A QUARTERLY NEWSLETTER

APRIL, 2026 ISSUE 12

THE BIOSCOPE

Department of Biosciences

INTEGRAL UNIVERSITY, LUCKNOW.

RECENT DISCOVERIES

Articles covering recent breakthrough in science

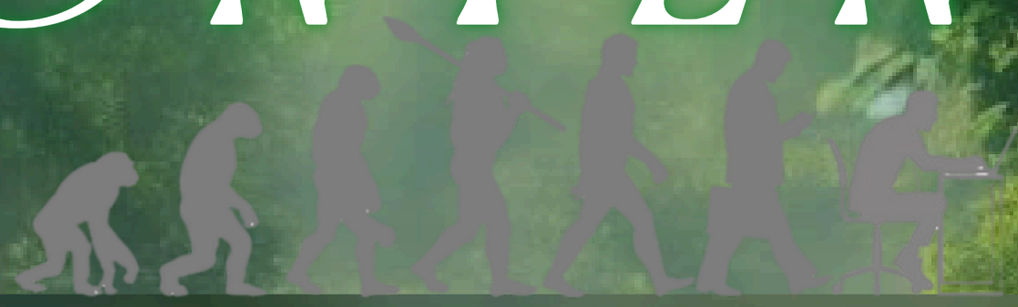
DEPARTMENTAL ACTIVITIES

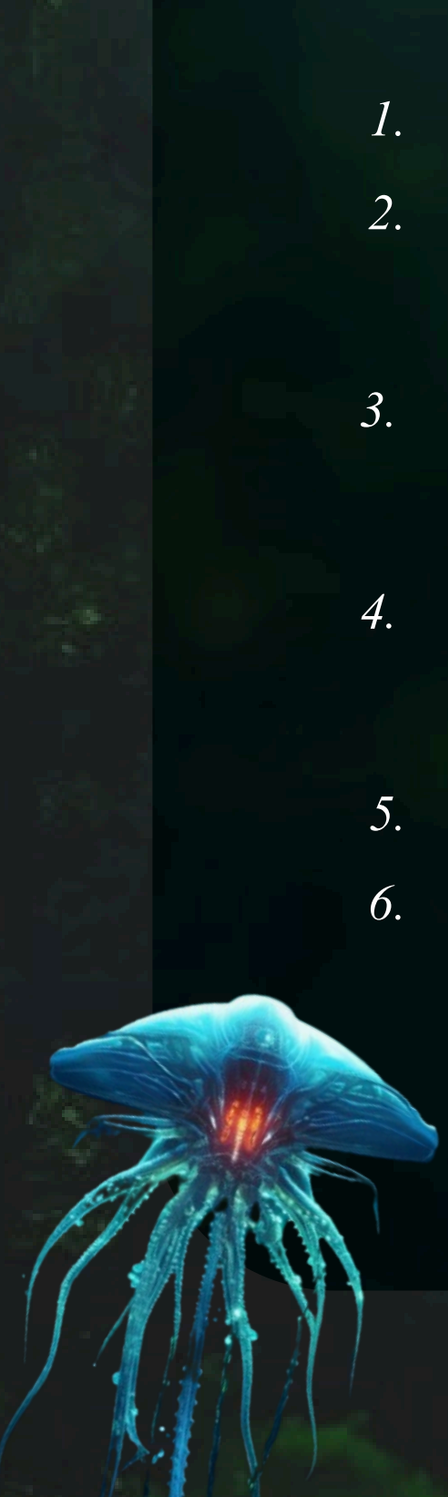
Interview reports, Science communication workshop

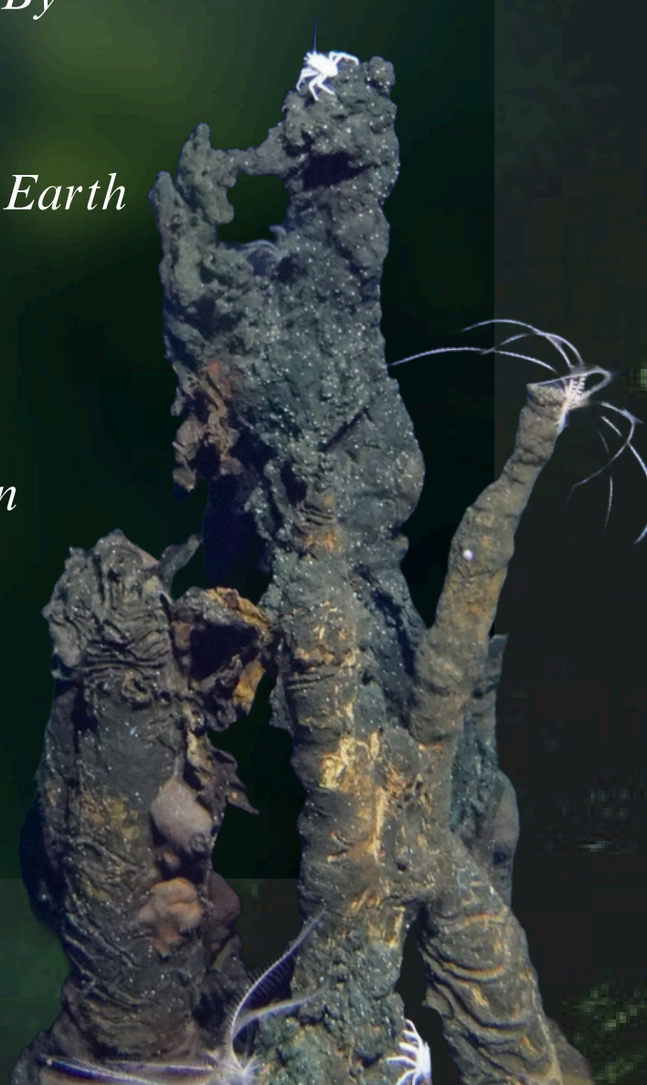
STUDENTS ZONE

Creative scientific writing, Students' accomplishments

CONTENTS





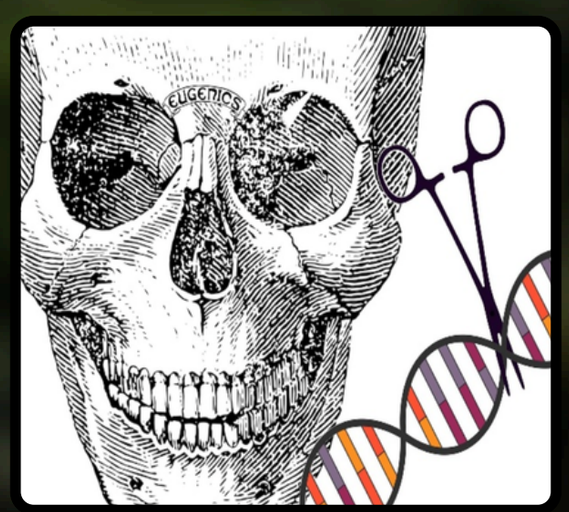


SCIENTIFIC *News*

1. A Genetic Trick Helps This All-Female Fish Species Escape Evolutionary Doom.

Amazon molly is an all-female fish species which reproduces asexually, producing genetically identical cloned offspring, which has puzzled scientists for decades. These fish originated over 100,000 years ago, from the hybridization between Atlantic and sailfin mollies in Mexico. Despite reproducing clonally as an all-female species, it has survived far longer than expected. Evolutionary theory predicted extinction due to harmful mutation build-up (Muller's ratchet), yet this species has persisted for over 100,000 years.
Recently, the researchers discovered that Amazon mollies have accumulated the mutations faster than their parent species. But it has a genetic mechanism that helps prevent the serious genomic damage. The key process is Gene Conversion (a type of DNA repair in which healthy gene copy replaces the damaged one). This mechanism allows the fish to remove the harmful mutation and maintain a stable genome over time. Genetic repair creates diversity, enabling adaptation and long-term survival

https://www.science.org/content/article/genetic-trick-helps-all-female-fish-species-escape-evolutionary-doom



2. Genes Found Before Life On Earth

Every organism on Earth today shares an ancestor that lived approximately four-billion-years ago and scientists refer to that organism as the "last universal common ancestor"(LUCA) .
In a study published in the journal "Cell Genomics" , researchers described a way to explore that earlier period of evolution, which was by focusing on a special group of genes called "universal paralogs", universal paralogs are gene families which appear in at least two copies in the genome of nearly all living organisms which therefore makes them important for evolutionary study . Upon analyzing these genes it was found that they either played a role in protein production or membrane transport suggesting that they were among the first biological functions to evolve. With the advancement of new computational tools the study of such universal paralog families may provide more insights into the events before the last universal common ancestor.

https://www.sciencedaily.com/releases/2026/02/260210082913.htm

3. Silent Brain Invaders: Microplastic Fragment Disruptors

A study led by Dr. Matthew Campen from the University of New Mexico shows how microplastic fragments significantly disrupt normal brain functioning.

Pharmaceutical scientist Kamal Dua states that individuals ingest around 250 grams of microplastic fragments annually, equivalent to the weight of a dinner plate. These fragments originate from processed food, tea bags, plastic chopping boards, bottles, synthetic clothing, and dust. Primarily, the human body clears common plastics, like polyethylene, polypropylene, polystyrene, and PET, but the fragments accumulate in organs. Research indicates that this accumulation disrupts normal brain function by activating immune cells, increasing oxidative stress, and invading the blood-brain barrier. This damages neurons and raises the risk of Alzheimer's and Parkinson's diseases.

Currently, habits must be changed by avoiding plastic bottles, containers, and processed food. Researchers hope this work addresses the pollutant by reducing plastic production.

https://www.sciencedaily.com/releases/2026/03/260313002637.htm

4. Diabetic Blindness Culprit Exposed: It's The LRG1

Scientists at UCL Institute of Ophthalmology in London identified LRG1 as the key cause of diabetic blindness-an eye disease that primarily affects individuals with diabetes mellitus. LRG1 initiates early-stage retinal damage by affecting pericytes, the supportive cells that wrap around small blood vessels.

The result is that vessels get narrower and membranes get thicker, which reduces the oxygen supply. This triggers a damaging chain reaction.

Crucially, LRG1 initiates these changes before the VEGF protein, which is the current target for medical treatments. In experiments involving diabetic mice, LRG1 activity is inhibited which prevents the onset of retinopathy, maintaining normal eye function. Current treatments for diabetic blindness usually begin after symptoms appear and focus on later-stage damage. This pre-clinical research, therefore, paves the way for early interventions that could prevent the disease before irreversible harm occurs- with a LRG1-blocking therapeutic already developed and advancing toward clinical trials.

https://www.sciencedaily.com/releases/2026/03/260306224225.htm

5. Ancient Bacteria That Overpower Modern Day Antibiotics

Researchers in Romania recently discovered a bacterial strain trapped in a 5,000-year-old layer of ice in the Romanian Scarisoara ice cave. Upon the discovery and analysis of its antibiotic resistance profile it was found that it is resistant to many modern day antibiotics and carries over 100 resistance related genes.

The Psychrobacter SC65A.3 strain was meticulously extracted from the ice by drilling a 25 meter ice core from a section of the cave and then the samples were sealed in sterile bags and transported to the laboratory under frozen condition. Despite this discovery posing its risks due to the antibiotic resistance, it also has opportunities as the strain possesses nearly 600 genes of unknown function and 11 genes that may have the ability to kill or inhibit the growth of pathogens and therefore this discovery proves to be a valuable addition to scientific knowledge.

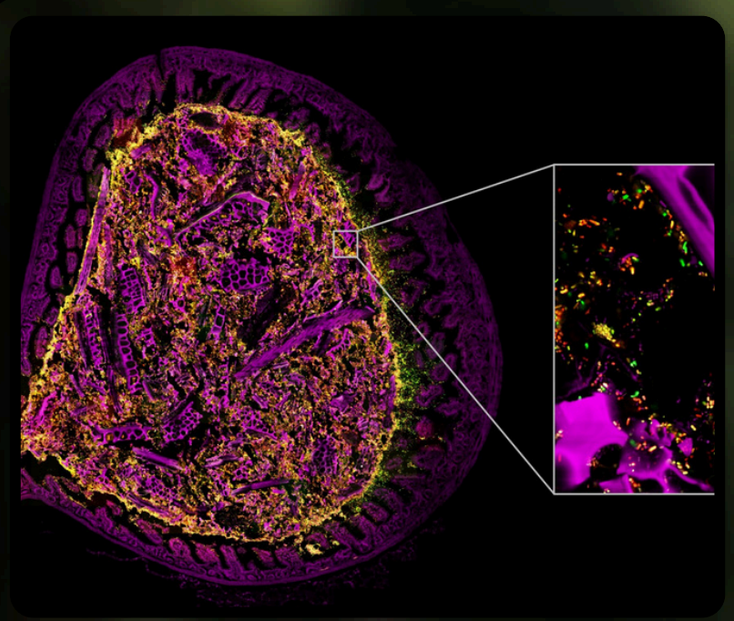
https://www.sciencedaily.com/releases/2026/02/260218031502.htm

6. How Genetic recombination Is Saving The Koalas Of Australia

A population bottleneck is a phenomenon that occurs when a species experiences a dramatic drop in numbers, such events reduce genetic diversity and increase inbreeding in a population which leads to lower fertility, reduce survival rates and a population's ability to adapt to environmental changes. The famous Australian koalas went through such a population drop that produced a severe genetic bottleneck.

But surprisingly, the recent massive population increase in the koala population has allowed for increased recombination which has significantly restored genetic variety in their population to some degree. Collin Ahrens and colleagues analyzed genomic data from 418 Koalas representing 27 populations across Australia. The study reveals that genetic recombination can help restore functional diversity as the population expands. The insights from this study could be impactful for conservation strategists aimed at supporting long term survival of vulnerable wildlife populations as well as future genetic studies of such populations.

https://www.sciencedaily.com/releases/2026/03/260306145610.htm

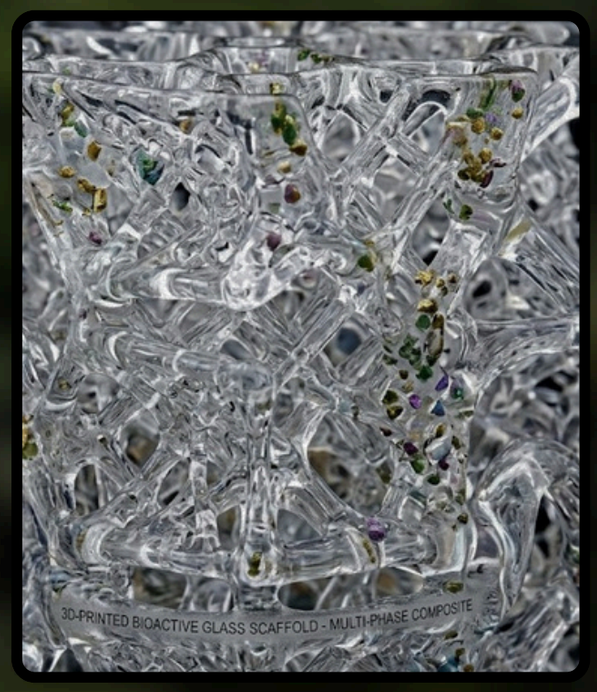


7. Hidden Metabolism Discovered Inside The Cell Nucleus

Scientists have discovered a surprising process in human cells where 200 metabolic enzymes are directly attached to DNA within the nucleus. This challenges the traditional view of metabolic distribution and reveals that there are 7% of protein on chromatin (a metabolic enzyme). Suggesting, the nucleus has its own mini metabolism.

Researchers discovered that different tissues and cancerous cells show a unique pattern of this enzyme known as ‘nuclear metabolic fingerprint’, these have their own unique specific arrangement for interacting with DNA. For example, the study found that breast cancer cell contains higher level of energy producing enzyme in nucleus while lung cancer cell shows much lower level, suggesting that the nuclear metabolism varies on the type of tissue and the disease. Researchers also found that some enzymes move to assist in repair of damaged DNA, this links nuclear metabolism with gene regulation. This discovery may help explain variations in cancer treatments and could lead to new biomarkers and targeted therapies in the future.

https://www.sciencedaily.com/releases/2026/03/260309183010.htm



8. New 3D-Printable Bioactive Glass Could Transform Bone Repair

Scientists have developed a new 3D printable bioactive glass that may help in the repair and regeneration of bone, which may be better than many existing materials being used in medical treatment. Glass is considered fragile and delicate, but it shares several important physical properties with the bone as well, for example, it can be easily melted and shaped. This makes it ideal and precise for 3D printing.

Most existing 3D printing glass materials require toxic plastics additives or extremely high temperature above 2000 °F to form a solid structure. For overcoming this limitation, the researchers created a new type of bioactive glass by combining silica particle with calcium and phosphate ions. When tested on rabbits with skull bone defects, the results were impressive. After just eight weeks, the bioactive glass showed the highest growth of new bone cells, outperforming existing materials. This breakthrough could lead to better, faster, and more reliable healing in the future.

https://www.azonano.com/news.aspx?newsID=41526

Articles

1. From Cosmic Soup To Cells: Evolutionary Beginnings.

Did you know your ancestors might have lived under the deep sea at temperatures as high as 400°C?

Earth is about 4.5 billion years old. Scientists have found traces of carbon in a 4.1-billion-year-old zircon fossil—a highly durable mineral formed in magma. In deep-sea hydrothermal vents, seawater contacts magma on the ocean floor, creating streams of superheated plumes. Microorganisms thriving near these plumes have led scientists to propose them as birthplaces of Earth's first life forms. Theories on early life formation have been put forward with varying enthusiasm and support. Two cornerstone hypotheses in abiogenesis research are the primordial soup theory and the meteorite theory. In 1952, University of Chicago graduates Stanley Miller and Harold Urey conducted a famous experiment: they injected ammonia, methane, and water vapor into a glass container to simulate early Earth's atmosphere, then passed electrical sparks through it, producing amino acids—the building blocks of proteins that fuel life's every function. However, current researchers believe Earth's early atmosphere differed chemically from Miller and Urey's recipe. The meteorite theory refers to meteorites as cosmic carriers delivering molecular seeds to Earth, as amino acids can survive fiery comet collisions. The Murchison meteorite, which fell in Australia in 1969, contained dozens of amino acids, providing key evidence. Ongoing missions like Hayabusa and OSIRIS-REx are bringing pieces of asteroid samples to reveal planet-forming conditions, while NASA's new JWST telescope is capturing data on the solar system and planets around us. From diverse hypotheses, the shared crux emerges: life requires both structure and a barrier to concentrate metabolic and hereditary processes, protect against the external environment, incorporate energy and nutrients, and discard waste. No area of knowledge is more lacking than understanding how primitive life forms evolved into today's enormously complex organisms, maintaining life's continuity at every step. The evolution of life demanded unbroken sustainability in the lineage leading to modern forms, including ourselves. As we trace origins from primordial soup to elaborate ecosystems, one wonders: will revelations from hydrothermal vents to cosmic panspermia redefine humanity's place in the evolving cosmic narrative?

Umme Haani
B.Sc. Biotechnology, 1st year

2. The Whispers Of The Deep: Unveiling Life's First Chapter

How many of you have ever looked out at the sea and wondered what kinds of mysteries are out there? If you have ever, then you're not the first one. The ocean is not only beautiful to scientists, but it is also an opportunity for scientists to understand the Earth's past, including when life first began on planet Earth.

Hydrothermal vents on the ocean floor generate volcanic heat. The hydrothermal vents themselves exist in an area that has complete darkness and high pressure, to the point that water in these locations can be heated to extreme temperatures capable of melting metals. These conditions are not beneficial towards supporting life.

Yet, there are many organisms that thrive at hydrothermal vents utilizing chemicals in the environment rather than creating their food by photosynthesis.

The main idea, called the hydrothermal vent hypothesis, says that life may have started in these vents. The vents put out a mix of chemicals like hydrogen sulfide and methane that could have given life forms the energy and molecular precursors needed for early life. The areas around the vents are like sponges. They might have worked like natural labs bringing these chemicals together and helping with the complex reactions required for life to emerge.

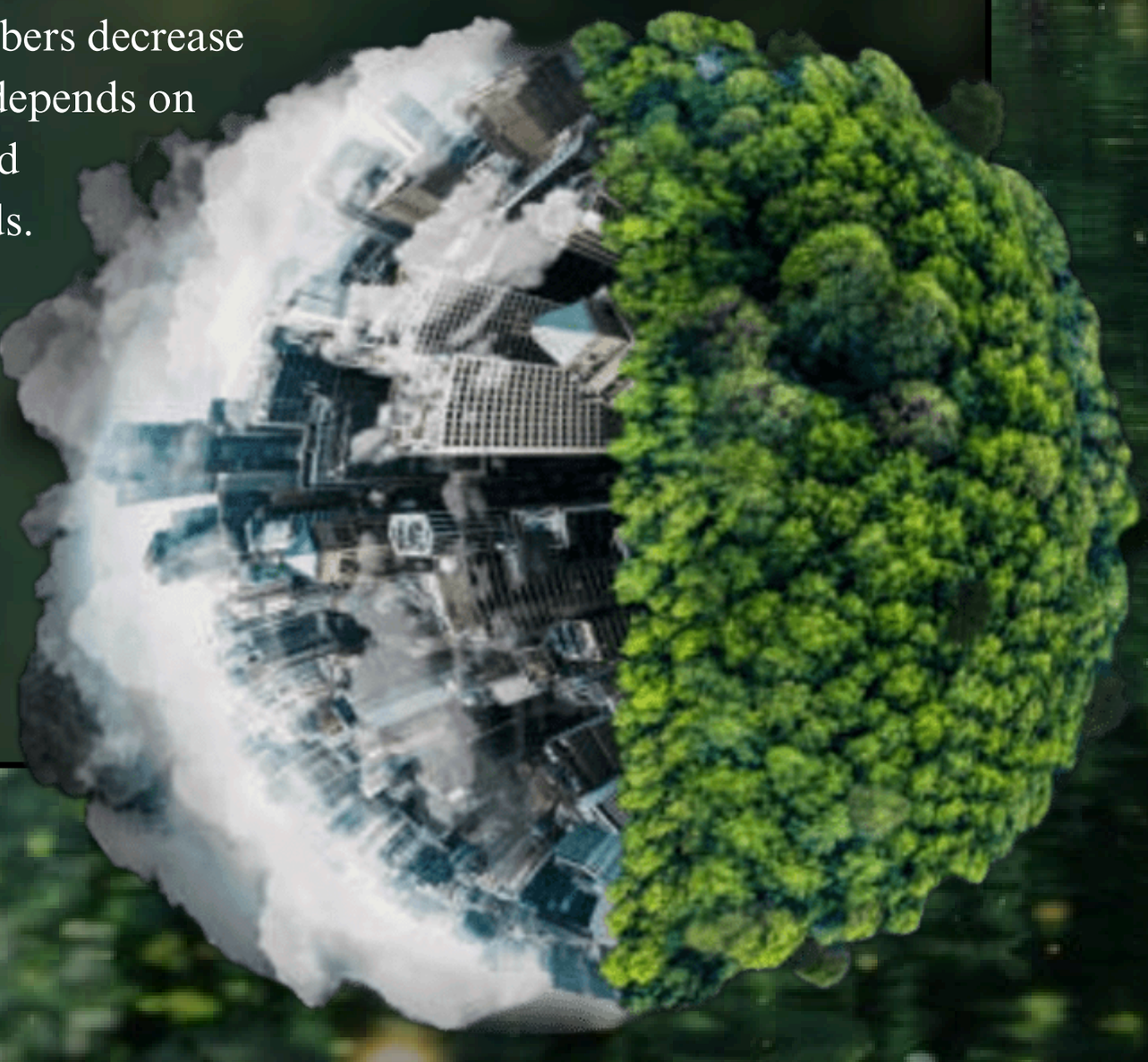
Scientists think that the first life forms were likely single-celled organisms that evolved from the ocean. Like the bacteria found near these vents today, these organisms became more varied over a very long time and eventually they turned into all the life we see today.

The hydrothermal vents give us a look at how life might have started, and they make us question what we thought was possible. They show us that life can survive and adapt to any environment. So, next time you're at the beach, think about the secrets of the deep ocean and the amazing story they tell about hydrothermal vents and life.

Mohammad Mohsin Mahtab
B.Sc. Biotechnology, 1st year

3. From Pollution To Purity: The Silent Power Of Bioremediation

Bioremediation is a safe, clean, cost effective, and environmentally friendly technology used to clean environments contaminated by pollutants. In simple terms, bioremediation refers to the removal or reduction of the harmful effects of toxic waste on the environment using living organisms, including bacteria, fungi, algae, and plants. It is an effective method for managing polluted environments and recovering contaminated soil. In this process, microorganisms and plants play a crucial role in removing heavy metals and other toxic chemicals. Bioremediation can be carried out in two ways:
1) In situ, which involves treating the pollution on-site (without digging or shifting the soil or water).
2) Ex-situ, which involves removing the polluted material and treating it separately. In recent years, this field has grown significantly due to increased use of natural attenuation. 'Natural attenuation' refers to the process in which pollution is slowly degraded by microorganisms naturally, with biodegradation being the main mechanism. Today, bioremediation and natural attenuation are considered important solutions to new and emerging pollution problems. The bioremediation process was not invented by a single scientist; rather, the idea came from nature. Scientists observed that microorganisms (bacteria and fungi) naturally break down pollution. However, its scientific use and development began in the 20th century, when environmental scientists began using this process for pollution control. Environmental pollution has become a major problem today. Due to hazardous waste (dangerous chemicals/industrial waste), clean water is becoming scarce, soil is becoming polluted, and crop production is also decreasing. Bioremediation is a natural solution to this problem. Bioremediation is a biological process in which microorganisms such as bacteria, fungi, and yeast work together to clean contaminated water, soil, and the environment by creating their own food (nutrients) or energy source and breaking the contaminants into less harmful or safer substances. Microorganisms convert pollutants into simpler products such as carbon dioxide, methane, water, and biomass. This process is also called biodegradation/ biotransformation. Once pollutants are removed, environmental stress decreases, allowing life (plants, organisms) to grow. Bioremediation is a natural, safe, and cost-effective method that uses less energy. In this process, pollutants are directly converted into harmless substances or destroyed, rather than transferred to other sources. Microbes multiply when a pollutant is present, and their numbers decrease again in the absence of pollution. Bioremediation depends on specific conditions (suitable microbes, nutrients, and environment). It can take longer than other methods. Additionally, the pollutants exist in different forms (solid, liquid, gas), making the treatment complex. It is a dynamic process, so its future effectiveness is difficult to predict.



Mohammad Huzaifa Khan
B.Sc. Biotechnology, 1st year

4. From Molecules To Life: Understanding The Origin Of Life On Earth

Every living creature, from bacteria to human beings, shares a common origin of life and a common ancestry. Understanding the evolution of life is the first step in the study of evolution. Since earlier times, this has helped scientists and philosophers uncover the earliest chapters of life's history.

The origin of life is one of the most fascinating topics in the field of science. The Earth came into existence about 4.5 billion years ago and during the early stage it was a very harsh place for survival. During the initial period, the Earth's atmosphere contained gases such as methane, hydrogen, water vapour and ammonia with almost no oxygen present. Volcanic eruptions, UV Rays and lightning were the main factors that made the Earth's atmosphere a suitable place where chemical reactions could take place. Scientists believe that these conditions allowed simple molecules to form more complex organic compounds eventually leading to the first living system. The first theory that was proposed about the evolution of life on Earth is the chemical evolution theory. This theory stated that the Earth's oceans were the place where evolution of life first began and it is also known as "primordial soup". Over time the molecules interacted and became organized and evolved into complex forms that could carry out the basic functions of life.

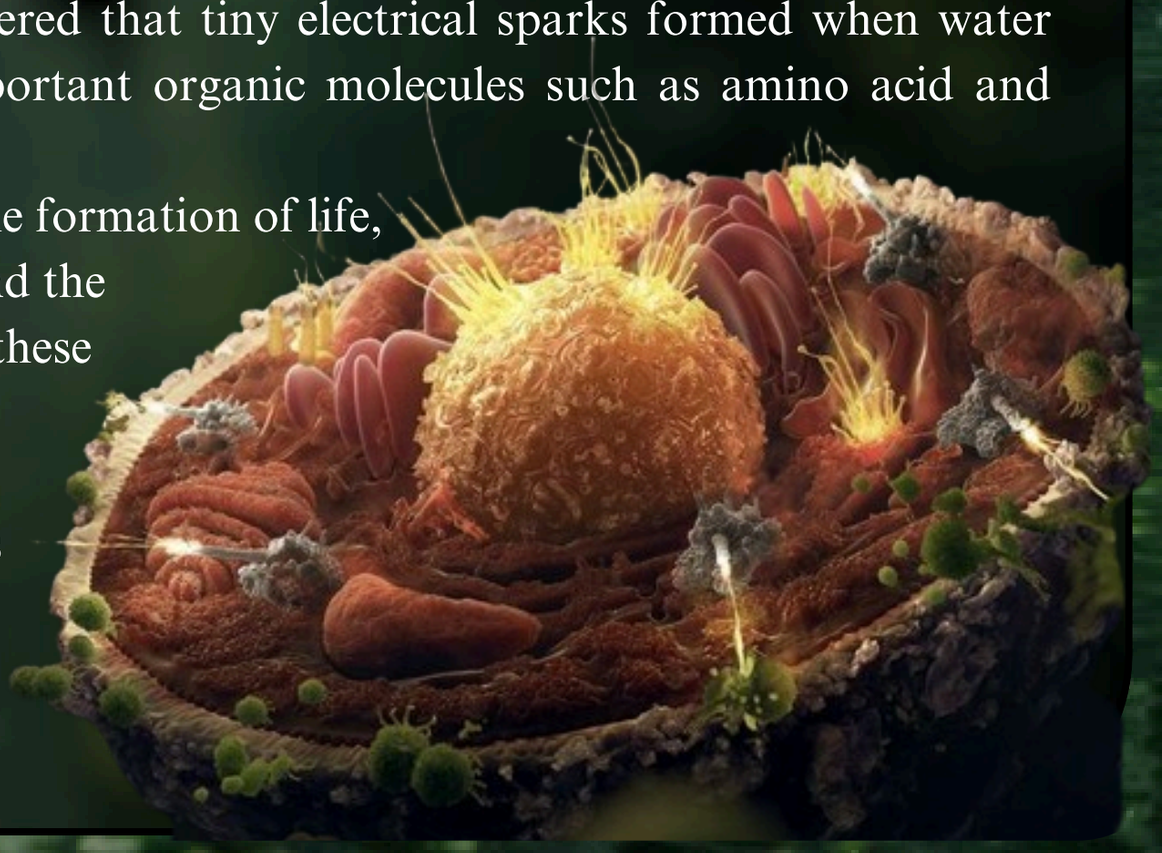
An experiment that proved this theory correct was the Miller-Urey experiment that was conducted in 1953. In this experiment the scientists Stanley Miller and Harold Urey attempted to simulate the Earth's early conditions into a container. They filled the container with gases believed to exist in the early atmosphere and passed electrical sparks through the container to simulate lightning. After some days the experiment produced several organic molecules, including amino acids which are the building blocks of proteins. The experiment showed that the important biological molecules can form naturally from simple chemicals.

Another theory about the origin of life is the RNA world hypothesis. It is based on the idea that RNA can both store genetic information and perform the functions of an enzyme. This theory suggests that early life may have relied on RNA molecules that carry out chemical reactions and store information before DNA and proteins evolved.

Scientists also believe that life began near the deep-sea hydrothermal vents on the ocean floor. These vents often release hot mineral-rich water, which provides energy and chemicals for reactions. Minerals in these environments may have helped the simple molecules to form more complex structures, leading to primitive metabolic systems.

The recent scientific discoveries have shed a new light on the purpose of life formation. In 2023, scientists performed an experiment that showed that iron-rich mineral surfaces near hydrothermal vents can trap and concentrate RNA molecules, which enabled them to interact with other iron molecules, thus sparking the process of self-replication. In 2024, scientists who were studying the hydrothermal vents discovered the existence of tiny nano-channels into the vents that can create chemical energy gradients similar to those used in all cells of living organisms. Another interesting discovery came in 2025, when researchers discovered that tiny electrical sparks formed when water droplets collide in ocean spray can produce important organic molecules such as amino acid and hydrogen cyanide.

Despite all the great discoveries made regarding the formation of life, the process of formation still remains a mystery and the exact processes are not fully known yet. Studying these early events not only helps us to understand the formation of life on Earth but also helps us to understand the possibilities of life on other planets as well.



Akshita Singh
B.Sc. Biochemistry 2nd year.

5. Life Where Light Doesn't Exist

We think we know a lot about life on Earth. We've studied animals, plants, and tiny living things. The truth is, there's still much we don't know about our planet, especially the deep-ocean, where no sunlight reaches. Their evolution seems different. On land and in freshwater, life follows patterns we can see: eyes, limbs, and movement that makes sense. At depth those patterns start to break.

The deeper we go, the stranger life seems. The reason is simple but extreme. In a place with no light, crushing pressure, and no food, survival isn't about looking familiar. It's about doing whatever works. Evolution in conditions doesn't care about appearance. It only chooses what can survive no matter how unusual it seems. That's why deep-sea creatures often look so strange.

Some species, like the *Barreleye Fish*, have see-through heads. This lets them see through their skulls like evolution ignored normal design rules. Others, like the *Giant Phantom Jellyfish*, float through the ocean like ghosts. They're barely there. Not fully understood. Then there are predators like the *Dragonfish*. They can make red light to hunt prey without being seen. These features seem strange or unnatural to us. In the deep sea they make sense. When there's no light, vision works differently.

When food is scarce, bodies evolve to save energy. When survival is uncertain, even a small advantage can shape a species.It makes you wonder: how much of evolution is shaped by comfort and how much by survival? Unlike life on land, deep-sea evolution is mostly hidden from us. We don't know how many species exist there, let alone how they've adapted over time.

Every time scientists explore deeper, they find organisms that don't fit what we thought we understood. In a way the deep ocean challenges our confidence. Evolution isn't something we've already figured out. It's still happening in environments we barely understand. Maybe that's the most unsettling part. Not that life evolves. That it's evolving in complete darkness in ways we may never fully comprehend.

Anamika Chaubey
B.Sc. Biotechnology, 1st year

6. From Survival To Smartphones: A Biological Journey Of Human Evolution

Evolution is much more than a tale of the past. It is an evolutionary phenomenon that influenced how mankind lived from basic existence to the contemporary age. Although today's way of life appears to be driven by technology, its fundamentals are knitted into the biological evolution of humans that unfolded over millions of years.

Early humans lived in tough environments where survival depended on physical strength, sharp senses, and quick reflexes. Through natural selection, individuals with beneficial traits, such as better vision, improved hand coordination, and higher intelligence, were more likely to survive and reproduce. Over generations, these traits became more common, leading to significant biological changes in the human species. One of the most important developments in human evolution was the growth of the brain.

A larger brain size allowed early humans to think, reason, and solve problems more effectively. This cognitive improvement led to the creation of tools, control of fire, and eventually, the development of language. Language, in particular, marked a major evolutionary step, enabling better communication and cooperation among individuals.

Early humans had larger brains, which enabled them to think better, probably reason better, and solve more problems. It gave rise to tools, mastery of fire, and, from there, language. Not only did humans continue to evolve physically, but behaviourally as well. Vegetables and grains also developed adaptability to the various climates, terrains, and topographies as humans transitioned from a nomadic lifestyle to settled agricultural living that influenced dietary habits, body structure, and social organization.

According to various studies, the earliest humans eventually started to settle down and create groups or communities, which are said to be a catalysts for complex social systems and developing cultures. Since then, biological evolution has greatly helped us advance to the current world we live in with all the technologies that make our life easier and more efficient.

Smartphones and digital systems are not seperate from evolution, but products of the highly evolved human mind. The ability to innovate, interact internationally and disseminate information are direct consequences of evolutionary changes in cognition and behaviour.

However, evolution is still ongoing, including increase in brain size. We have not stopped adapting, even to our fast-paced digital lives. The ways that we eat, raise children, form relationships, and even the diseases that affect us are evolving in ways that reveal how modern life is shaping human biology. Ultimately, the transition from survival to smartphones is truly a biological process. It stresses how natural selection, adaptation, and brain evolution have influenced both our physical structure and our mode of existence. Evolution itself remains an active force in guiding humanity's future.

Aisha Ashfaque
B.Sc. Biotechnology, 1st year

SHADOWED Scientist

Nettie Stevens: The Silent Groundbreaker Of Genetics

Nettie Stevens-her name may not appear in every biology textbook, but her story is tied to one of the most noteworthy discovery. She was born in 1861 in Cavendish, Vermont, grew up with a probing mind and resisted expectation towards women in her time. Her extraordinary journey began as a school teacher, her enthusiasm for science compelled her to pursue higher education eventually studying at Stanford University and later continuing at Bryn Mawr College for her advanced research.

Nettie Stevens had a vigilant eye towards the microscopic world. While studying mealworm the Tenebrio molitor, she made a revolutionary discovery that males develop two types of sperm, one carrying a large chromosome and the other carrying a smaller chromosome. She found out that these chromosomes determined whether offspring are male or female later known as X and Y chromosomes. A milestone that transformed the genetics.

Her findings challenged the dominant belief that environmental factors determined sex of offspring.

At a time when many scientists questioned this idea, she provided evidence that sex is determined at fertilization by chromosome. Her finding became foundation to modern genetics and influenced many scientists including that of Thomas Hunt Morgan.

Her most remarkable discovery came in 1905. Although much of her outstanding work was not recognised. Nettie Stevens died in 1912 at the age of fifty but many male scientists received greater recognition. She was one of the discoverers of chromosomal sex determination; Edmund Beecher Wilson also published similar findings in 1905.

STORY WRITING

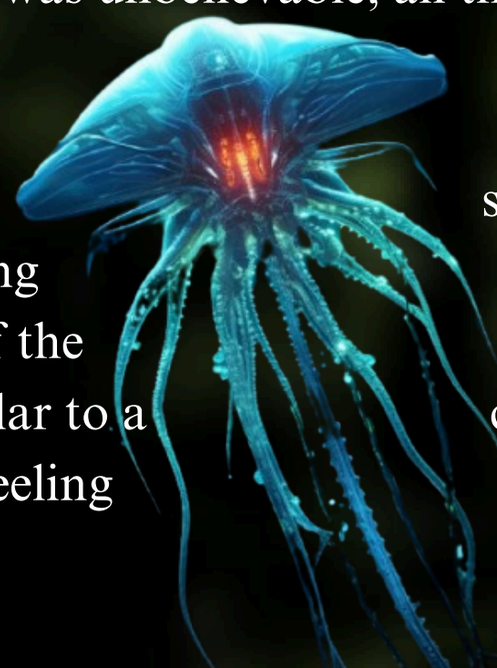
The Last Origin

The ship moved slowly around the strange planet. It looked dark, quiet, and surrounded by dark clouds and a big ocean. It had no traces of plants or animals and seemed lifeless and dead. But that was exactly what the scientists needed. Back in 2300, a group of scientists traveled to this planet to know more about how life began on Earth. The conditions on the planet were the same as those on Earth at the time of evolution of life. For life to begin, the right conditions had to be present, which is why this planet was selected.

On the tenth day, an anomaly showed up in their experiment results. There were some complex chemical reactions occurring, and there were certain molecular compounds which started recurring. It dawned on Aarya that they were the very first stages of life. In the following days, minute particles formed in the ocean. Some of them perished, some existed, and new particles continued to emerge. It was evolution; however, it happened very rapidly. On Earth, it takes millions of years for such evolution to occur, but here it was happening within hours.

The structures were reacting to the light rays and other stimuli very quickly. Although they seemed to be too primitive for such reactions, they continued to adapt to changes at a rapid pace. In order to conduct further experiments, the team lowered a probe into the liquid. As soon as it touched the surface of the liquid, it began to glow. The structures moved closer to the probe and slowly began to change their shape. It seemed as though they were mimicking the probe, but Aarya knew better.

That evening, Aarya came back on her own and observed the shining waters. She sensed that it was not accidental but deliberate. The following day, while analyzing all the information collected by the crew, it turned out that all the systems were connected and worked in unison. Aarya wondered whether it was possible that the planet itself influenced evolution. Even though it was unbelievable, all the information suggested this conclusion.



With each passing day, the structures grew more complicated and started transmitting messages, but it didn't seem that the structures were communicating with one another; they were responding to some greater power. Finally, at the end of the last day, there appeared a complex glow on the ocean surface, which looked similar to a coded transmission. While everyone was trying to decode the message, Aarya got the feeling that the planet was studying them.

As per the report provided by Aarya, the crew members became familiar with the mysteries of the emergence of life and believed that life emerged gradually and randomly. But on the planet, life emerged fast and adaptively and intelligently designed. Watching the glowing ocean for the last time, Aarya was convinced that there might be some process related to the emergence of life which remains unknown to humanity. And then the transmission got over but life remained silent on the planet.

Akshita Singh
B.Sc. Biochemistry, 2nd Year.

STUDENTS' Accomplishments

INTEGRAL UNIVERSITY | A+ ACCREDITED BY NAAC | NABH ACCREDITED | NABL ACCREDITED LABS | ICAR ACCREDITED AGRICULTURE PROGRAM

Fiesta 2026
05 TO 07 FEBRUARY
INTEGRAL UNIVERSITY

Winners of Crown the Bookworm

2nd Position – Samiya Zehra Ansari, Aditi Verma, and Amra Ahmad
(B.Sc. Biotechnology 3rd year)

Winners of Reverse TEDx Show

1st Position – Tanzeela Ahmad
2nd Position – Hassan Khan

Winners of Helix to Headlines

1st Position – Kavish Khan (B.Sc. Biotechnology 1st year)
2nd Position – Ananya Mishra (Ph.D. Scholar)

Winners of SYNAPTRA

1st Position – Juweiriya (M.Sc. Biochemistry 1st year)
2nd Position – Zehra Haider (B.Sc. Biotechnology 3rd year)

Winners of Nukkad Natak

2nd Position - Kavish Hasan Khan, Midhat Fatima, Kanak Sharma, Alafia khan, Abdullah Khan, Arshiya Siddiqui, Ashwini Pratap Mahajan , Misba Haq, Abdul Rahman Ansari, Mehwish Afreen, Alviya Zehra, Atul, Prerna (B.Sc. Biotechnology 1st year)

Winners of Incampus to corporate

2nd Position – Vaishnavi Gautam (B.Sc. Biotechnology 1st year)

Winner of Video Resume challenge

1st Position – Vaishnavi Gautam (B.Sc. Biotechnology 1st year)

Winner of Intercollegiate Kabbadi

2nd Position – Altaf Khan (B.Sc. Biotechnology 1st year)

Winner of Cyber Awareness Quiz

2nd Position – Mantasha Zafer (M.Sc. Microbiology 2nd year)

Winners of Qawwali

Atahar Khan and Amiy Raj (B.Sc. Biotechnology 1st year)

INTERVIEW Reports

1. Decoding Cancer: Insights From The Head Of Biosciences, Dr. Snober S. Mir.

Dr. Snober S. Mir, Professor and Head, Department of Biosciences, Integral University, Lucknow, has had an inspiring academic journey. She completed her B.Sc. in Chemistry (Honours) and an M.Sc. in Biotechnology from Interdisciplinary Biotechnology Unit, AMU Aligarh, securing second position in the programme. She later pursued her Ph.D. in Cancer Biology from the Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, supported by PGIMER fellowship. She further honed her research training by joining the Cancer Research Group at Medical College of Georgia, Augusta, USA for Post-doctoral fellowship and a European Commission funded project at CSIR-CDRI. Choosing chemistry in her undergraduate program was an intentional decision to understand the interface of chemistry and biology. She worked at Department of Biochemistry, AIIMS New Delhi as a research intern during her M.Sc., which ignited her interest in Biomedical Sciences and Disease Biology.

Her research focus is early diagnoses of cancer, for which she initiated biomarker discovery in her laboratory and works to design various treatment modalities that are safer and more effective. A significant aspect of her work involves developing protein aggregation disruptors because cancer can be understood as a disease linked to protein aggregation. She anticipates a shift towards Omics based approaches for diagnosis and treatment of cancer, which thereby positions biotechnology as a milestone in medical biology.

In the future, it is anticipated that advanced medical technologies will enable access to sophisticated treatments, including single-cell diagnostic approaches and personalized medicine. Additionally, the development of oncolytic viruses and CAR-T cell therapy may allow for targeted cancer therapies.

She encouraged students to pursue careers aligned with their interests and values. According to her, perseverance, clarity of purpose, and consistent effort are essential for meaningful achievements. She also described reading as a habit that broadens perspective and strengthens intellect. Her academic path and research accomplishments reflect sincerity toward scientific progress. With a forward-looking outlook and contributions to healthcare advancement, she stands as an example for future biotechnologists. Her mentorship and accomplishments continue to inspire young researchers and motivate emerging scholars.

Reported By:
Sana Ahmad (B.Sc. Biotechnology 2nd year)
Atul Thakur (B.Sc. Biotechnology 1st year)

2. Dr. Gaurav Srivastava: Understanding Earth's Past To Shape the Future

Dr. Gaurav Srivastava is a geoscientist specializing in paleoclimate reconstruction, sedimentary archives, and plant fossil records. His research focuses on climatic and ecological changes during the Late Cretaceous–Cenozoic, with particular emphasis on Northeast India. In addition to this, he is actively working on several other fossil-rich sites across India to build a comprehensive understanding of regional and temporal climate evolution. His current research includes investigating the response of biota to hyperthermal events and exploring the origin and diversification of evergreen forests and biodiversity hotspots in South Asia. Dr. Srivastava is engaged in national and international research collaborations and contributes actively to academic publishing, mentoring, and editorial activities, including guest-editing special issues of reputed scientific journals. He is currently guiding one postdoctoral researcher, two Ph.D. students, and supervising several M.Sc. students working on dissertation.

During the interaction, Dr. Srivastava explained that palaeoscience is not just limited to theoretical study but has strong applications in environmental analysis, climate reconstruction, and resource-based research. He highlighted how fossil studies play a crucial role in understanding ancient ecosystems and climatic conditions, and how these interpretations contribute to present-day scientific advancements. The discussion also emphasized India's growing contribution to global palaeoscience, with the Birbal Sahni Institute of Palaeosciences (BSIP) playing a significant role through its research excellence and specialized studies. He further emphasized that research in palaeoscience not only helps in understand Earth's past but also provides valuable insights for predicting future environmental and climatic changes, thereby benefiting society at large.

In concluding the interaction, Dr. Srivastava emphasized the importance of curiosity, consistency, and scientific thinking in a student's journey. He encouraged students to actively engage in research and not limit themselves to theoretical knowledge, as practical exposure is essential for true understanding. According to him, research develops critical thinking, problem-solving abilities, and opens diverse career opportunities in interdisciplinary scientific fields. He motivated students to pursue science with dedication and responsibility, highlighting that meaningful contributions to research can help address real-world environmental challenges and contribute to the advancement of society.

Reported By:
Vinayak Middha, Vaishnavi Gautam, Kavish Hasan Khan
B.Sc. Biotechnology, 1st Year

SCIENCE COMMUNICATION Workshop 3.0

DAY 1 (16th JANUARY 2026)

The Science Communication Workshop 3.0 was formally inaugurated on 16 January, 2026, at the Central Auditorium, Block C, Integral University, Lucknow. The two-day workshop was a student-led initiative organized by THE BIOscope, Students' Council Biosciences, in collaboration with the Indian Science Communication Society (ISCOS), Lucknow. This third edition of the workshop aims to promote effective science communication and nurture scientific temper among students. The workshop was organized under the visionary patronage and institutional support of Prof. S. W. Akhtar, Founder & Chancellor, Integral University, as the Chief Patron. The event was further guided by the esteemed Patrons, including Dr. Syed Nadeem Akhtar, Pro-Chancellor; Syed M. Fauzan Akhtar, Syed Adnan Akhtar, and Dr. Nida Fatima, Additional Pro-Chancellors; and Prof. JavedMusarrat, Vice-Chancellor, Integral University. The program also received valuable support from the Co-Patrons, Prof. Furqan Qamar, Chief Advisor to the Chancellor; Prof. Mohd. Haris Siddiqui, Registrar; Prof. Abdul Rahman Khan, COE and Dean, Faculty of Science; Prof.Wahajul Haq, Dean, Research & Development; and Prof. Monawar AlamKhalid, Dean, Student Welfare, whose encouragement and guidance played a crucial role in the successful organization of this student-led initiative.

The inaugural session was held in the august presence of the Dean, Faculty of Science, Prof. Abdul Rahman Khan; Dean of Student Welfare, Prof.M. A. Khalid; Dean, Research and Development, Prof. Wahajul Haq; Chief Guest, Prof. Pradeep Kumar Srivastava; Executive Secretary of ISCOS, Prof. Vishmu Pratap Singh; Dr. V.P. Sharma; Dr. NavneetSinghal; Head of the Department, Prof. Snober S. Mir; mentors Dr. Swati Sharma, Dr. Arshi Siddiqui, and Dr. Durdana Yasin, along with other respected faculty members.

The dignitaries emphasized that science is not merely a body of knowledge but a way of thinking, and that it becomes meaningful only when communicated effectively to society. They highlighted the crucial role of scientists and students in bridging the gap between scientific research and the general public.

Prof. Vishnu Pratap Singh, Executive Secretary of the Indian Science Communication Society (ISCOS), stressed the importance of scientific writing and publication. He encouraged students to cultivate the habit of publishing their work and highlighted that one of the key objectives of the workshop is to enable participants to communicate research findings clearly through articles, papers, and other scientific platforms.

The Chief Guest, Prof. Pradeep Srivastava, pioneer of Scientoons and Scientoonics, delivered a highly engaging and interactive session on creative science communication. He live demonstrated several Scientoons, including a creative cartoon depicting a conversation between Ascaris (roundworm) and Amoeba, effectively simplifying complex biological concepts through humor and storytelling. He further illustrated multiple Scientoons, showcasing how cartoons can serve as powerful tools to make science accessible, relatable, and enjoyable. Prof.Srivastava urged students to develop evolving ideas, think creatively, and communicate science in an engaging and impactful manner.

Dr. V. P. Sharma also elaborated on emerging environmental concerns, highlighting issues such as toxicological products and the growing presence of nanoplastics in the environment. He emphasized the need for students to adopt an environmentally responsible approach toward scientific research, writing, and communication, underscoring sustainability as a key aspect of modern science communication.

Dr. Navneet Singhal explained the fundamentals of camera operation, including the working of image sensors, aperture, and exposure control. He further enriched the session by highlighting how complex scientific concepts can be communicated in a clear, structured, and engaging manner.

The inaugural session was highly interactive and inspiring, leaving students enthusiastic and motivated. It reinforced the importance of science communication as an essential skill and set a strong foundation for the workshop's objective of developing confident, creative, and socially responsible science communicators.

SESSION 2&3

The inaugural session was followed by several fun and learning-orientated interactive activities to promote imagination, critical thinking and scientific reasoning among participants.

The Myth and Fact activity involved presenting participants with paired statements, from which they had to identify the myth and the scientific fact. The activity encouraged critical thinking and evidence-based reasoning.

Through the Emoji Illusion activity, participants analyzed pairs of emoji to recognize and explain scientific processes, thereby enhancing imagination, visual literacy, and conceptual understanding.

Mr. Hasan Jawaid Khan, Former Chief Scientist at CSIR-NIScPR , Editor of Science Reporter and CSIR news, formally concluded the day's proceedings with his address. His remarks effectively summarized the key themes of the workshop and provided valuable insights for the participants. In conclusion, the science communication workshop successfully showed students that science can be creative, relatable, and engaging beyond textbooks. Through scientoons, emoji-based science activity, and interactive discussions, participants learned how complex scientific ideas can be simplified and communicated in fun, meaningful ways. The session on camera and scientific photography further helped students understand how visuals can teach science. By assigning an activity for the next day, the workshop encouraged students to continue thinking, creating, and applying what they learned. Overall, the workshop inspired curiosity, creativity, and confidence, empowering students to see science not just as a subject to study, but as a story to share.

DAY 2 (17th JANUARY 2026)

The second day of Science Communication Workshop 3.0 focused on the significance of science communication in society, media, and public policy, highlighting its importance in addressing misinformation and strengthening scientific temper in a rapidly changing world.

Prof. (Dr.) M. A. Ansari, Chairman, ISCOS, emphasized Public Understanding of Science (PUS) and examined key dimensions shaping public perception of science, including trust, awareness, and societal relevance. His session highlighted the need for mutual learning between scientific and non-scientific communities, addressing miscommunication.

Dr. Sarah Hyder Iqbal, Biomedical Scientist trained at the University of Oxford, Co-Founder and Lead of Superheroes Against Superbugs, addressed the question, "What is science trying to solve for society?" She explained the three models of scientist–public interaction—deficit, dialogue, and participatory models while emphasizing the global shift in science communication paradigms. She encouraged participants to reflect on who their audience is and why science should be communicated, advocating for participatory and inclusive approaches.

The activity Half To Whole, was conducted with the objective of creatively communicating scientific concepts by transforming simple shapes into meaningful scientific representations within the given ten minutes. The activity aimed to enhance imagination and conceptual understanding. Dr. Arvind Kumar Singh, Assistant Professor of Mass Communication and Journalism, highlighted the importance of science in practical life and the need to cultivate scientific temperament. He discussed the necessity of popularizing science to prevent accidents and societal harm caused by lack of scientific awareness. His session introduced scriptwriting in media, science programs on television, and rising influence of digital media.

Prof. (Dr.) Manoj Kumar Patairiya, Chief guest if the event and Adjunct Professor of Science Communication at NIAS, discussed the responsibility of science communicators in today's media-driven world. He encouraged participants to combine scientific accuracy with creativity, adapt to evolving communication platforms, and actively engage with society to promote informed decision-making. The session concluded with a student-presented short movie that focused on explaining genetic mutation and genetic modification through visual storytelling using artificial intelligence. The film simplified scientific ideas using a fictional example inspired by the character of Hulk. The movie was developed through conceptual planning, prompt generation using AI and visual creation using AI.

The following participants were declared winners for their outstanding contributions in the event:

Science writing competition

1st position- Umme Hani (B.Sc. Biotechnology 1st year)

2nd position - Amina Murshid (B.Sc. Biotechnology 2nd year)

Half to whole

1st position- Ambreen Fatima (B.Sc. Biotechnology 1st year)

2nd position-Falak Siddiqui (B.Sc. Medical microbiology 3rd year)

The event was successfully conducted with active participation from students. The activities fulfilled their objectives and promoted an engaging academic environment. Overall, the program was well-executed and received positive feedback.

CONDUCTED AND COORDINATED BY:-

Technical team- Aditi Verma, Sayyaf Sheikh, Kavish Hassan Khan, Unnati Singh

Stage management- Amra Ahmad, Juweiriya, Ammarah Fatima, Umaima Zafar, Tamreen Fatima

Guest management- Mohd Umar, Samiya Zehra Ansari, Binish Ali, Vinayak Middha, Mohammad Huzaifa Khan and Fari Fatima

Treasurer-Farhan Ahmad

Participants management - Sameer, Atul Thakur, Syed Ibraheem Umar, Mohd Affan Mirza, Mohammad Zaid, Dildar Hussain Usmani, Syed Amina Umar

Media team- Shiva Pandey, Ayush Sharma, Aisha Ashfaque, Ujjwal Singh

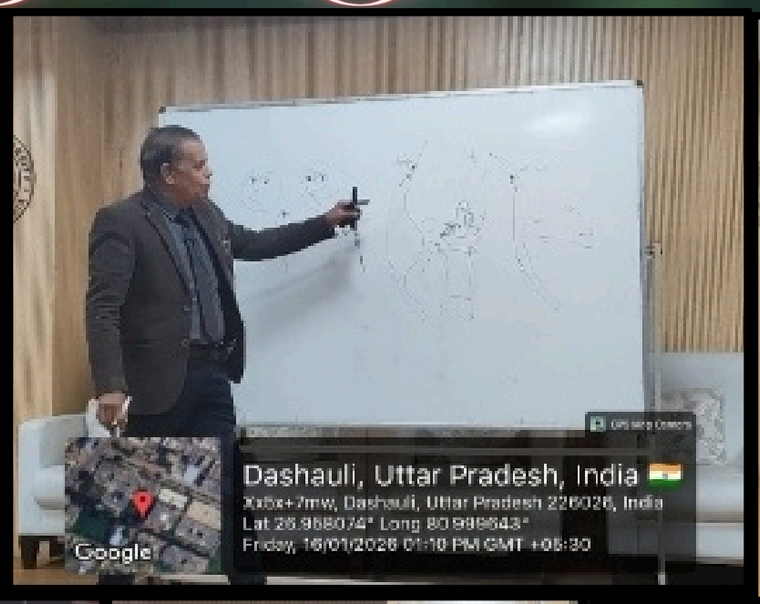
Activity coordinators- Saima Zafir, Akshita Singh, Sana Ahmad and Manas Krishna Tripathi

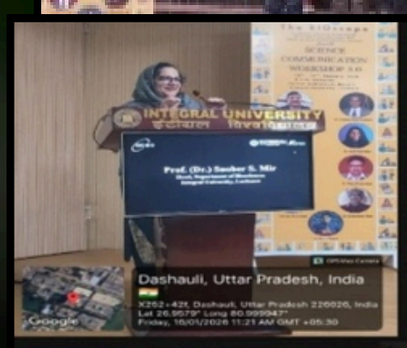
Hall management- Dareen Tanzeem Siddiqui , Mohd Mohsin Mukhtar, Bhumi Kumari, Naushaba Perveen, Rubeena Parveen, Mahin Shahwar , Shrestha Kumar, Anamika Chaubey, Abdullah Khan, Asadullah Khan, Sharib Ahmad and Syed Qutaiba Fayyaz

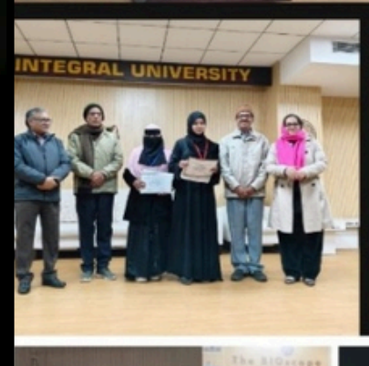
In the end, Day 2 of Science Communication Workshop 3.0 successfully reasserted the critical role of science communication and its importance. Insightful sessions by the esteemed speakers helped participants to understand better the various models of public engagement, the responsibility of scientists and communicators, and how media and digital platforms are gaining power. The interactive activities-like Half to Whole and the student-created short film showcased how the amalgamation of creativity, technology, and storytelling have the ability to simplify even the most complex scientific concepts without losing any accuracy. Recognizing the achievements of the students further encouraged active participation and excellence. Overall, the 2-days workshop successfully fostered scientific temper, critical thinking, and communication skills in them, leaving participants better equipped to bridge the gap between science and society.

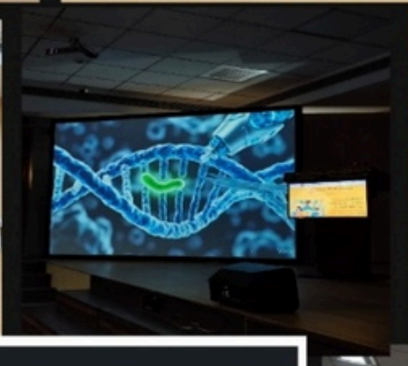
The formal Vote of Thanks at the end of the Science Communication Workshop 3.0 was given by Prof. Snober S. Mir, Head, Department of Biosciences, Integral University, Lucknow. She thanked the Indian Science Communication Society (ISCOS) and all the dignitaries and keynote speakers for their significant contributions. Prof. Mir also appreciated the keenness of the students, whose active participation made this programme a grand success.

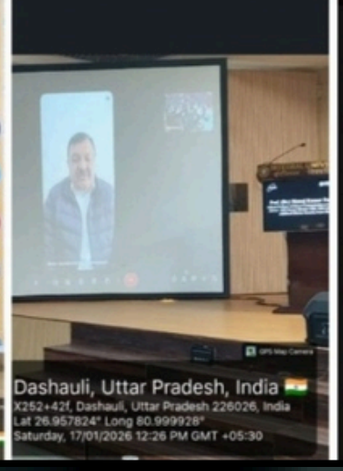
Highlights











BEYOND TENURE

A Council Recognition Ceremony

Students' Council Biosciences serves as a strategic link between students and faculty, facilitating academic initiatives, coordinating high-impact events such as seminars and workshops, and promoting scientific engagement within the department. They also contribute to effective communication, represent student interests and ensure organize execution of departmental activities through leadership and teamwork.

A council appreciation program by the name of "Beyond Tenure: A Council Recognition" was conducted by the Students' Council of the Biosciences on 10th April 2026 from 1:30 PM to 4:00 PM at the Seminar Hall, B Block. This program was conducted formally to express appreciation for the hard work done by the senior council members and the various societies for the growth of the department.

The program started off with the speech from the esteemed Head of Department Dr. Snober S Mir , who thanked and appreciated the efforts of the senior council members and shared her invaluable insights with the students.

The next segment in the program consisted of the certificate awarding ceremony of senior members to appreciate their efforts.

The subsequent process entailed the naming ceremony being done by societies, where the members of councils and societies were recognized based on their contributions in the different functions of the department. This was followed by the oath of the senior members of councils, which entailed a time of reflection and responsibility.

This was followed by speeches from junior and senior members of councils, whereby the junior members expressed gratitude and appreciation while the senior members shared about their experiences. An appreciating activity was conducted in the latter part of the function, thus making it memorable and lively.

The proceedings concluded with the closing address and the Vote of Thanks in which thanks were extended to everyone for their participation. It was done in a very formal and organized way, and the purpose of the event was fulfilled as the contribution of the seniors was recognized.

Moreover, the event proved to be a valuable learning process for the current council since it was their first event that was organized independently by them without any supervision from the seniors.

Highlights


Instagram
SENIORS
2026
SENIORS
2026
MISS PERFECT
STAR STUDENT
PARTY STARTER
MASTER CHEF
CREATOR
CUTEST SMILE
KIND HEART
FINANCE GURU

SHINING Alumnus

Bridging Bioinformatics And AI In Modern Science :
A Journey Of Innovation And Vision

Mohammad Hassan Baig, an alumnus of Integral University, is now serving as the Chief Technology Officer (CTO) at BNJ Biopharma in South Korea. He previously worked at Yeungnam University and Yonsei University which are well-known institutions. His career shows that research and its application can go hand in hand. His work is about transforming ideas born in university laboratories into industrial solutions and he has successfully transformed several technologies. He is an example of how being curious, adaptable, and persistent can lead to a great career that combines biology, technology, and making a real difference in the world. His journey started when he joined Integral University in 2006 for the M.Sc. Bioinformatics program. At that time when bioinformatics was still an emerging field, he decided to pursue it because he saw its potential. Combining biology with computer tools opened up opportunities, laying a strong foundation for his future academic and professional ventures. He completed his Ph.D. in 2014.

He credits the department for shaping not just his academic knowledge but also his identity as a Scientist. Under the guidance of professors like Prof. Mohtashim Lohani, Dr. Saif Khan, and Prof. A. K. Srivastava, he learned that science extends beyond textbooks- it is about applying knowledge to solve real-world problems. This way of thinking helped him move into artificial intelligence. He talks about how artificial intelligence is being used to design new ways of treating diseases like PROTACs and to predict how well compounds will work even before they are treated in laboratories. According to him, the future is about bridging the gap between computer models and biological systems.

Apart from being good at his job, one thing has guided him throughout his journey: the importance of working smart. He remembers one philosophy that has guided him throughout his journey “Keep doing the smart hard work; you will be paid off better.” For students who want to build a career in biosciences his advice is simple and practical. He encourages them to go beyond their books and develop learning with AI and computational tools. In today’s evolving world, the people who succeed are those who can combine biology with technology.

A thought that perfectly reflects his journey: “Success does not come from working hard but from working in the right way.”

Reported By:
Mahin Shahwar (B.Sc. Biotechnology 2nd year)

FACES BEHIND THE VISION

Fari Fatima
Writing Team

The BIOscope is a platform that combine science and creativity. From student articles, recent news to interviews and alumni interactions, each section makes it engaging and insightful. Being a part of its writing team has helped me question and communicate ideas better. It stands as the spirit of the department encouraging students to explore and express science beyond the classroom.

Samiya Zehra Ansari
Graphic Team

Art is, in my not so humble opinion, our most inexhaustible source of magic, and being part of the Graphic Team made that feel real. What started out as making covers grew into something more organized, where I learned, made connections with new people, and tried out different paths while shaping my ideas and points of view along the way. It was a journey with a pride.

Amra Ahmad
Writing Team

Being part of the BIOscope newsletter has been a really meaningful experience for me. It has exposed me to so many new ideas, research areas, and perspectives I wouldn't have explored otherwise. As part of the editorial team, I've grown a lot in science communication, learning how to make science engaging and accessible. More than that, it has given me confidence, friendships, and a real sense of belonging.

Aditi Verma
Graphic Team

As a member of BIOscope's graphic team, I learned that thoughtful design communicates beyond words. The teamwork, creative challenges and deadlines significantly shaped my skills and confidence.
I am grateful for this invaluable experience. Though I'm graduating now, BIOscope will always remain my foundation.
My best wishes to the team.

Akshita Singh
Graphic Team

My experience with the BIOscope turned out to be very inspiring with regards to creativity, education, and development. The BIOscope made us learn a lot, I personally have developed a lot of skills including editing, writing, designing graphics and illustration. Besides serving as a mere platform BIOscope is very significant when it comes to building confidence and thinking outside the box.

Binish Ali
Writing Team

It is a wonderful feeling to be a part of the Writing Team. Not only did it help me enhance my editing, grammatical, vocabulary, creative, and managerial skills, but it also helped me develop leadership qualities and instilled confidence in me. Apart from that, it taught me time management and helped me balance my studies with the duties of being a part of the team.

Saima Zafir
Writing Team

From the moment I joined BIOscope in my second semester, It redefined what learning truly means. Our seniors and faculty shaped us with care, turning raw curiosity into confident expression.
BIOscope is the heart of this department where students find their voice and ideas find their shape. May you find here what I found that science is felt, not just studied, and that within these pages lives a version of yourself you did not know existed.

Shiva Pandey
Graphic Team

Becoming a part of the BIOscope pushed me to learn and grow.
I worked on different media works, it strengthens my editing skills, creative thinking, and a sense of responsibility. Honestly, it lets me share my ideas without holding back, and helps us to evolve both as a person and in my career while building confidence, teamwork, leadership, and communication skills daily with endless passion and inspiration.

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

14 LIFE BELOW WATER

15 LIFE ON LAND

INTEGRAL UNIVERSITY

ACCREDITED A+ BY NAAC

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Dr. Arshi Siddiqui *(mentor)*

Dr. Durdana Yasin *(mentor)*