soar, or thrive.

We all belong on Earth with you.

Together, there's so much we can do.

If you protect the wild and free,

You also help take care of me.

Asfiya Aiman. B
II M.Sc., Zoology

YETI CRAB: A DEEP-SEA MARVEL

The Yeti Crab, scientifically known as *Kiwa hirsuta*, is one of the ocean's most intriguing and unusual creatures. First discovered in 2005 near hydrothermal vents in the South Pacific, at depths of around 2,200 meters, this crustacean has fascinated scientists and marine enthusiasts alike. Its most striking feature is its pincers, covered in thick, white, hair-like structures called setae, which give it a furry appearance reminiscent of the mythical Yeti. Despite being commonly called a crab, it belongs to a unique family of crustaceans known as Kiwaidae, setting it apart from typical crabs and highlighting its distinct evolutionary lineage.

One of the most remarkable adaptations of the Yeti Crab is its ability to farm bacteria on its hairy claws. These bacteria serve as its primary food source, allowing it to survive in the extreme, nutrient-poor environment of hydrothermal vents. Living in such harsh conditions, where temperatures fluctuate dramatically and sunlight never reaches, the Yeti Crab has poor eyesight and relies on other senses to navigate its surroundings. It is a slow-moving scavenger, feeding mainly on the bacterial gardens it cultivates, along with small particles of organic matter it finds in its environment.

The Yeti Crab's existence offers a rare glimpse into life in extreme, isolated ecosystems and represents a living example of evolutionary ingenuity. Scientists often refer to creatures like it as part of the "lost world" fauna, relics of ancient deep-sea life that have adapted to survive in extreme conditions over millions of years. Despite its fascinating traits, the Yeti Crab remains extremely rare and difficult to study, as its deep-sea habitat is challenging to access. Its unique combination of unusual physical features and extraordinary behavioral adaptations makes it a symbol of the ocean's mysterious and resilient life forms.

Yukeswari. D
II M.Sc., Zoology

DEER

Deer live in a variety of habitats such as forests, grasslands, mountains, and wetlands. They are found in many countries including India, where species like the Spotted Deer (Chital) and Sambar Deer are commonly seen in wildlife sanctuaries and national parks. Deer are herbivores. They feed on grass, leaves, fruits, flowers, and tender shoots. Their grazing helps maintain balance in the ecosystem by controlling plant growth. Male deer usually have antlers, which are shed and regrown every year. Antlers are used for protection and to attract females during the breeding season. Female deer generally do not have antlers. Deer are shy and alert animals. They live in groups called herds and run very fast to escape from predators like tigers and wolves. Their strong hearing and sense of smell help them detect danger quickly. Deer usually give birth to one or two babies called fawns. Fawns have white spots on their body which help them hide from predators.

Saniya. R
III B.Sc., Zoology

WHERE SCIENCE SPEAKS THROUGH LIVING THINGS

From a tiny cell the world began,
A secret wonder revealed by science.
Even in the smallest breath of life,
There lies a lesson of existence.

The butterfly that glides through air
Teaches the story of growth and change.
Transformation is nature's rhythm,
A path of evolution carved in time.

The fish that swims with gentle ease
Shows simplicity and balance of life.
The bird that soars in the open sky
Gives us a higher view of living.

In bones, muscles, and flowing blood,
Nature hides countless mysteries.
Every system is a universe on its own,
And knowing them is the journey of knowledge.

Animals and humans share one truth—
A delicate balance that shifts with seasons.
Life will continue only if we protect it,
But if we destroy, the earth will fall.

Every chapter of Zoology
Is an artwork painted by life itself.
Studying it is not just a subject,
But a beautiful conversation with living things.

Ramya. M
II M.Sc., Zoology

THE CLAY POT – A METAPHOR OF LIFE

Once upon a time, there was a small lump of clay lying near a riverbank. It was soft, shapeless, and unnoticed. People passed by it every day without giving it a glance. It felt useless and unimportant.

One day, a potter came and picked up the clay. He placed it on his wheel and began to shape it. As the wheel spun, his hands pressed, pulled, and molded the clay. The clay felt pain and cried out, "Why are you hurting me?" But the potter did not stop. Slowly, the clay began to take the shape of a beautiful pot.

When the shaping was complete, the potter put the clay into a hot kiln. The fire was intense. The clay thought it would be destroyed. But after many hours, it came out strong and firm. It was no longer weak clay; it had become a useful pot.

The potter then filled it with water. People came to drink from it. The once-forgotten clay was now giving life to others.

Just like the clay, we are born simple and weak. We often feel small, unnoticed, and unsure of our worth. The potter represents God, life, and our experiences that shape us. The pressure of the potter's hands is like the challenges, corrections, and struggles we face. Though painful, they help us grow into better persons.

The fire in the kiln stands for suffering, trials, and hardships. We do not enjoy these moments, but they make us strong, patient, and mature. Without these fires, we would remain weak in character.

When the clay becomes a pot, it gains a purpose — to hold water and serve others. In the same way, when we allow ourselves to be shaped by life, we discover our true purpose: to love, to serve, and to give.

Even though the pot is fragile, it is still valuable. So are we. Our life may crack at times, but we are never useless. We always remain in the hands of the Divine Potter who can reshape and renew us.

Sr. Neha Lucy Kujur
II B.Sc., Zoology

THE RISING TIDE OF CONSERVATION TECHNOLOGY

The article "The rising tide of conservation technology: empowering the fight against poaching and unsustainable wildlife harvest" (2025) by Antony John Lynam *et. al*., published in Frontiers in Ecology and Evolution, discusses how modern technology is transforming global wildlife conservation efforts, especially in the fight against poaching and illegal wildlife trade. The authors explain that despite decades of conservation work, poaching remains one of the biggest threats to many endangered species. Traditional patrolling and ground-based monitoring alone cannot keep up with today's sophisticated illegal trade networks. Therefore, conservationists have begun integrating advanced technologies to improve surveillance, detection, and enforcement.

The paper highlights several categories of technology now being used: remote sensing tools, drones, GPS collars, camera traps, acoustic sensors, and artificial intelligence (AI) systems. These tools help conservationists monitor wildlife more efficiently, even in remote or dangerous areas. Camera traps equipped with AI can automatically identify species, detect human intruders, and send real-time alerts to forest guards. Drones provide wide-area surveillance, reducing the time and labour needed for manual patrolling. Likewise, satellite images allow researchers to track habitat loss, forest cover changes, and human activity around protected areas.

Another major contribution of the article is its discussion on how data analytics and machine-learning models predict poaching hotspots by analysing patterns such as animal movements, footpath networks, previous poaching incidents, and road accessibility. This allows forest departments to deploy limited staff more strategically. The authors also highlight the role of community-based technology adoption, such as mobile apps that allow local people to report illegal activities or injured animals.

However, the article also points out challenges: high costs of advanced equipment, limited technical training among field staff, maintenance issues in harsh environments, and the risk of increased dependence on technology without strengthening local capacity. Ethical concerns, such as the use of surveillance tools near human settlements, are also mentioned.

Overall, the article concludes that technology is not a replacement for traditional conservation methods but a powerful extension of them. When combined with strong policies, community involvement, and ecological knowledge, conservation technology can significantly reduce poaching, improve wildlife monitoring, and support more sustainable wildlife management. The authors argue that adopting these technologies will be essential for protecting biodiversity in the next decade.

Jothi. V
II M.Sc., Zoology


DISAPPEARING WILD
DISAPPEARING WILD
WORLD WILDLIFE
Save a wildlife


MARINE TURTLES

DEPARTMENT ACTIVITIES

ACADEMIC YEAR 2025 – 2026

16.06.2025	College Reopens for II, III UG and II PG.
16.06.2025	Student Orientation Program: II, III B.Sc Zoology students, II M.Sc Zoology students participated in the orientation program, Mr. Viswanathan, District Vice President TNSF delivered a lecture on "Voice of Imagination". The Resource persons were Mr. Ramu TNSF Vellore, and Mr. Subramani.S and they delivered lecture on "Unlocking the potential"
18.06.2025 to 24.06.2025	Student Induction Programme for all first year students: I B.Sc Zoology students participated in SIP on Socializing, Associating, Governing, Experiencing.
20.06.2025	Fresher's Welcome For I B.Sc students: I B.Sc Zoology student was welcomed by the senior students. PG and Research Department of Zoology, Staff and Students participated in Fresher's Welcome. The programme started with Prayer followed by dance and games. Dr. Mary Agnes A, HOD Welcomed the students and introduced the faculty members of Zoology and Botany Department. Fresher's introduced themselves and the senior students took them for a campus tour.
01.07.2025	Fresher's Welcome for I M.Sc students: I M.Sc Students were welcomed by II M.Sc students. PG and Research Department of Zoology, staff and students participated in Fresher's welcome. The programme started with prayer followed by introduction of the fresher's. Innovative games were conducted. Dr. Mary Agnes. A, HOD Welcomed the freshers and highlighted the Academic Curriculum.
03.07.2025	Visit to District Science Centre, Sathuvacheri: As part of the Student Induction Programme, I B.Sc Zoology students visited the District Science Centre at Sathuvachari on 03.07.2025 from 10.00 AM to 1.00 PM. The Students were accompanied by Ms. Anuradha and Sr. Irene Towle. 53 Students were benefitted from the visit.
04.07.2025	Inauguration of the College Union: College Union leaders and leaders of clubs and movements took charge. Dr. Sandhya Pentareddy, Executive Director, Vellore Institute of Technology, Vellore presided over and delivered Inaugural address.
07.07.2025	Digital Day - Department of Zoology:

	The Department of Zoology took initiative to make the students use the ICT tools for effective learning. Classes were conducted using videos, ppt ppt, online classes were conducted through meet references, Materials, diagrams were posted through LMS. Quig was conducted through ERP LMS.
08.07.2025	Department SEC Activity- Model Display: II B.Sc Zoology Students displayed models as a part of their SEC activity.
16.07.2025	Sr. Helen Fernandes Endowment Lecture organized by Department of Zoology: UG and PG Zoology Students attended a resource lecture on Reproductive "Health and Wellness" delivered by Mrs.Alice Sony, Professor & Former Head, OBG Nursing Superintendent, CMC, Vellore. Students were Benefitted.
25.07.2025	International Conference: PG and Research Department of Zoology, Biochemistry and Department of Botany conducted an International conference on the topic Conservation of coastal ecology on 25th July Dr. Muthukumar delivered the Inaugural address. Program Officer, EIACP, Ministry of Environment and Climate change, Government Of India. UG and PG Students participated in the poster presentation. Ms. Nivethitha.S of III B.Sc Zoology
28.07.2025	Ward Meeting
08.08.2025	Drug Awareness Programme: I B.Sc., Zoology and II B.Sc., Zoology participated in the Drug Awareness Programme Mr. Mayilvahanum, the Superintendent of Police delivered the speech on Drug Awareness.
18.08.2025	Online Lecture - AIIC Zoology Unit: UG and PG Zoology Students attended an online lecture on the topic "Achieving value Proposition Fit and Business Fit" conducted by AIIC Zoology Unit. Dr. Senthilkumar Ayothi, Asst. Prof & Head, Department of Management, The Tamilnadu Dr. Ambedkar Law University, Chennai was the Resource Person.
26.08.2025	Sports Day: UG Students participated in the March past and various sports events
29.08.2025	Mentoring sessions were conducted for UG and PG Students.
29.08.2025	CM Trophy Tournament: Kayalvizhi G and Carmal Mary M of III B.Sc., Participated in CMTrophy Tournament held at VIT and won second prize in the Football Match.

01.09.2025	Digital Day: Activities by the Department of Zoology include conduction of classes using ICTtools for effective learning. Material diagrams were posted through ERP LMS.
01.09.2025	ASQC Orientation Programme: The Department ASQC members participated in the Auxilium Student Quality cell Orientation programme conducted by Dr. Sr. Sagaya Mary.T., IQAC Co-ordinator.
01.09.2025 & 02.09.2025	Parents- Teachers Meeting: Parents- Teachers Meeting was conducted for UG and PG students. Principal Dr. Sr. Arockia Jayaceli. A addressed the gathering and highlighted the Importance of Education. Tutors issued the marksheets to the respective students.
03.09.2025	Orientation Programme on Intellectual Property Rights: M.Sc., Students participated in the Orientation Programme on Intellectual Property Rights conducted by the Committee for Research Ethics, Publication &IPR. Mr. S. Udhaya Shanker, Deputy controller of Patents & Designs, Patent office, Chennai was the Resource person.
08.09.2025	Sr. Regina Colombo Endowment Lecture: III B.Sc., Zoology Students participated in the Sr. Regina Colombo Endowment Lecture on the topic " The Role of Physiology in Animal health and Diseases" by the Resource person Dr. Kiruthiga Vijayan, Assistant Professor, Department of Zoology, DKM College for Women,
11.09.2025	Expert talk on "Birds of Vellore": UG and PG students of Zoology participated in Expert talk on Birds of Vellore conducted by Career Guidance and Placement cell and the Resource Person was Mr. Rajiv, Clinical care therapist, Neuro ICU, Christian Medical College Vellore, Wildlife Photographer.
20.09.2025	Muthamizh Vizha: UG Students Participated in various cultural activities conducted by the Department of Tamil. UG and PG Students attended Muthamizh Vizha on 20.09.2025.
24.09.2025 To 30.09.2025	II CA Examination
29.09.2025	Commemoration of Nilgiri Tahr Day:

	The Department of Zoology commemorated Nilgiri Tahr Day with a Model Making Competition. The event aimed to create awareness about conserving the Nilgiri Tahr, Tamilnadu's State animal organized by the Tamilnadu Forest Department. PG students won Second prize in state level Competition.
06.10.2025 To 08.10.2025	WILD LIFE WEEK CELEBRATION The Department of Zoology organized Interdepartmental Competitions. Vegetable Carving "Marine Marvels" was conducted On 6.10.2025. The Winners were I Place: Lavanya.K - II M.Sc., Zoology II Place: Jothi.V- II M.Sc., Zoology III Place: Aasha.B - II M.Sc., Zoology Poem writing competition on the topic "Voices of the world" on 07.10.2025. Winners were English Poem Competition I Place: - Asifiya Aiman II M.Sc., Zoology II Place: Achitha.D, II BHA II Place: - Keerthana.S. I B.Sc. Psychology III Place: - Atshaya.A, I B.Sc. Zoology Tamil Poem Competition I Place: - Hemasri.A I M.Sc., Zoology Drawing competition on the topic "Disappearing Wild" was conducted on 08.10.2025. Winners were I Place: - Nandhini.P, I M.Sc., Zoology II Place: Anupriya.R. - I M.Sc., Zoology III Place: Lavanya.K - II M.Sc., Zoology
07.10.2025	Wild Life Week Celebration- Tamilnadu Forest Department: Tamilnadu Forest Department organized Intercollegiate competitions, PG students of Zoology participated in various competitions. Abitha Sree K won I place in an Essay writing Competition on" Human Wildlife Coexistence". Aasha B won a place in the Drawing Competition on Participating in wildlife conservation.
08.10.2025	Museum Visit: Twenty students and three Assistant Professors of Little Flower Degree College Hyderabad visited the Museum.
08.10.2025	Online convocation meeting: Dr. Mary Agnes HOD of the Zoology Department instructed UG and PG graduates for the smooth conduction of the convocation.
09.10.2025	Sr. Antoinette Aloysius Endowment Lecture:

	III B.Sc., Zoology students participated in the Sr.Antoinette Aloysius Endowment Lecture on the topic " Molecular and Cellular Basics of Human Genetics Syndrome: From Chromosome to Clinic" by the Resource person Dr. Vidhya Gunasekeran, Asst. Professor, Department of Zoology, DKM College for Women, Vellore.
13.10.2025 & 14.10.2025	UG Semester Practical Examination
15.10.2025 & 16.10.2025	PG Semester Practical Examination
17.10.2025	MLT Semester Practical Examination
17.10.2025	Ward Meeting
12.11.2025	College Reopened for Even Semester
20.11.2025	Extension activity: II and III B.Sc., Zoology visited Panchayat School, Gandhi Nagar for Extension activity. III B.Sc., Zoology engaged in calculating Body Mass Index. II B.Sc., Zoology conducted games and performed dance activity based on Health and Hygiene.
28.11.2025	Sr. Maria Fino Endowment Lecture: I B.Sc., Zoology students participated in the Sr. Maria Fino Endowment Lecture on the topic "Microplastics: A Global Environmental Concern" by the Resource person Dr. Rekha .V Asst. Professor, Department of Zoology, DKM College for Women, Vellore.
29.11.2025	Field Visit – Yelagiri: Field visit to Fundera Birds Park and Selfie Panda was Organized by the Department of Zoology For the III yrs B.Sc., Zoology and for M.Sc., Zoology students. Four Staff members accompanied the students.
09.12.2025	Sr. Ethelvina Endowment Lecture: M.Sc., Students participated in the Sr. Ethelvina Endowment Lecture On the topic " Biomimetic Nanomedicine for targeted Breast Cancer Therapy" by the Resource person Dr. Arunkumar Pitchaimani Associate Professor Senior, CBCMT, VIT University.
05.12.2025	NSS Programme officers Workshop

10.12.2025	Viva Voce : Philomina.A.F, Scholar of Dr. Mary Agnes A, Associate Professor defended her thesis. Dr. Saravana Bhavan, Prof. & Head, Department of Zoology, Bharathiar University, Coimbatore was the external examiner.
06.12.2025 to 12.12.2025	NSS CAMP NSS Volunteers from III B.Sc., Zoology and Ms. Anuradha M NSS Programme officer participated in Annual NSS Special Camp
15.12.2025	Ideation Workshop: I M.Sc., Zoology and I, II, III B.Sc., Zoology Students and Faculty members participated in the Ideation Workshop "Reimagine, Reinvent, Reboot. The Innovation summit. Dr. Saji Varghese Associate Professor, Department of English and cultural studies, Christ (Deemed to be University) Bangalore was the Resource person."
18.12.2025	Lab visit to VIT: I Msc., Zoology students visited Biotechnology Lab in VIT, Vellore. Skilled professionals explained the operation of various instruments. Also we visited Animal House.
19.12.2025	Sr. Cleofe Fassa Endowment Lecture: M.Sc., Students participated in the Sr. Cleofe Fassa Endowment on the topic "From cells to Organs: Engineering Living Tissues through 3D Biopainting" by the Resource person Dr. Yogendra Pratap Singh, Asst. Professor (SHINE), VIT, Vellore.
19.12.2025	Painting Competition: Nandhini P participated in the T-Shirt painting competition conducted by the health and fine arts club and won the I Prize.
06.01.2026 To 10.01.2026	I CA Examination
13.01.2026	PONGAL CELEBRATION I M.Sc., students took part in kolam competition with regard to pongal celebration and Won II Prize.
13.01.2026	Month Value Presentation: Month Value on Constitutional values was depicted by UG and PG students. The programme started with prayer service followed by students' animation on Indian Constitutional Law. Took pledge on Preamble to affirm faith in the Nation's democratic values.

20.01.2026	Career Orientation Seminar: III B.Sc., students participated in the Seminar on the topic "Career prospects in Biotechnology Pharma and Health care: Job's skills, Growth conducted in association with ACT Academy"
20.01.2026	YOUTH LITERARY FESTIVAL Youth Literary Festival was conducted by Directorate of Public Library, Vasantha Priya of III UG won II prize with the cash award of Rs.4000 in the speech competition
27.01.2026	Road Safety Awareness Programme: Students participated in the Road safety Awareness Programme Organized by NSS and Road Safety Club. Poster presentation competition was conducted. Nivethitha S of III B.Sc., Zoology won I Place. Swathi S of I B.Sc., Zoology Won II Place.
29.01.2026	Young innovators Day: III UG and I PG students Participated in Young Innovators Day Organized by the Research committee. Nivethitha S and Mizba A won the Consolation Prize.
30.01.2026	Life science quiz Competition: The PG and Research Department of Zoology organized "Life Science Quiz Competition". The winners were I Place: Abinaya.S , III B.Sc., Zoology II Place: Rithika.K, III B.Sc., Zoology III Place: Pooja.K, III B.Sc., Zoology
03.02.2026	"BioexCELLence-4": The Department of Zoology organized a State Level Intercollegiate Competition "BioexCELLence-4" on 03.02.2026. Dr. Sr. Mary Josephine Rani A, Secretary Inaugurated the Event. Dr.Sr.Amala Valarmathy.A, Vice Principal, Students and Faculty members of the Department of Zoology were present during the Inauguration. Students and Faculty members from DKM College for Women Vellore participated. Drawing competition, Vegetable Carving, Quiz and Poster Presentation were conducted.
04.02.2026	Gratitude's Day Celebration: Department of Zoology performed a skit on the theme '*Madrecita is here*'.
09.02.2026	AIIC Zoology Unit- Organic Beauty Soap making AIIC Zoology Unit Students participated and prepared Beauty Soap using Fruit without any chemicals.

ENDOWMENT LECTURE

EXTENSION ACTIVITY

ASSOCIATION ACTIVITY