



Connecting Thinkers...

Editors' Message



Dear Thinkers,

The University has planned a number of workshops for research scholars during the next three to four months. The Annual Research Retreat for all doctoral scholars is also scheduled for August this year, and the details can be found on the last page of this newsletter.

From time to time, the University organises various workshops, seminars, special lectures, conferences and the like to assist the research scholars in their work. Attending seminars and special lectures help us gain in-depth knowledge from different experts and speakers; and conferences cover a large array of topics within a said subject specializations. Some of us may think of workshops as an extension of classroom activity and we may find ourselves questioning the usefulness of the organized event. Some of us may be too busy with other commitments to attend the workshops, while others may perceive it as a repetition of what is already known/ taught. So let us take a few minutes to analyse how workshops can add value to our work.

Workshops provide a platform to re-learn the things taught in a classroom, with a lot of practical examples and discussions. The aim of workshop style teaching is that there are a lot of hands-on exercises and learning involved with emphasis on problem-solving and coming up with creative solutions. Though the topics or agenda of the workshop may be preplanned, no two workshops on the same topic, carried out by the same facilitators, are identical. The outcomes vary because the experiences, examples and discussions of the participants vary. The degree of participant involvement is the key to a successful workshop. Workshops and seminars help the participants to sharpen their skills, learn new ideas and approaches to more effective and efficient working. While classroom teaching may be limited to a time-span of a couple of hours, workshops allow you to indulge in different sessions over some days. It creates a learning space which is not confined to a classroom and helps you to interact with the experts and network with colleagues. While the content may be focused, the discussions themselves can be quite enriching and fun. Content-wise, workshops can either acquaint you to a new skill-set or enhance your perspective about the things you already know. As a learning platform, workshops have as much to offer, as the participant is willing to internalise. On a personal note, each workshop is something to look forward to for the facilitator as well; because the participants offer diverse perspectives of understanding and analysis, while looking at the same content.

We at Thinklet hope that you all take advantage of this opportunity and participate in the workshops as and when they are organized by the University, or respective departments.

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GUIDE'S COLUMN

Research Challenges in Literary Studies

Academic scholars in English have witnessed how ideas about literature have been changing due to incessant developments in critical theory and cultural studies, new forms of interdisciplinary exchange, and the important renewals wrought by digital culture and extended canons. It indicates how these expansions have re-energized literary studies. Such transformations encourage thinkers to follow important questions which show the way to fresh findings rather than trying to fit them into familiar academic containers.

One cannot discount the fact that research is a complicated and an intriguing task which needs a lot of searching. Most of the researchers find it hectic and tiring. We find it arduous because research tradition in India does not seem to have developed indigenously and scholars in English choose to build research tradition in India based on the foundation, structure, and framework prescribed by the American academic society. Researchers strive to attain precision of the Western models and so revert to the relevance question to augment the application of academic research. It is important for scholars to explain the 'impact' of their work on the economy, society and public policy. There is a need to address themes and areas relevant to the values of literature and literary studies. Literature does not exist as a self-directed entity but rather it is found within the cultural, ideological, aesthetic and socio-political context which conditions its reception at different moments and in diverse places.

We find it arduous because research tradition in India does not seem to have developed indigenously

Research paper topics in literature are nearly endless but what most researchers aim for is innovation and fresh findings, and the researcher is encouraged to develop a doable topic having an overarching theoretical context. In this regard it's observed that interdisciplinary research has occasioned an outburst of innovative, multidisciplinary scholarship in recent years. English departments foster an interdisciplinary research and catalyze the development of stimulating and resourceful research projects; which explains that research modes in literature have been ever evolving. Geo criticism has been a promising development in spatially oriented literary studies. Espousal of interdisciplinary method recurrently formulates prolific acquaintances to architecture, art, history, politics, social theory, and urban studies, to name but a few. Spatial critics have also surveyed the spaces of literature that are found in novels, myth, fantasy, and cyberspace. Geo criticism is an emerging trend in literary research, a transdisciplinary approach which merges the spatial and the geographical concerns; such an endeavor poses novel questions for criticism and theory; it urges to perceive the literary text and the cultural texts in diverse ways and offers alternative approaches to literary and cultural studies.

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Mr. Vijayakumar M.S, a Ph.D Scholar in Mechanical Engineering has recently published two papers in Thomson Reuters Journals, along with his co-authors Dr. R. Saravanan and Dr. D. Saravana Bavan. The first paper titled *Comparison Studies of Pottery Clay Adhesive and Loctite*, is published in the International Journal of Engineering Sciences and Research Technology. The second paper titled *Analysis of Pottery Clay Adhesive Through Bump and Random and Sine Vibration Tests*, has been published in the Global Journal of Engineering Science and Researches.

Thinklet congratulates the authors and wishes them success in their endeavours.

Technological Strategies to Improve Adaptation of Indian Livestock to Climate Change

Livestock sector plays a significant role in Indian economy as it contributes 4 % of national GDP and 25.6% of total Agriculture GDP. Over 20 million people depend upon livestock for their livelihood and it provides employment to 8.8 % of the population in India. The seasonal fluctuations of weather affect quantity and quality of forage crops and lead to decline in production and reproduction efficiency of livestock. Several studies revealed that animal health can be affected by climate change in following ways: heat-stress, extreme weather events, and infectious diseases, especially vector borne diseases which are critically dependent on environmental conditions.

Weather factors such as air temperature, rainfall, humidity, and wind speed influence animal performance: growth, milk production, wool production and reproduction. Studies have shown that conception rates of dairy cows drop by 20 to 27% in summer. Day light duration changes with season, leading to fluctuation in chronological rhythm patterns in all animals.

Due to this, secretion of the hormones and enzymes regulating reproductive functions get altered. Still, the exact mechanism and impacts of seasonal changes on animal reproduction have not been studied in depth at molecular level. With the development of molecular biotechnology and Next Generation Sequencing (NGS) technology, new prospects are available to characterize epigenetic regulation of gene expression and identify key cellular mechanism to heat stress and disease resistance.

Assisted reproductive technology (ART) and genetic engineering tools will enable improved accuracy and efficiency of selection for heat tolerance and disease resistance breeds. Identifying the specific genetic markers in gametes (sperm and oocytes) give the clues to improve the native breed selection. Systematic information generated on the impact assessment of season on livestock production through *in-vitro* and *in-vivo* studies may prove very valuable in developing appropriate adaptation and mitigation strategies to sustain livestock production in the changing climate scenario. The addition of new technologies into the research and technology transfer systems potentially offer many opportunities for further development of climate change adaptation strategies in India to improve livestock production.

Several studies revealed that animal health can be affected by climate change

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My Coursework Exam Experience

After a long hiatus, I got to plug back into the world of books, assignments, presentations and exams as part of my MPhil coursework. To be honest, I was quite worried before the exams. The feeling of unpreparedness was lurking, but at the same time, I knew that given more time, I'd probably still feel unprepared. This was as prepared as I could get.

During the coursework sessions, I only managed to understand the different parts of research knowledge. But as the exams drew closer, all these parts suddenly merged and I understood them better. Each of the papers was different and tricky. It was interesting to be caught off guard several times and then try and put my thoughts together and give my best each time. Whether or not that was enough to pass, I didn't know. After 10 long years of a fulltime career, I realised how difficult it is to write exams quickly and legibly, how to portion out the questions so that time doesn't run out.

It was interesting to be caught off guard several times and then try and put my thoughts together

After the exams were over, I breathed a sigh of relief and felt like a free bird! Unfortunately this feeling was rather short-lived since I remembered about the next exam lined up in a few weeks' time- presentation of my research plan before a panel of experts. However, this experience has definitely boosted my confidence, made me realise my weaknesses and challenged me to rise higher for the next step.

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Utility of Gene Expression Studies in Early Embryos of Livestock

Livestock sector is one of the growing industries which contribute major income to the dairy farmers of across the country. Today this sector contributes around 25 % of Agricultural GDP. For the successful growth of this sector the animal must be productive in its life term in order to yield maximum returns to farmer. Failure of reproduction can lead to great economic loss in livestock industry. The majority of this loss occurs because of early embryonic mortality and this is a major impediment hampering the reproductive efficiency of ruminants and accounts for a main component of post fertilization loss. Opportunity of successful development of an embryo is influenced directly or indirectly by so many factors but embryo mortality is more common during early than late embryonic period and it may be because of intrinsic defects within the embryo, an inadequate maternal environment, asynchrony between embryo and mother, or failure of the mother to respond appropriately to embryonic signals.

Failure of reproduction can lead to great economic loss in livestock industry

Genetic factors are one of the important causes of embryonic loss and include chromosomal defects, individual genes, and genetic interactions as well as inbreeding. The pre-implantation embryogenesis is characterized by various morphological and physiological transitions that happen after fertilization. These morphological and physiological transitions in pre-implantation embryo development are known to be accompanied and regulated by differential expression of developmentally important genes. A better knowledge about gene expression patterns during early embryo development would give us detail information in the molecular pathways controlling early development. It is necessary that we have a better understanding of stage specific gene expression because each stage of embryo is characterized by temporal and spatial activation of a specific subset of genes.

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A Virus Acts as a Biocontrol Agent on Lepidopteran Insect Pests

Helicoverpa armigera nucleopolyhedrovirus HearNPV (Baculoviridae), is a rod shaped, single nucleocapsid alphabaculovirus with circular closed, double stranded DNA genomes that ranges in size from 80 to 180 kb. It has proved to have excellent insecticidal propriety for control of *H. armigera* (Lepidoptera: Noctuidae) larvae (pest) on number of crops, viz, chickpea, pigeonpea, tomato, cotton etc. In the current study we obtained two strains of NPV one of them is found to be most virulent (collected from Ludhiana, Punjab) to *H. armigera* while least virulent was obtained from Faridkot, Punjab.

The virus with more virulence was selected after a series of bioassay experiments on *H. armigera*. Lower the lethal concentration 50 (LC₅₀) value represents most virulent strain of NPV, whereas higher lethal concentration 50 value indicated least virulent strain. Both Most (Ludhiana) and Least (Faridkot) NPV strains were subjected to whole genome sequencing through Next generation sequencing technology and submitted to NCBI-GenBank. Comparative genomics study of our most virulent strain HearNPVL1, (GenBank Accession No. KT013224) with strains from Spain, Kenya and China showed that core genes such as Polh, Iap-2, DBP, Pif-1 and Lef-8 are involved in setting infection to larval pest (*H. armigera*) and use of most virulent strain effectively reduced its population in the farmer's field. Development of more such viral strains will help farmers to fight the pest attack in their field, and the pesticide residue free crop will be available. The virus does not cause any harm to humans, unlike chemical pesticides, and doesn't get infused into the food chain. Hence, it's usage in fields, in its liquid formulations is quite safe and can be taken up without any environmental hazard.

The virus does not cause any harm to humans, unlike chemical pesticides, and doesn't get infused into the food chain

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Genome Editing through CRISPR/Cas9: Possible Applications in Livestock Industry

Genome editing is a type of genetic engineering in which nucleotide sequence of the genome of an organism/cell is precisely modified, that can be by addition, deletion or replacing the nucleotides. Among the different tools of genome editing, CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) associated protein-9 nuclease (Cas9) technology is widely used by researchers recently because of its high efficiency and specificity. It was originally identified in a prokaryote defense system for adaptive immunity, enabling the organisms to respond and eliminate invading genetic material. CRISPR/Cas9 system works with the guide RNA based nuclease activity. In genome editing, synthetic guide RNA is used to introduce single or double stranded nicks and activate the repair mechanisms through which the desired gene will be inserted or deleted.

Genome editing is evolving as a powerful tool for production of genetically engineered livestock with desirable traits

Genome editing tools enable efficient and accurate genome manipulation for enhancing the ability to modify the genomes of livestock species. Production of hornless dairy cattle, development of TB resistant cattle, pigs resistant to African swine fever virus, sheep and cattle with edited myostatin gene are some of the examples of genome edited livestock. In the last five years, these tools have been used for generating more than 300 genome edited pigs, cattle, sheep and goats. These animals can potentially serve as organ donors, disease models, bioreactors or founder animals of genetic lines with enhanced productivity or disease resistance traits.

Genome editing is evolving as a powerful tool for the production of genetically engineered livestock with desirable traits. Nevertheless, such powerful tool is to be used with great responsibility addressing the ethical and safety issues involved.

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Embrace Global Environmental Culture for a Better World

The undeterred human hope on economy and technology as harbingers of progress and peace in the entire world, across races and classes has touched rock bottom with the ongoing occurrence of unsettling natural and political events. Therefore the indomitable human spirit has shifted its focus back to the omnipotent nature which is the de-romanticised one compared to Wordsworth's mystic nature. Today, the word environment is taken for nature as the real nature has almost vanished. As responsible denizens of the world the authoritative voices in environmental imagination – Environmental writers and Eco-critics call for a shift from self-oriented consumer culture to community-oriented global environmental culture.

Environmental writers and Eco-critics call for a shift from self-oriented consumer culture to community-oriented global environmental culture

This unifying and empowering culture is built not on a monolithic preservationist agenda but on a larger framework consisting of a number of overarching concepts. They are as follows – first and foremost be aware of the risk society we live in; ensure that environmental justice is done every time which undoubtedly will culminate in social justice; the biosphere should be looked at as a single homeostasis or entity; adopt an eco-theology – nature as a religion as conventional religions have failed to

find a solution to the planet crisis; practice the ecofeminist idea of subverting the hierarchical binaries, man/woman and culture/nature where the first category is treated as superior to the other; sustainability should be the cornerstone of any developmental activity.

Having understood the significance of these practices it should be ensured that the acculturation of the world citizens to Global environmental culture should begin from a very young age. Towards this purpose what is required more than anything else is abandoning the attitude of reluctant acceptance shown towards environmental literature in the academic world and engaging with them in a more fruitful and critical manner. The resulting cultural shift expected of this learning only can carve out a better future for this crises-ridden world.

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Summer Stress Management Through Diet

A proper diet is an important practice to maintain mental and physical health of individuals. For better health, one should coordinate their daily diet with proper physical exercise and yoga. Vitamin A deficiency, iron deficiency anemia and iodine deficiency are being reported as risk factors in children below five years. An improper diet practice and excessive calories consumption are thought to increase health risks such as, obesity, chronic heart diseases, diabetes, hypertension, cancer, etc. Hence healthy dietary habit during summer is crucial for stress free life, because during this period our body dehydrates drastically, loses a lot of electrolytes and increases the incidence of health risks.

The average human body weight of an adult composes 60% water and its percentage of distribution among the organs varies with various physiological functions. For example, the brain and heart composed of 73% water, lungs about 83% water etc. proportionate to the physiological activities. The latent consequences of body dehydration might leads to several clinical complications such as skin dryness, nausea, redness in eye, dizziness etc apart from affecting brain functions. The possible reasons for dehydration during summer could be attributed to excess sweating, consumption of diuretics, alcohol, vomiting, diarrhea, fever and prolonged exposure to sun. So we should plan our work during the cool hours and consume 2.5 litres/day

Ten words:

*Eat less, Move more, Eat lots
of fruits and vegetables*

or eight to ten glass of water daily to keep the body hydrated. A person experiencing dehydration problems should consume lot of water containing electrolytes. The fruits and vegetables such as apples, corn, beets, carrots, green beans, lemons, oranges, sweet potatoes, squash and tomatoes are rich in electrolytes. Consumption of these fruits and vegetables could maintain the blood solute concentration within the physiological limit during summer stress.

The consumption of whole green, vegetables, pulses, cereals and fruits supplement essential biomolecules, vitamins and minerals to our body. The diet supporting the skin health should be focused as it regulates the body temperature 24x7. Hence consuming the diet rich in antioxidants, polyunsaturated fatty acids (omega-3 and omega-6, PUFA), vitamin C and vitamin E might improve the liver function and directly connects with skin health. One of the best ways to keep up our antioxidant levels high is through the consumption of green tea several times a day which keeps our skin more healthy. The other rich sources of antioxidants are berries, citrus fruits, sweet peas, fresh herbs, peppers and beetroot which could promote liver detoxification and improves digestion to maintain healthy skin.

The person who consumes high carbohydrate meal or fat rich meal should consume protein supplements along with magnesium and B vitamins rich diet to support subsequent energy metabolism and to reduce the rapid flow of sugars to blood. This way, one can slow down their metabolic rates and can improve their physiological functions. According to Marion Nestle, the good diets are so simple and further summarized in just ten words: eat less, move more, eat lots of fruits and vegetables. To simplify further, a five word modifier says: go easy on junk foods. One should follow these precepts to live longer without stress and major health complications.

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**"Basically, I'm not interested in doing research and I never have been.
I'm interested in understanding, which is quite a different thing."**

David Blackwell

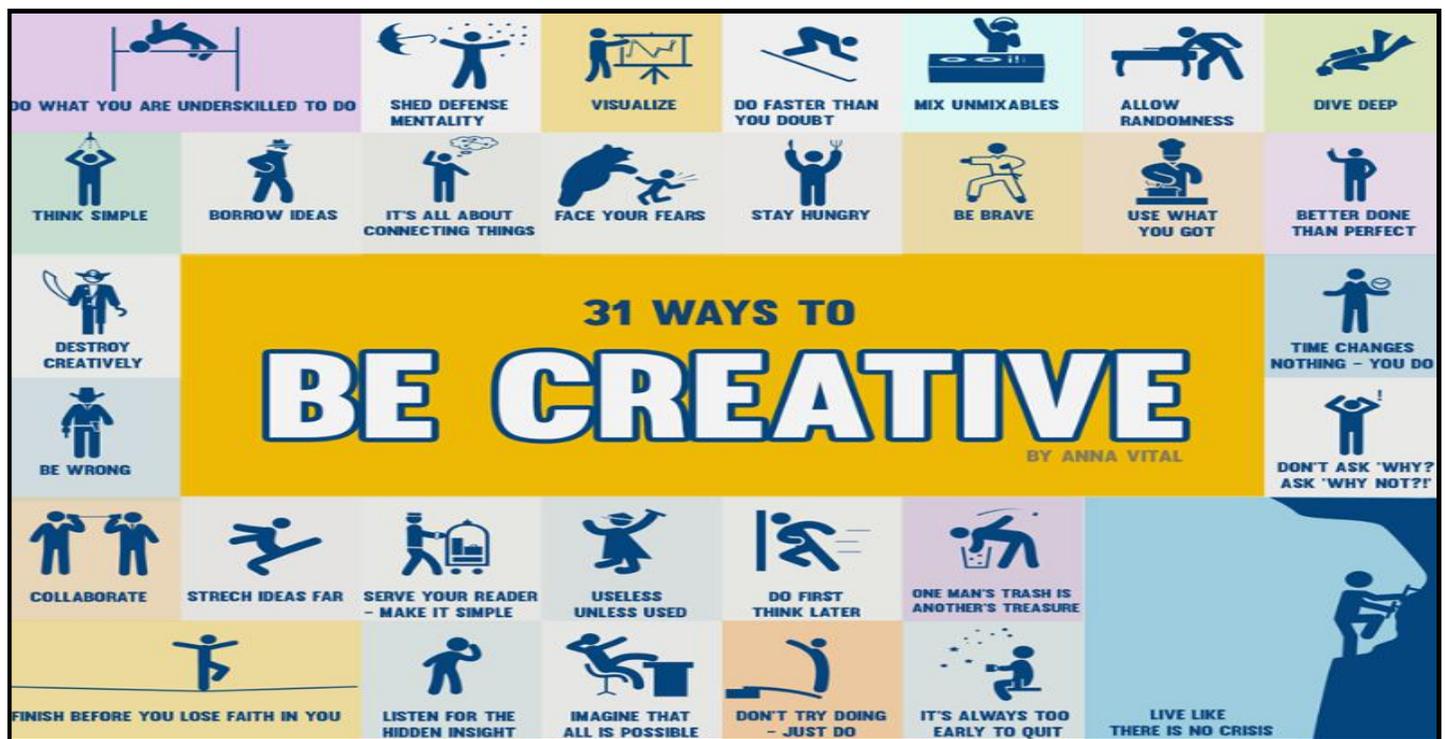
RESEARCH ACTIVITIES AT JAIN UNIVERSITY

Research Methods Workshop Series

The Ph.D Section of the University is holding a series of Research Methods and Writing workshops for the 2016 batch of Ph.D scholars from June to August. We have six general topics common to all disciplines and four topics which are domain specific. These workshops aim at refreshing the methods taught during course work, with special emphasis on the proposal submission due by the batch in September this year. We hope that the workshops are able to clarify some of the practical aspects of 'doing' or 'conducting' research and prove beneficial to the scholars attending.

Research Retreat

The Annual Research Retreat for all Ph.D Scholars of the University is scheduled to be held on 12th and 13th August 2017. All research scholars who have finished their proposal presentation and are in the advanced stages of doctoral research, will be expected to submit their proposals/ abstracts of work completed in the last year, and upon selection, will present it to the expert committee during the Retreat. The official notification will be sent out shortly. Kindly register in time for the same by preparing your abstracts as per the guidelines.



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