



# DBT STAR COLLEGE SCHEME

2019

Departments of Botany & Zoology

**NIRMALA COLLEGE, RANCHI**



Nirmala College, Ranchi has been awarded the prestigious DBT Star College Scheme grant (Phase 1) in March 2019. Departments of Botany and Zoology are the beneficiaries of the scheme. The DBT Star College Scheme has helped a lot in reshaping and restructuring the teaching methodology and student centric learning that helps to develop and improve the basic scientific skill of students.

Events like Lecture Series, Hands-on-training, Outreach Activity, Exhibition, Faculty Enrichment Programme and Minor Research Project provides with all round development of students' academic learning and validating it by performing experiments. The students are also guided and mentored to handle scientific data and substantiate it through scientific documentation. DBT grant has enriched the library of the Institution and students make the best benefit by going through effective piece of literature. Moreover, the number of student's enrollment as well pass percentage had also increased in the Department of Botany and Zoology.

The outreach activities suffice the need to perform community service which is an essential component of social development. The faculty also gets enriched with advanced and newer concepts with Enrichment programme and learn techniques with the experts who deliberate lectures and Hands-on-training related to the subject matter proposed. Topics related to upgradation of non-teaching and laboratory staff is also arranged.

Finally, the grant would foster entrepreneurial ability among students so that they make themselves self-reliant and sustainable. It would also help to cater to the problem of unemployment that is a major concern of the economy.

Thus, we hope to strengthen the human resource by inculcating scientific learning, lab application and finally utilizing the skill to make small ventures of startups and other entrepreneurial options. The DBT strengthening component has immensely supported our development and has helped to achieve better results.

## **Members of Advisory Committee of the DBT Star College Scheme are as follows:**

1. Dr. Sr. Jyoti, Principal, Nirmala College, Ranchi. ----- Chairperson DBT Advisory Committee
2. DBT Representatives (2):
  - a. Shri Arvind Duggal, Adviser DBT
  - b. Dr. Garima Gupta, Programme Officer, Star College Scheme
3. Dr. M R Nagalakshmi, HOD Dept. of Mathematics -----Coordinator DBT
4. Dr. Manoj Kumar, Associate Prof, Dept. Of Life Sciences, CUJ----- External Expert
5. Dr. Naini Saxena, Associate Prof, Dept. Of Zoology, RU-----External Expert
6. Dr. Anubhuti Singh, HOD, Dept. of Botany----- Departmental Coordinator, Botany
7. Dr. Emma R. Seraphim, HOD, Dept. of Zoology----- Departmental Coordinator, Zoology
8. Dr. Indu Kumari, Asstt. Prof, Dept. Of Botany-----Member
9. Dr. Neetu Rani, Asstt. Prof, Dept. Of Botany-----Member
10. Dr. Anjali Smita, Asstt. Prof, Dept. Of Zoology-----Member
11. Dr. Veenapani, Asstt. Prof, Dept. Of Zoology-----Member
12. Dr. Manisha Kumari, Asstt. Prof, Dept. Of Zoology-----Member

## ACTIVITIES DURING 2019-20

S. NO	ACTIVITIES	TOPIC	DATE
1	MINOR RESEARCH PROJECT (STUDENTS)	* PRESERVATION, COLLECTION, HANDLING OF INSECTS (THROUGH RBPT): <b>ZOOLOGY DEPARTMENT</b>	JUNE-JULY-AUGUST 2019
		* COMPARATIVE STUDY OF POLLUTED SITE: <b>BOTANY DEPARTMENT</b>	JUNE-JULY-AUGUST 2019
2	INVITED TALK CUM TRAINING (FACULTY ENRICHMENT)	VIRTUAL LAB, SIMULATION AND BIOINFORMATICS: <b>INTERDISCIPLINARY</b>	15 <sup>th</sup> FEBRUARY 2020
3	LECTURE SERIES	*MITOCHONDRIA: <b>ZOOLOGY DEPARTMENT</b>	14 <sup>TH</sup> DECEMBER 2019
		*MEDICINAL PLANTS OF JHARKHAND: <b>BOTANY DEPARTMENT</b>	1 <sup>ST</sup> FEBRUARY 2020
		NUCLEAR HAZARDS AND HUMAN HEALTH: <b>INTERDISCIPLINARY</b>	10 <sup>TH</sup> MAY 2019
4	WORKSHOP/HANDS ON TRAINING	SPECTROPHOTOMETER AND ELECTROPHORESIS: <b>INTERDISCIPLINARY</b>	31 <sup>st</sup> JANUARY 2020
5	SCIENCE QUIZ	SCIENCE QUEST: <b>INTERDISCIPLINARY</b>	6 <sup>TH</sup> SEPTEMBER 2019
6	LAB VISIT TO CTRI, NAGRI, RANCHI	SERICULTURE: <b>INTERDISCIPLINARY</b>	10 <sup>TH</sup> APRIL 2019
7	VISIT TO DALMA WILDLIFE SANCTUARY, JHARKHAND	BIODIVERSITY: <b>INTERDISCIPLINARY</b>	7 <sup>th</sup> MARCH 2020

### MINOR RESEARCH PROJECT: Botany

**ACTIVITY DATE: JUNE, JULY, AUGUST 2019**



**LECTURE SERIES: Botany**  
**ACTIVITY DATE: 1<sup>ST</sup> FEBRUARY 2020**



**FACULTY ENRICHMENT PROGRAMME: INVITED TALK CUM**  
**TRAINING: Interdisciplinary**  
**ACTIVITY DATE: 15<sup>TH</sup> FEBRUARY 2020**



**LECTURE SERIES: Interdisciplinary**  
**ACTIVITY DATE: 10<sup>TH</sup> MAY 2019**





**WORKSHOP/HANDS ON TRAINING: Interdisciplinary**  
**ACTIVITY DATE: 31<sup>ST</sup> JANUARY 2020**



**MINOR RESEARCH PROJECT: Zoology**  
**ACTIVITY DATE: JUNE, JULY, AUGUST 2019**



**LECTURE SERIES: Zoology**

**ACTIVITY DATE: 14<sup>TH</sup> DECEMBER 2019**



**SCIENCE QUIZ: Interdisciplinary**

**ACTIVITY DATE: 6<sup>TH</sup> SEPTEMBER 2019**



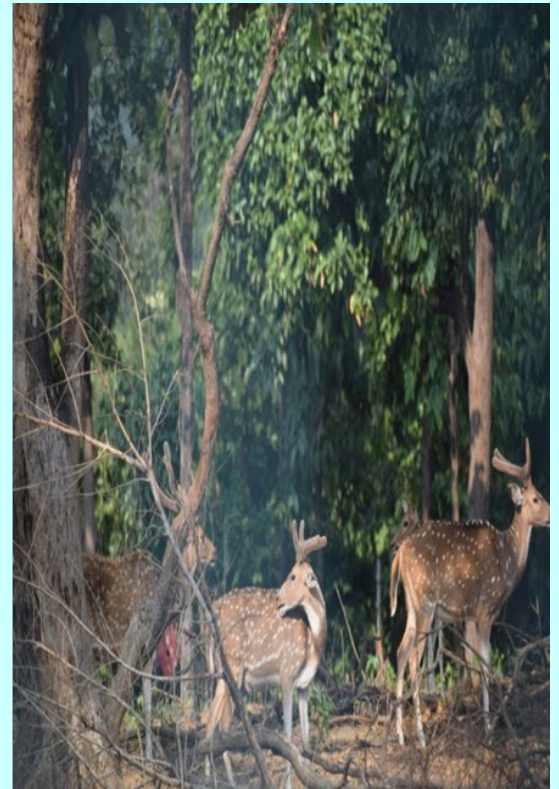
**LAB VISIT: Interdisciplinary**  
**ACTIVITY DATE: 10<sup>TH</sup> APRIL 2019**



# VISIT TO DALMA WILDLIFE SANCTUARY, JHARKHAND:

**Interdisciplinary**

**ACTIVITY DATE: 7<sup>th</sup> MARCH 2020**



<b>ACTIVITIES DURING 2020-21</b>			
<b>S. NO</b>	<b>ACTIVITIES</b>	<b>TOPIC</b>	<b>DATE</b>
1	MINOR RESEARCH PROJECT (STUDENTS)	STUDY ON FRAMEWORK & FUNCTIONAL ROLE OF MICROSCOPES USED AS RESEARCH TOOLS FOR IDENTIFICATION OF CELLULAR DETAILS: <b>INTERDISCIPLINARY</b>	22 <sup>nd</sup> March 2021
2	SEMINAR (FACULTY ENRICHMENT)	LABORATORY SAFETY MEASURES & WASTE MANAGEMENT: <b>INTERDISCIPLINARY</b>	12 <sup>th</sup> FEBRUARY 2021
3	SEMINAR (STUDENTS)	SPECTROSCOPY: <b>INTERDISCIPLINARY</b>	20 <sup>th</sup> MARCH 2021
		TISSUE CULTURE: <b>INTERDISCIPLINARY</b>	24 <sup>th</sup> MARCH 2021
4	LECTURE SERIES	*PREPARATION OF CULTURE MEDIA & ANTIBIOTIC SENSITIVITY: <b>ZOOLOGY DEPARTMENT</b>	10 <sup>th</sup> FEBRUARY 2021
		*MUSHROOM CULTIVATION: <b>BOTANY DEPARTMENT</b>	16 <sup>th</sup> MARCH 2021
		ENVIRONMENTAL ETHICS: ROLE OF RELIGION & CULTURE IN ENVIRONMENTAL CONSERVATION: <b>INTERDISCIPLINARY</b>	18 <sup>th</sup> FEBRUARY 2021
5	WORKSHOP/HANDS ON TRAINING	INSTRUMENTATION AND PRACTICAL PROTOCOL: <b>INTERDISCIPLINARY</b>	22 <sup>nd</sup> to 26 <sup>th</sup> FEBRUARY 2021

**LECTURE SERIES: Zoology**  
**ACTIVITY DATE: 10<sup>TH</sup> FEBRUARY 2021**





**WORKSHOP/HANDS ON TRAINING: Interdisciplinary**

**ACTIVITY DATE: 22<sup>ND</sup> TO 26<sup>TH</sup> FEBRUARY 2021**



**STUDENT'S SEMINAR: Interdisciplinary**

**ACTIVITY DATE: 20<sup>TH</sup> MARCH 2021**



**SEMINAR (online): Interdisciplinary**

**ACTIVITY DATE: 24<sup>TH</sup> MARCH 2021**



# LECTURE SERIES: Botany

ACTIVITY DATE: 16<sup>th</sup> MARCH 2021



# FACULTY ENRICHMENT PROGRAMME: SEMINAR (Interdisciplinary)

ACTIVITY DATE: 12<sup>th</sup> FEBRUARY 2021



# LECTURE SERIES: Interdisciplinary

ACTIVITY DATE: 17<sup>TH</sup> FEBRUARY 2021



# MINOR RESEARCH PROJECT: Interdisciplinary

ACTIVITY DATE: 22<sup>ND</sup> MARCH 2021



## ACTIVITIES DURING 2021-22

S. NO	ACTIVITIES	TOPIC	DATE
1	MINOR RESEARCH PROJECT (STUDENTS)	<ol style="list-style-type: none"> <li>1. <b>Zoology:</b> Project on Isolation &amp; characterization of DNA in blood cells</li> <li>2. <b>Botany:</b> Project on Isolation &amp; characterization of DNA in Onion, cauliflower, pea.</li> </ol>	March, April, May 2022
2	FACULTY ENRICHMENT	<ol style="list-style-type: none"> <li>1. <b>Interdisciplinary:</b> Bioinstrumentation, Instrument Handling, Calibration and Biosafety. 18<sup>th</sup> June 2022</li> <li>2. <b>Zoology:</b> Incubation and development of chick embryo. 10<sup>th</sup> June 2022</li> <li>3. <b>Botany:</b> Somatic and zygotic tissue culture technique</li> </ol>	18 <sup>th</sup> June 2022 10 <sup>th</sup> June 2022 08 <sup>th</sup> June 2022
3	LECTURE SERIES	<ol style="list-style-type: none"> <li>1. <b>Botany:</b> Research paper writing 24.Feb. 2022</li> <li>2. <b>Zoology:</b> Environmental pollutants 22 Feb. 2022</li> <li>3. <b>Interdisciplinary:</b> <ol style="list-style-type: none"> <li>a. Enzyme Catalysis: Industrial applications</li> <li>b. Major Crops and their Pests (Identification and Prevention methods)</li> <li>c. Construction of phylogenetic trees with the help of bioinformatics tool</li> </ol> </li> </ol>	24 <sup>th</sup> Feb. 2022 22 <sup>nd</sup> Feb. 2022 04 <sup>th</sup> March 2022 10 <sup>th</sup> March 2022 05 <sup>th</sup> March 2022
4	WORKSHOP/ HANDS ON TRAINING	<ol style="list-style-type: none"> <li>1. <b>Botany:</b> DNA Extraction from onion, cauliflower.</li> <li>2. <b>Zoology:</b> DNA extraction from Blood</li> <li>3. <b>Botany:</b> Determination of Enzyme and protein estimation</li> <li>4. <b>Zoology:</b> ELISA and Spectrophotometer</li> <li>5. <b>Interdisciplinary:</b> Basic training in Scientific Software skill development</li> </ol>	12 <sup>th</sup> March 2022 11 <sup>th</sup> March 2022 27 <sup>th</sup> April 2022 14 <sup>th</sup> March 2022 27 <sup>th</sup> April 2022
5	OUTREACH PROGRAMME	<b>Hands on training: Science of Slide preparation:</b>	23rd March 2022

		<ol style="list-style-type: none"> <li>1. <b>Zoology: Slide preparation &amp; Study of Biology of Animal cells &amp; Cell organelles.</b></li> <li>2. <b>Botany: Slide preparation &amp; Study of Biology of Plant cells.</b></li> <li>3. <b>Interdisciplinary: Organic Farming of vegetables in Jharkhand Orientation Programme for Teachers: Interdisciplinary:</b> <ol style="list-style-type: none"> <li>a) <b>Repositories of e-learning</b></li> <li>b) <b>Basic ideas of instrumentation and handling (instrument/equipment procured from DBT Star College Scheme.)</b></li> </ol> </li> </ol>	
6	Other Activities	<b>Science Exhibition: "SCIENCE SPARK"</b>	22nd -23rd March 2022

## LECTURE SERIES: Zoology

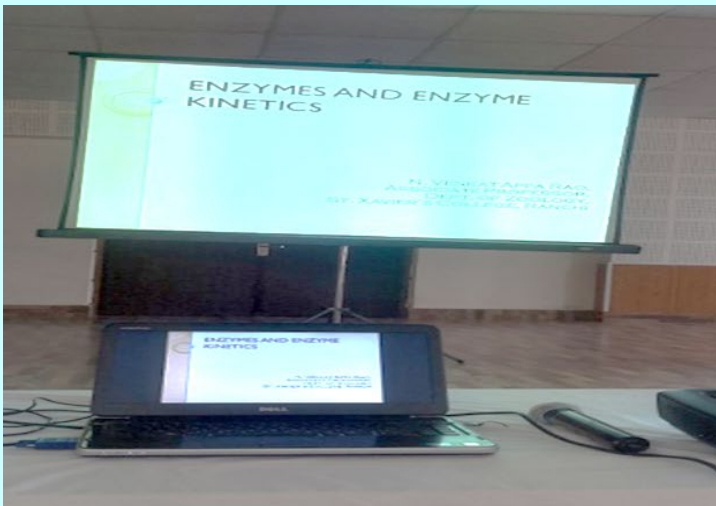
**ACTIVITY DATE: 22<sup>nd</sup> FEBRUARY 2022**



**LECTURE SERIES: Botany**  
**ACTIVITY DATE: 24<sup>TH</sup> FEBRUARY 2022**



**LECTURE SERIES: Interdisciplinary**  
**ACTIVITY DATE: 04<sup>TH</sup> March 2022**







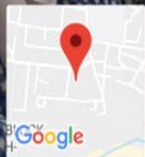
# WORKSHOP/HANDS ON TRAINING: Botany & Zoology

ACTIVITY DATE: 11<sup>TH</sup> – 14<sup>TH</sup> March 2022

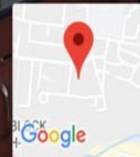


# WORKSHOP/HANDS ON TRAINING: Botany

ACTIVITY DATE: 27<sup>TH</sup> April 2022



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# OUTREACH PROGRAMME: Interdisciplinary

ACTIVITY DATE: 23<sup>RD</sup> March 2022




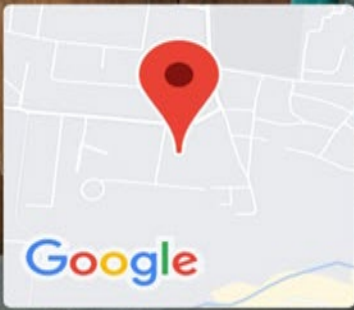
# OTHER ACTIVITIES: Interdisciplinary

ACTIVITY DATE: 23<sup>RD</sup> March 2022





 GPS Map Camera



**Ranchi, Jharkhand, India**


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Doranda, Ranchi, Jharkhand 834002, India

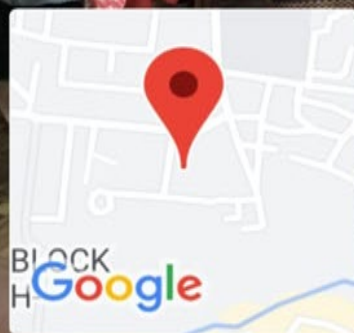
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 GPS Map Camera



**Ranchi, Jharkhand, India**

nirmala college, 88P8+53W, H-Block, Shyamali Colony,  
Doranda, Ranchi, Jharkhand 834002, India

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The departments of Botany and Zoology of Nirmala College acknowledge their heartfelt gratitude to DBT for the financial support that has upgraded the laboratory and other facilities for the better performance of the two departments.

DBT Star College Scheme has helped to rope in several experts to make the students understand the technicality and protocols for performing an experiment by using modern instruments and equipment.

DBT Sponsored Star College scheme has strengthened add-on skills, logical reasoning, and critical thinking together with scientific inquiry aptitude among students.

It facilitates the faculty and students to explore their potential in realizing the goals of teaching and learning and would promote better career, placement, and start-up opportunities.