

Department of Life Sciences Yearly Report (Academic year 2021-22)

Department Profile

Names	Designation
Dr. Hema Ramachandran, Ph.D	Associate Professor
Dr Sree Nair, PhD	Assistant Professor, Head of Department
Dr. Bhavna Daswani, PhD	DST Women Scientist - A
Ms. Divya Sinha, MSc	DST Women Scientist - B
Ms. Sukaina Abbas, MSc	Lecturer (Ad-hoc)
Dr Tressa Jacob, PhD	Lecturer (Ad-hoc)
Ms. Kajal Sankhala, MSc	Lecturer (Ad-hoc)

Remedial teaching

We conducted a remedial cum mentorship programme for our TY and SY students.

Third Year BSc students

Remedial Sessions for practicals were conducted for students (specifically dissection experiments and microbiology techniques)

Second Year BSc students

Remedial Sessions for practicals were conducted for students

Multiple worksheets for Biostatistic were solved as part of remedial sessions for 7 students

There were trouble shooting sessions for tough papers by PG students. The students did well in the subsequent Semester End Exams and passed.

Courses offered (Add on)

Add-on/ Certificate Course	2021-2022
	Students enrolled
Bioinformatics Course	18
Introductory Course On Science Writing	20
Proposed Course 2022-2023	
Diploma in Nutrition, Diet & Fitness (Collaboration -Sophia Centre for Women's Studies & Development)	-@ <u>Syllabus and Course Structure Document</u> @ <u>Syllabus Powerpoint</u>

MSc Dissertation Projects

1.Generation and screening of CRISPR mediated ArpC4 mutants in zebrafish

Aaliya Shaikh, Mentor: Dr. Tressa Jacob

2.Mindfulness: A potential therapy for Olfactory Dysfunction . Aastha Somani Mentor:Ms. Divya Sinha

3.Transgenerational Effects Of Short- Term High Glucose Diet On Caenorhabditis elegans. Ananya Rajeev Nair
Mentor : Dr. Sree R Nair Co-mentor: Ms. Sukaina Abbas

4.Elucidating the genes and pathways affected by Estrogen Receptor – β in gliomas: A bioinformatics approach
Chandrima Chakravorty, Mentor- Bhavna Daswani

5. Media Multitasking. Leenisha R. D'silva Mentor: Dr. Hemalatha Ramachandran and Ms Divya Sinha
6. Sex Dependent Expression Profiles Of Genes Associated With Ad Pathology
Neelakshi Sinha, Mentor: Dr. Hema Subramaniam Co-Mentor: Mrunal Gokhale
7. Identification Of Gene Networks Modulated By Estrogen Receptor Beta Isoform 1 In Glioblastoma: A Bioinformatics Approach. Nidhi Yogesh Shinde, Mentor Dr. Bhavna Daswani
9. Localization of cellular homeostasis processes - autophagy, apoptosis and cell proliferation - in the Malpighian tubules of *Drosophila melanogaster* park13 mutants. Ruchi Rajesh Modgekar, Mentor Dr. Hema Subramaniam
10. Illustration of pathways affected by touch receptor (Mec-8 mutants) in *c. elegans*: "A Bioinformatics Approach"
Saba Parvin Haque Mentor: Dr. Sree Nair, Co-Mentor: Mrunal Gokhale Co-Mentor: Sukaina Abbas
11. PIWI-piRNA pathway-mediated transposable element repression in Hydra. Savani Sakhalkar Mentor: Dr. Anuttama Kulkarni, Co-mentor: Dr. Hemalatha Ramachandran, Co-mentor: Mrs. Mrunal Gokhale, Co-mentor: Ms. Sukaina Abbas

Guest Lectures organised by the department

1. Teaching-Learning process: Need to learn and unlearn

By Mr. Sudhakar Solomonraj (Head of Department and Associate Professor, Department of Political Science, The Wilson College, Mumbai)

Organized by:

Dr. Hemalatha Ramachandran, Department of Life Sciences (Sophia College - Autonomous) & Ivan John (Department of Sociology, Sophia Jr. College)

Date: 9th October 2021

Duration: 4.30 to 5:30 p.m.

No. of Teacher Participants: 21

The session began with Mr. Sudhakar Solomonraj asking us questions about our changing classroom scenarios and about our student response from "millennials" (i.e. GenZ) learners. Some participants expressed the view by saying that sometimes they felt that First Year students were usually enthusiastic but by SY and TY level they became less active. The current Online mode of teaching has made it difficult unless each student is specifically asked to respond. One of the participants who teaches Psychology said as long as students could relate what is taught, to real life situations, their interest improves and their class participation too. Mr. Sudhakar mentioned about the emphasis that is given to the preparation of Teaching Plan, but

asked us about our own 'Learning Plan'? He asked how much time we personally spend learning, for ourselves, and not about our preparation for teaching - which is expected anyway. He asked if we ever asked our students what they had expected from a topic or their experience of a lecture that we might have thought went well? Have we gone beyond the syllabus and related it to parallel situations and asked the students for their responses?

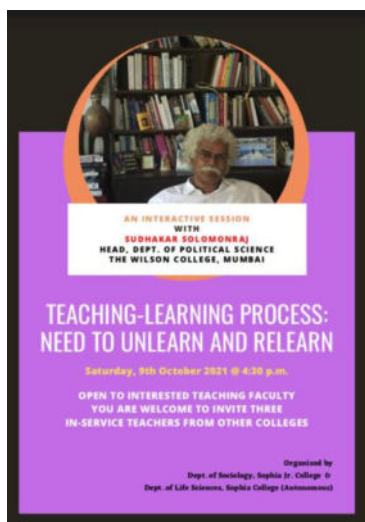
Teachers did admit that they tended to get tied down with syllabus completion, time constraints but agreed that we needed to relate more to our students and ask their opinions and engage with them more meaningfully. We needed to get students more involved with the sessions taken.

Another question posed was if we felt that we as teachers would soon become redundant? Some participants responded by stating that digital learning materials available on the internet may make students skip classes. Mr. Sudhakar emphasized the need to include the scenario of relating topics to real life situations, to explain topics using one's unique teaching styles to make them continuously relevant. Learners would then consider coming to college with a

view to understand their subject; he stressed the need for us to not merely treat the syllabus in relation to examinations. With regard to Evaluation, he shared how he would redesign the question paper to ask what they felt about a given topic, with a view to hear what students have to say and with plenty of scope for them to choose from. He stated the need to go beyond just following a prescribed structured pattern of paper setting.

Many participants shared their respective class scenarios discussed and agreed that the points raised by Mr. Sudhakar were eye openers for them to think about every class session from a learners perspective. He give many instances and anecdotes from his own teaching experience over the past 38 years that made the session personal. He also suggested some books that we could consider reading.

Dr. Hemalatha Ramachandran



2. 'Mitochondria- Where They Come From And Where Will They Take Us'

A talk on 'Mitochondria- Where They Come From And Where Will They Take Us' was organized by the Department of Life Sciences, Sophia College (Autonomous) Mumbai, Under The Aegis of DBT Star Status. This was coordinated by Ms. Sree R Nair. The talk was held on 26th of August, 2021 from 11:30am to 1:00 pm. This talk was held so as to honor the retirement of one of our staff members, Dr. Hema Subramaniam. The guest speaker for the talk was Dr. Richa Rikhy who is a professor at IISER, Pune specializing in Cell Biology of Development and Differentiation. The organizing committee comprised of Ms. Sukaina Abbas and PG students of Life Sciences. Ms. Sukaina Abbas proposed the welcome of the event. Ms. Chelsea Rumao introduced the guest speaker and the Vote of Thanks was addressed by Ms. Tanishtha Shetty. Dr. Richa spoke extensively about Mitochondria where she spoke about the evolution of the organelle, its origin, inheritance during development, its dynamic shape and so on. The talk grasped the attention of many students and induced curiosity among them which was clearly reflected during the question answer session. It was attended by 70 participants on Zoom platform and the talk were streamed on YouTube which also garnered viewers.



3.WORLD PATIENT SAFETY DAY – 2021:

Name of the event: World Patient Safety Day-2021

Dates of event: 17 September 2021, 18 September 2021

Location: Sophia College, Mumbai (Virtual)

Youtube Link: Day 1: <https://www.youtube.com/watch?v=XXo2yr43Pj4>

Youtube Link: Day 2: <https://www.youtube.com/watch?v=FwYHEPG4e-0>

On 17 September 2021 and 18 September 2021, the department of Life Sciences, Sophia College organised a two day event to celebrate the World Patient Safety, an initiative by the World Health Organisation. The event was sponsored by DBT Star Status and was open to the public and approximately 100 people were in attendance. This was coordinated by Ms. Sukaina Abbas.

World Patient Safety Day was established in 2019 by the Seventy-second World Health Assembly through the adoption of resolution WHA72.6 “–Global action on patient safety”. The overall objectives of the Day are to enhance global understanding of patient safety, increase public engagement in health care safety, and promote global action to prevent and reduce avoidable harm in health care. Each year a theme is selected to shed light on a priority area critical to patient safety and ultimately the achievement of universal health coverage. The theme selected for World Patient Safety Day 2021 is “Safe maternal and newborn care”, due to the significant burden of risks and harm women and newborns are exposed to when receiving unsafe care during childbirth. Despite the significant progress made in reducing maternal and neonatal mortality, the Sustainable Development Goal- 3 targets are still far from being achieved. Approximately 810 women die every day from preventable causes related to pregnancy and childbirth. In addition, around 6700 newborns die every day, amounting to 47% of all under-5 deaths. Moreover, about 2 million babies are stillborn every year, with over 40% occurring during labour. Considering the significant burden of risks and harm women and newborns are exposed to due to unsafe care, compounded by the disruption of essential health services caused by the COVID-19 pandemic, the campaign is even more important this year. Therefore, this year’s campaign slogan – “Act now for safe and respectful childbirth!”

The global campaign for World Patient Safety Day 2021 proposes a wide range of activities to be implemented on and around 17 September 2021, the college organized a Colloquium along with poster presentation and artwork display.

For a holistic learning, we invited a Gynecologist, Pediatrician, Psychologist/counsellor and a reproductive scientist. The keynote speakers were Dr. Fazal Nabi (Pediatrician), Dr. Himanshu Sinha (Reproductive scientist), Dr. Ameet Dhurander (Gynecologist) and Mrs. Alima Zehra (Psychologist/counsellor).

Day 1 - 17 September 2021: Gestational dating and Neonatal care

The theme for day 1 was Gestational dating and Neonatal care. Ms. Sukaina Abbas address the audience and commenced the ceremony, Ms. Chelsea Rumao was the master of ceremony for day 1 of colloquium. The first speaker Dr. Fazal Nabi, a Pediatrician was introduced by Ms. Tanisha Srinivasan from TYBsc. Dr. Nabi spoke on the intensive process of nursing and care after the newborn is welcomed to the world. He gave special guidance in APGAR scoring, importance of breast feeding and changing the traditional methods for addressing new born care. After the talk was completed the participants had a chance to ask their questions/ queries. After the question answer session was over, Ms. Jaansi Bhansali from MSc part 1 thanked the speaker and the event was continued by Ms. Tannishtha Shetty from Msc part 1, who introduced the second keynote speaker Dr. Himanshu Sinha, an Associate Professor at IIT- Madras. His talk was definitely a treasure trove for anyone who possesses affinity for developmental biology. He gave insights about the work done by Garbhani Cohort to improve gestational dating. After the talk was completed the participants had a chance to ask their questions/ queries. After the question answersessionwas over, Mr. Siddhant Naicker from MSc part 1 thanked the speaker. After the two sessions were completed, the participants were asked to fill in the feedback form. The webinars were followed by poster presentation on the topic “Practices of Maternal Care for safe child birth.” At the end of the day, participants, Head of the Department and the Principal of the College were thanked and the program was wrapped up.

Department of Life Sciences
(Sophia College, Autonomous)
Under The Aegis of DBT Star Status
A NATIONAL COLLOQUIUM
Safe Maternal And New-born Care
On the Occasion of World Patient Safety Day, A WHO Initiative

Day 1: 17th Sept
1:30pm-4pm
Dr. Fazal Nabi,
Dr. Himanshu Sinha
Poster Presentation

Day 2: 18th Sept
1:30pm-4pm
Dr. Ameet Dhurandar,
Mrs. Alima Zehra
Student Art Corner

Register here, today!
<https://bit.ly/3v4Mc0Q>
Instructions for students are given on Pg4

Day 1: 17th September
Gestational Dating and Neonatal Care

Dr. Fazal Nabi
MBBS, DCH, DNB(Pediatrics), FPIC
"The essentials of new born care
What do we need to know?"

Dr. Himanshu Sinha
Associate Professor at the
Department of Biotechnology, IIT-M;.
Involved with the GARBH-Ini project
"India-specific models for
gestational/foetal age estimation"

Poster Presentation
**Topic: Practises of Maternal Care for
Safe Childbirth**
Instructions and Participation Registration Link
can be found on the last page

Zoom: <https://bit.ly/3K2K9xi>
Meeting ID: 983 2061 8603
Passcode: 281080


Join us on Youtube!
<https://bit.ly/3ho6xTN>

Day 2- 18 September 2021: The Journey of Motherhood


The theme for day 2 was The Journey of Motherhood. Ms. Sukaina Abbas and Ms. Aastha Somani from MSc part 2 were on the hand to open the first day of colloquium. The first speaker Dr. Ameet Dhurandar, a gynecologist was introduced by Ms. Asmita from Msc part 1. Dr. Ameet spoke on how it is often considered that women are supposed to be solely responsible for health of the baby but it's a collective role by both the parents to ensure the health of the baby and the mother. He introduced to the concept of waterbirthing and hynobirthing and some of the other natural birthing methods. He spoke about some diet influences and care to be taken for a healthy pregnancy. After the talk was completed, the participants had a chance to ask their questions/ queries. After the question answer session was over, Mr. Navin Chawathe from MSc part 1 thanked the speaker and the event was continued by Ms. Bushraa Nirban from Msc part 1, who introduced the second keynote speaker Mrs. Alima Zehra, Head of the Department of Psychology at CTTE College, Chennai. Her talk was very engaging and interactive. She talked about the 8 forms of depression and how we can tackle everyday concerns of life to grow mentally stronger. She also spoke about how post-partum depression doesn't just affect the women; it can also affect the husband/father. After the talk was completed, the participants had a chance to ask their questions/ queries. The question answer session was very intense and interactive. After the question answer session was over, Ms. Muqadas Wani thanked the speaker. After the two sessions were completed, the participants were asked to fill in the feedback form. The next milestone for the day was the Art corner. The participants had submitted their art work on the topic of Motherhood. The college received total 8 poster presentation entries. At the end of the day, the sponsors, participants, Head of the Department and the Principal of the college were thanked and the program was wrapped up.

Day 2: 18th September

The Journey of Motherhood



Dr. Ameet Dhurandhar
MBBS, Obstetrician and Gynecologist
M.D.D.G.O.
*"Maternal mortality,
Saving a mother's life"*




Alima Zehra
HOD- Department of Psychology
Student Counselor at CTTE College,
for Women, Chennai
*"The perinatal emotions:
For men and women"*

Student Art Corner

Topic: Motherhood

Instructions and Participation Registration Link
can be found on the last page



Zoom: <https://bit.ly/3hp5d2L>
Meeting ID: 945 7201 3214
Passcode: lifesc

Join us on Youtube!
<https://bit.ly/3lnumfu>

Instructions for students


In the subject of the email, please clearly mention
Poster presentation/art work and your name.
Example: "Poster presentation – Alice in Wonderland"

EVENT 1: DAY 1: 17TH SEPTEMBER 2021
(Poster Presentation: E1)


- > Posters should be made on a4 size. (Portrait or landscape)
- > Posters can be hand-made or digital (PowerPoint/Photoshop etc).
- > Please submit posters in pdf and jpeg file.
- > Participants should include at the bottom of the poster (right hand corner, their name) or under the title of the poster.
- > Along with the poster, please submit a 2 minute recording voice-note about your poster.
- > Also submit 5 lines that describe your poster
- > Please note, voiceover will be played depending on number of entries/submissions.
- > Fill the registration form and make the submission on mentioned Email ID
- > PowerPoint Presentation can be individual or group (2-3 people)
- Registrations need to be done by each member of the group.

EVENT 2: DAY 2: 18TH SEPTEMBER 2021
(Student Art Corner: E2)


- > Artwork Can be Submitted Portrait or Landscape
- > Artwork can be Hand-made or Digital
- > Please Submit Art in PDF and JPEG File.
- > Participants Can Mention A Title or Caption For Their Artwork In the Email.
- > Fill The Registration Form and Make the Submission on mentioned Email ID.



E1 Accepting entries til
16th September, 5pm



E2 Accepting entries til
17th September, 5pm



Register today, at:
<https://bit.ly/3Hf58R>
Submit your entries or any queries at:
sophia.lifescience.events@gmail.com

WORLD PATIENT SAFETY DAY - DAY 1

SOPHIA COLLEGE (Autonomous)

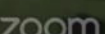
(Under The Aegis Of DBT Star Status)

A NATIONAL COLLOQUIUM

Safe Maternal And New-born Care

On the Occasion of World Patient Safety Day, A WHO Initiative

September 17th & 18th, 2021
1:30PM – 4:00PM

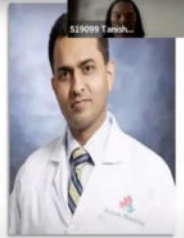


Dr. Fazal Nabi

MBBS, DCH, DNB (Pediatrics), FPIC

- Hon. Consultant Paediatrician, Pediatric & Neonatal Intensivist.
- He is specialised in Pediatric and Neonatal Critical Interventional Procedures like Intraventricular tapping, Intubation, Tracheostomy, Intercostals drains, Liver, Kidney, Muscle and skin biopsies, Haemo & Peritoneal dialysis, Insertion of Hickman catheter, Bronchoscopies, Bone marrow biopsies & aspirations and Intracranial pressure monitoring.
- He has also been involved in major Perioperative Care of Craniofacial Surgery, Cardiac Surgery, Liver & Kidney Transplant Surgery and general surgeries.
- He specialised in transporting by Air & Land ambulance of critically ill pediatric & neonatal patients.
- He has managed extreme preterm baby i.e, 24 weeks/ 520 NICU graduates of his credentials


Awards/Fellowship:-
Won a Scholarship from the Hargobind Foundation, Mumbai in Jan 2001 for the fellowship in Pediatric Intensive Care, Leicester, UK "Basic Newborn Care" demonstration in weekly serial Mere Ghar Ana Zindagi, Oct 1997, Zee Television, Mumbai.
Life member of Indian Academy of Pediatrics.Executive board member of Pediatric Intensive Care Chapter, Indian Academy of Pediatrics, Mumbai National Neonatology forum, Mumbai chapter



Mrs. Alima Zehra


HOD- Department of Psychology
Student Counselor at CTTE College For Women, Chennai.

- Completed UG, PG and M.Phil from the Department of Applied Psychology and Behavioral Research from IBAS College for Women
- Post graduate Diploma in Learning Disability (PGDLD) from Institute for Career Excellence.
- Resource Person for the Capacity Building Programme for Teachers & Counselors on "Prevention and Control of Drug Abuse" supported by Government of India NMAPOOR Scheme & Dept of Social Defense, Government of Tamilnadu organized by Namdesam Foundation in various Districts such as Tiruvannamalai, Kanchipuram and Villupuram.
- Resource Person for a Police training program on "Police Public Interface" (Chennai Ward) for 2 batches organized by MS Cheliamuthu Institute of Mental Health and Rehabilitation, Madurai. Batch 2 (July 30, 2020) Batch 3 (August 1, 3 and 5, 2020)
- Co-Ordinator for a project SACA- Stand Against Child Abuse, an initiative towards creating an awareness about Child Abuse by Bodhi Charitable trust on September 6, 2020
- Awarded "Iconic Personality of India 2019" for Education and Social work category by Indraprastha Educational Research and Charitable Trust in Delhi.
- Awarded "GLOBAL ICON OF EDUCATION" from Social protection Human Rights, Legal aid and Humanity on Dec 8, 2019.



GOVERNMENT PROGRAMS SUPPORTED BY UNICEF

- **UNICEF supports the implementation of various interventions by Government of India.**
 - **Reaching every mother:** UNICEF supports the implementation of MoHFW policy that every delivery should be attended by a skilled health care provider in a health care facility.
 - **Continuum of Care:** This includes improving access to family planning, antenatal care during pregnancy, improved management of normal delivery by skilled attendants, access to emergency obstetric and neonatal care when needed.
 - **Antenatal care:** All pregnant mothers must register for antenatal care at the nearest health care center.
 - **The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA)** launched by MoHFW, provides a fixed day for assured, comprehensive and quality antenatal care free of cost to pregnant women on 9th of every month. This Program strengthens antenatal care detection and follow up of high risk pregnancies.
 - **Janani Shishu Suraksha Karyakaram (JSSK):** This scheme encompasses free maternity services for women and children. It provides a nationwide scale-up of emergency referral systems and maternal death audits, and improvements in the governance and management of health services at all levels.



4.Report: Scientific Temper: Antidote to Superstitious Beliefs

Name: Scientific Temper- Antidote to Superstitious Beliefs

Type of Hours: University

Number of Hours: 2

Date: 20th Aug 2021

Venue: Zoom Meetings

Time: 5 PM- 7PM
Number of Volunteers: 50
Number of Beneficiaries: 300

Resource Person
Ms. Vandana Shinde
Mr. Prakash Parkhe
Ms. Akshita Patel

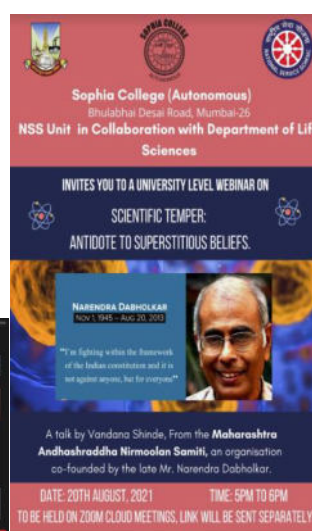
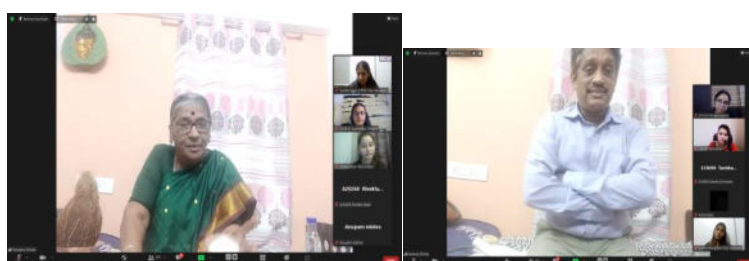
-Andhshradha Nirmulan Samiti

Brief Report

A webinar on 'Scientific Temper: Antidote to Superstitious Beliefs' was organized by the NSS unit of Sophia college. The webinar talked about the superstitious beliefs that are present in our society and the scientific explanations for these 'miracles' were discussed. The resource person demonstrated various tricks that are used to deceive people. A total of 300 participants attended the webinar.

Volunteer Feedback

The webinar on 'Scientific Temper' by Vandana Shinde was amazing. She demonstrated the procedures of black magic with its scientific explanation. Ma'am also gave us a message that we should be aware about all these things and be able to think with an open mind to lead a logical life.
Alpha Andrades, NSS Volunteer



5.Report for 20th Annual Sophia Nobel Oration

This was coordinated by Ms.Kajal Sankhala

On 14th of January 2022, the 20th Annual Sophia Nobel Oration was held. The Nobel Oration talks are organized to instigate interest in research in the minds of young students. People with expertise in the respective fields give the audience briefing about the research that got the Nobel Laureates the prize for that year. The audience receives the gist of the research simplified for their level. The talk was titled 'Just a touch of chili. No pressure!! Can you take the heat?' We invited Dr. Shubha Tole, who is a Professor and the Principal investigator at the Tata Institute of Fundamental Research (TIFR), Mumbai. The talk commenced at 11:00 A.M. Savani Sakhalkar was the master of ceremony. Dr. Rajbinder Kaur Dehiya (Vice Principal-Science, Sophia College) addressed the audience and spoke about the legacy of Annual Sophia Nobel Oration. Following this Jaansi Bhansali introduced our guest speaker Dr.Shubha Tole. Dr. Shubha Tole addressed the students about the work done by David Julius and Ardem Patapotiuan that fetched them the Nobel prize in Physiology/Medicine 2021. She started the webinar by introducing concept of senses that go beyond the basic five. The receptors and neuronal reception of stimulus. Using capsaicin as a reference, she explained the layman methods used by Scientist in yesteryears to understand tolerance and desensitization of repeated harsh stimulus. She introduced the audience to PIEZO receptors and its role in mechanosensations. She also

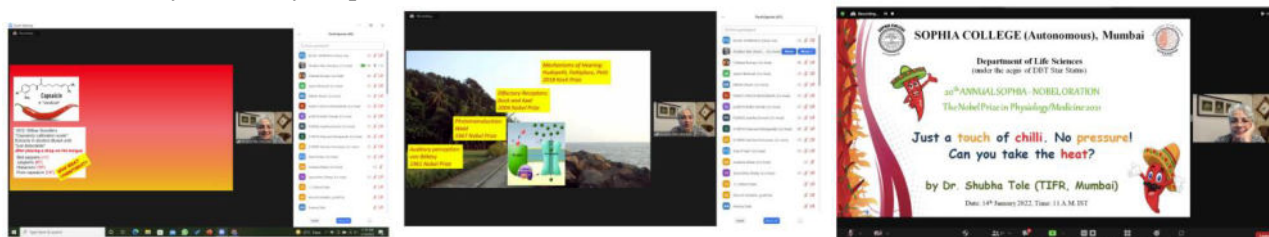
took us through life and history of the Nobel Laureates, their previous work and what finally led to the discovery of touch and heat receptors. After the talk, there was an intense Question and Answer discussion between the guest speaker and the students moderated by Nidhi Shinde and Ananya Nair. The Head of Department Dr. Sree Nair addressed the crowd and thanked Dr. Shubha Tole for the event. This was followed by a formal vote of thanks by Tanisha Srinivasan.

Students who volunteered:

Savani Sakhalkar (MSc II),Ruchi Modgekar (MSc II),Aastha Somani (MSc II),Nidhi Shinde (MSc II) Jaansi Bhansali (MSc I),Niloferbanu Khatri (MSc I),Chelsea Rumao (MSc I),Anusuya Nair (MSc I) Tanisha Srinivasan (TyBSc)

Zoom Recording link:

https://zoom.us/rec/share/hJC8EM__BG0qI3IKTp5fSr_7yVyZnefHvtmgv5zB8mFBZPzXfceIIMWJzb9tL7ye._Q5LEyQ5qCOKNf90?startTime=1642138355000



6. Genome editing

A talk on Genome editing was organized by Indian Women Scientist's Association, Vashi Navi Mumbai in association with Department of Life Sciences, Sophia College (Autonomous), Mumbai. The event was supported by Board of Research in Nuclear Sciences - DAE. The event was held on Saturday, 22nd January at 10 am. Dr. Chitra Seetharam Misra, Scientific Officer, Applied Genomics Section, BARC, Mumbai delivered the talk. Dr. Sree Nair, Ms. Sukaina Abbas and PG students of life sciences comprised the organizing committee. Ms. Asmita Misra was the MC of the event. Dr. Sr. Ananda Amritmahal proposed the welcome. Ms. Nilofer Khatri gave an introduction to the topic and the event. Vote of Thanks Dr. Misra started the talk by explaining the basics of genetics, went onto tools of gene editing and ended with applications. Several participants asked questions regarding the techniques, application and ethical side of gene editing. It was attended by 218 participants on Zoom platform. The talk was streamed on YouTube which also garnered viewers.

ABSTRACT

Genome/Gene editing is the precise modification of the chromosome, in the form of deletions, insertions or replacement in a living organism. There are various technologies that have been developed to bring about genome editing in organisms, such as meganucleases, zinc finger nucleases, transcription activator-like effector-based nucleases (TALEN) and the CRISPR-Cas technology. The CRISPR-Cas systems are easy to engineer and apply and therefore have taken the world by storm leading to several advancements in therapy and biotechnology. The 'how', 'why' and 'when' of CRISPR-Cas discovery and applications will be presented. Genome editing technologies are powerful tools and therefore must be used with caution. The ethics of applying them will also be brought forth and its importance discussed.

Register at:
<https://forms.gle/xbyrjb22PGm815GD8>

Zoom:
<https://zoom.us/join/9nonsclicc22>
ID: 944 3597 6088 Passcode: 259948

Youtube:
<https://youtu.be/rMso7791t24>

For Queries: Email us at sophia.lifescience.events@gmail.com

7. Report for the session on CAREERS IN ENVIRONMENTAL SCIENCES

Organized for the SY BSc and TY BSc on Wed 2 nd Feb22

Time of the session: 11.35 - 13.05

Organized by: Department of Life science, Sophia college (autonomous)- Mumbai

Speakers: Roshni Kutty final year Ph.D. at ATREE-Bangalore, Environmental researcher. Nimisha Ghorpade Environmental consultant

This was coordinated by Dr. Tressa Jacob. Students involved in organizing the event: Sanika More (S20513, SyBSc Student), introduced the speaker Nimisha Ghorpade Shriya Chaubal (S20068, SyBSc student), introduced the speaker Roshni Kutty Mrunal Khandagale (S19066, TyBSc. Student), gave the vote of thanks

Number of participants: 32-35

As the name suggests, the idea of having such an event was to expose the students to different opportunities the field of environment sciences can offer. Keeping this in mind we chose speaker from the industry setup and one who focuses on environmental research.

The speaker Roshni Kutty, a very passionate environmental researcher calmly and patiently spoke about challenges she faced during her career and gave examples how she worked on solving it out. She also shared how and what inspired her to take up her interest in environmental sciences. She also mentioned how she started with being associated with small local organizations that helped in environment protection and spreading awareness to protect the environment and later got associated with bigger non-government organization (NGO). She did talk about the forest rights law and mentioned about the concept of DEVRAI and VANRAI followed by tribal in the state of Maharashtra. She did share list of NGOs in Pune and Mumbai, when asked about internships she shared names of institutes which offer internship program and encouraged students to apply for them. She also mentioned that students should very proudly write about their skills like photography, passion and talent in their CV as it will help them get an opportunity based on their unique talent.

Nimisha Ghorpade our second speaker started by wishing everyone a happy wetland day (2nd Feb 22). She walked the students through her journey in the field of environmental consultancy. All through her talk she emphasized on "curiosity towards environment". She mentioned about the website Women in the wild-India. She shared with the student's examples of her impact assessment surveys- two projects where she was involved in making a biodiversity and social survey, a project that could have an effect on the fishermen and the movement of birds in and around the proposed site. This gave the students the idea of what the field offers. She said that at the end of the day she feels very rewarded by her work as she contributes to bridging the barrier between the government and the industry. She also volunteered to help students to write a statement of purpose while applying for a Master's program.

Feedback about the talk by the volunteer's

Sanika More (S20513, SyBSc Student)

The Career talk was very educational for me because I really did not know so many fields did exist in environmental studies and also this specific field can be a successful career in life. I found this very interesting when Nimisha ma'am said that "Whatever career you choose in life, you should be able to define it with confidence because there are many people to judge you with respect to your choice of career and you are the one who needs to prove them wrong". Roshni ma'am has a very inspiring journey of life where she returns back in her career even after a huge gap and family issues. So there is literally no barrier of age when it comes to education and doing something you are really passionate about. I personally got familiar with different NGOs and institutes where environmental sciences based internships are carried out. This session really gave me a lot more information about their contributions to the environment and their inspiring journeys. Looking forward to more such amazing and enlightening sessions

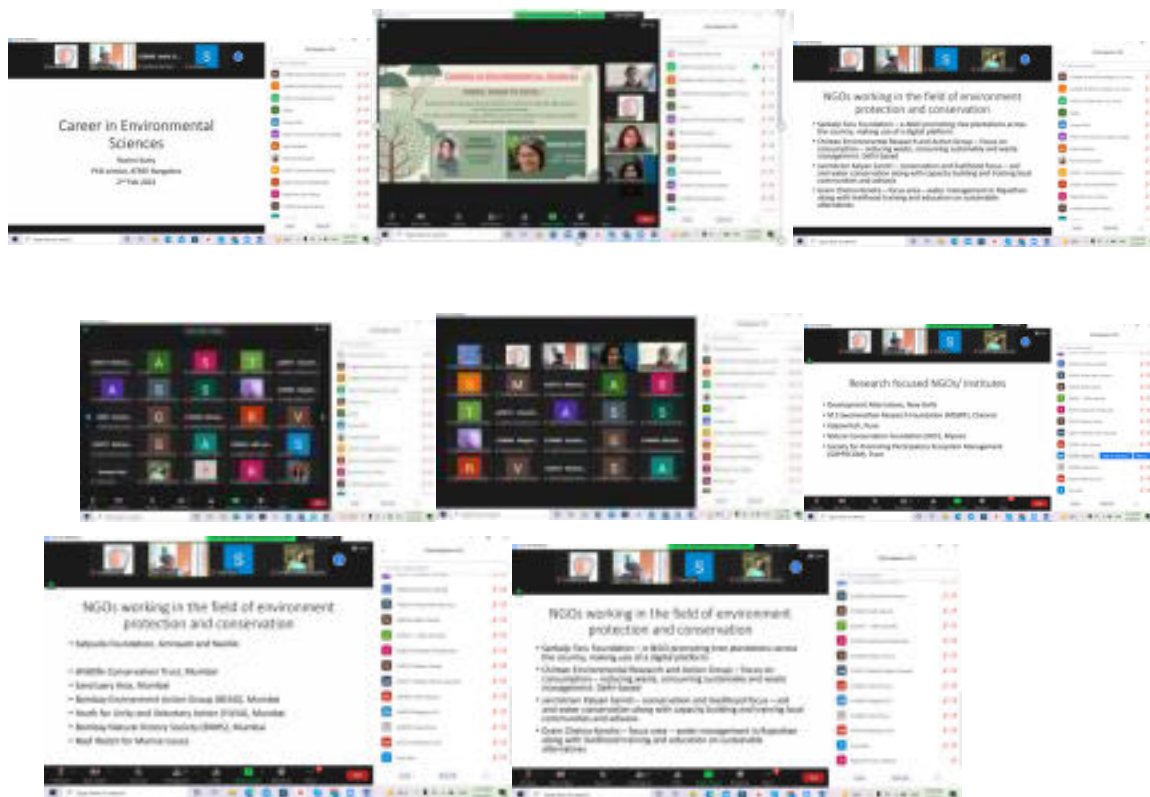
Shriya Chaubal (S20068, SyBSc student)

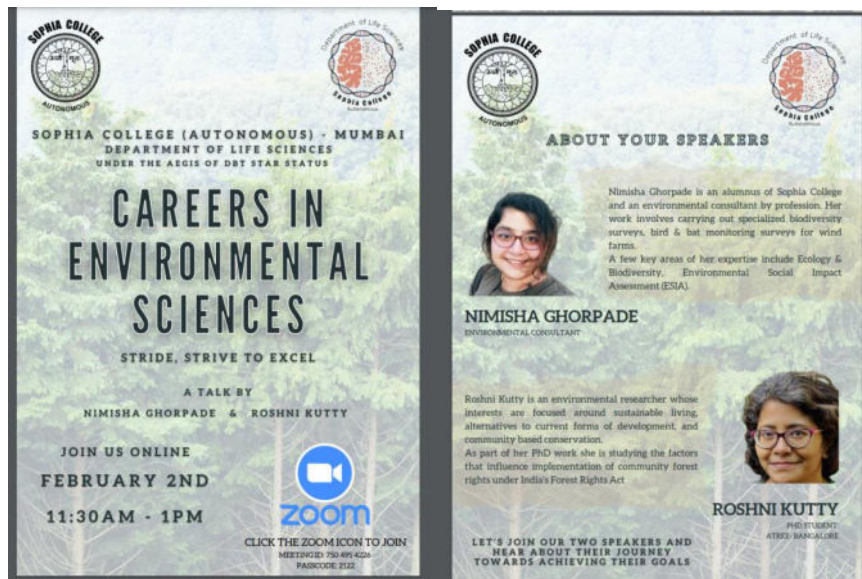
I found the session to be quite good. Both the speakers, Miss Nimisha Ghorpade and Mrs Roshni Kutty are very passionate about what they do, and the talk provided us with a great opportunity to learn from them and their

experiences, which they spoke about. We also got to know about the internships which are available for us in various NGOs.

Mrunal Khandagale

The session was held on 2nd February, 2022 from 11:30 am to 1 pm. The session started with the brief introduction of the first speaker, Roshni Kutty. She beautifully explained her whole journey which related to many students who are unsure about their career path especially the TY students. Also Roshni ma'am gave us information about the different organizations working for the environment protection and conservation. The next speaker was Nimisha Gorpade, whose session started again with her brief introduction. Nimisha ma'am shared her life journey and also the different organizations she has worked with and is currently working with. Also many students could relate to her talk with respect to how difficult it gets for explaining what exactly the field is about to people from a non - science background. The seminar then proceeded to the question and answer session and ended with the vote of thanks to the speakers. The speaker Roshni Kutty thanked the HoD and the senior faculty for arranging such career guidance talk which provide guidance to students with different career options.





8.Genetic counselling

It was a pleasure to work with the volunteers for the session. They (**Anusuya Nair, Siddhant Raiker, Tannishtha Shetty and Bushraa Nirban : MSc 1st year**)

made the entire process until the end of the session go smoothly.

Anusuya Nair-poster

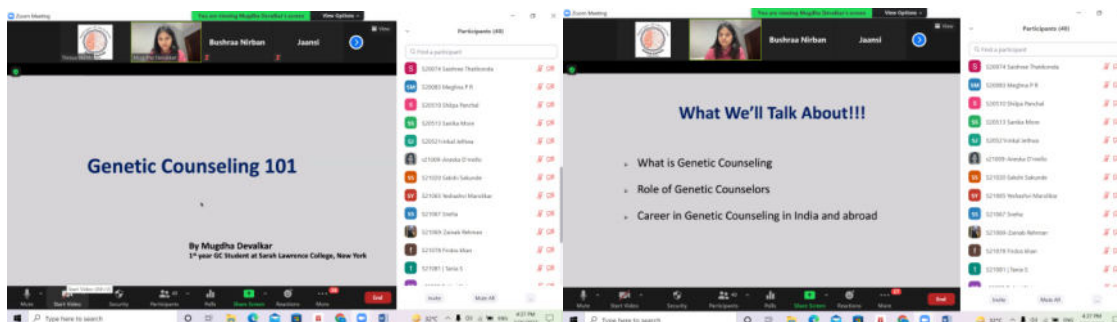
Bushraa Nirbhan- Introduction of the speaker, question answer session

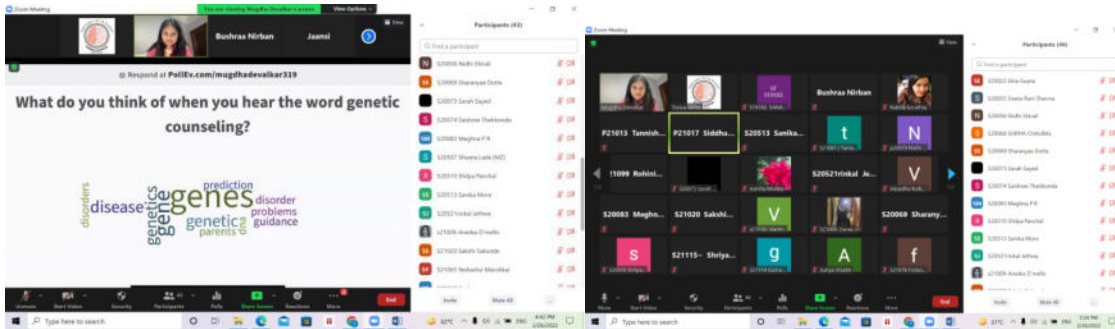
Siddhant Raiker- chat and feedback question answer session

Tannishtha Shetty- concluding remarks

It was a very interesting interactive session conducted by Mugdha, she gave an overview of what they learn at the course and also gave examples. She very clearly stated that they counsel people and do not prescribe testing and do not suggest or recommend abortion. She had an interactive session with quizzes/polls and that got the audience thoroughly into the talk. She also gave particulars about the certification by different boards that recognise the counselling, one in India is BGCI (board of genetic counselling in India). The validity for the recognition is 3 years and needs to be renewed, she also told the audience that one needs to have handled particular number of cases before applying for the exam for the recognition

There were quite a few questions and answers which Mugdha answered very patiently. When asked where they can do an internship she suggested Dr Sareen at TATA Memorial, Lower Parel to be a good place to start off. She also mentioned to the audience where these courses are held and how to apply and the requirements before applying. She also accepted to help the students to write an SOP and help in applying for the courses abroad.





CAREERS IN GENETIC COUNSELLING

ABOUT THE SPEAKER

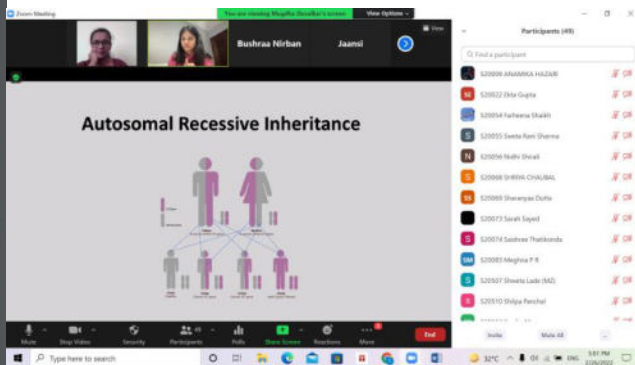
Mugdha Devalkar

Mugdha is a certified genetic counselor in India and an alumna of Sophia College, Department of Life Sciences. She also worked as a genetic counselor at Perkin Elmer and CAMDND. She is currently at Sarah Lawrence College, New York pursuing her Masters to become a ABCC certified genetic counselor. She will share career options available in the field of genetic counseling in India and abroad.

26th February 2022, 4:30 PM

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9.Science day



10.MECHANISMS OF FACE RECOGNITION IN FACE BLINDNESS

A talk on Cognition - MECHANISMS OF FACE RECOGNITION IN FACE BLINDNESS was organized on March 7th, 2022 at 11:00 – 12:30 am. The resource person for the talk was Dr. Maruti V. Mishra. Ms. Divya Sinha and Dr. Sree R Nair coordinated the talk. The Department of Life Sciences organized this event to celebrate Dr. Hemalatha Ramachandran's 37-year profession. Dr. Mishra gave a very interesting talk about facial recognition and lack of it. She elaborated about how prosopagnosia can affect a person's ability to detect a face and which regions of the brain get activated. The talk gave an insight into the world of cognition. Her lecture gave a very good aspect into a part of Cognitive Science, parts of the brain responsible for it and its application purposes. Over 50 attendees participated in the event and it received a very favorable feedback.



Field visit to Trips

1. T.Y.B.Sc students were taken to Maharashtra Nature Park

As the pandemic restrictions eased, Dr Sree Nair organised the trip to Maharashtra Nature Park.

Date of the Visit: 16th March 2022

The field visit to Maharashtra Nature Park took place on the 16th of March 2022, from 8:45 am onwards. Maharashtra Nature Park is located on the Sion Bandra Link Road, in Dharavi, opposite the Dharavi Bus Depot, in Mumbai, Maharashtra, 400017.

The main OBJECTIVES of this trip were as follows:

1. To learn about the different species of butterflies present in the park, by going on a nature trail, and sighting butterflies
2. To learn about the sustainable practices that take place in the park, and how they limit the use of resources, instead, substituting it for natural methods.

About the Park: Maharashtra Nature Park is situated near Dharavi, Asia's largest slum. The park is a manmade forest, made on top of a garbage dumping ground in the year 1994. It is a 37-acre sprawling forest park built on a dumping ground and is the only such space available in the congested and populated slum-settlement in Mumbai. In around 1980 when 3 active members of World Wildlife Fund and a known naturalist called Salim Ali's vision took off, this beautiful green land started taking shape and finally in 1994 the work to build this nature park started.

All 16 students of TYBSc assembled at the gate of MNP by 8:30 am. The park authorities had assigned Mr. Sachin Rane as the guide. There was orientation followed by short documentary at the office building. The trip began with a nature trail and butterfly garden, wherein, students learnt about the different species of butterflies and their habits, the plants they frequent and patterns distinguishing them from others of their species.

The guide had described various types of butterflies, about its host plants and its life cycle also. The trail covered the entire park. The students got to know about a man made perennial lake which supplies water to the park. Detailed information was also given to students about various plants, trees, creepers and animals that are found in the park. Various examples of plant-plant and animal interactions were also shown. This was followed by a talk on the different sustainable practices followed in the park, that ensure that the park thrives, even when resources may fall short. The guide gave a historical relevance of Mithi River and highlighted its present plight. The trip concluded by 2:30pm.



2. F.Y.B.Sc students were taken to Sanjay Gandhi National Park

Field Trip To Sanjay Gandhi National Park

The trek extended from 7am. Upto 11am. The Shilonda Trail of Sanjay Gandhi National Park was trekked. Various species of plants were observed. The calls of various species of birds were heard and some these observations are noted below.

The trek was attended by 21 students from the Life Science and Microbiology departments and Supervised by teachers.-Dr.Hemalatha Ramachandran and Dr.Tressa Jacob

They were also accompanied by Dr. Parvish Pandya, (Former Vice-Principal and Associate Professor in Zoology at Bhavan's College and Director, Science & Conservation with Sanctuary Nature Foundation.) and Mr. Samarth Parab (Education Officer, SGNP) who shared their wealth of knowledge on the various species of flora and fauna that were observed.

Mr.Samarth also informed the students on details of an internship programme conducted by Sanjay Gandhi National Park and the various skills that would be learnt.

Many of species of plants, insects and were observed and identified during the trek. Additionally various facts and information on them was understood. The diverse biodiversity of Sanjay Gandhi National Park was observed and the need for its preservation



Conferences, seminars, workshops, attended by the faculty members(2021-22)

Sr. No.	Name	Title of Seminar, Conference and Workshop, etc
1	Dr Sree Nair, PhD	<ul style="list-style-type: none"> ● National Level Faculty Development programme on Research based Pedgogical tools.24-29 May.IISER Pune ● National Webinar on 'PARYAVARNAM 2021: Research in Biological and Environmental Sciences : Challenges and Opportunities', organized by the Department of Zoology and Department of Environmental Sciences B. K. Birla College (Autonomous), Kalyan under DBT Star Status on 23rd July, 2021. ● One Day Online Workshop on 'Recent Amendments in UGC Norms for API under CAS' organised by IQAC (Internal Quality Assurance Cell) under Faculty Enrichment Program on 22nd July 2021 conducted by K. J. SOMAIYA COLLEGE OF ARTS AND COMMERCE, MUMBAI (AUTONOMOUS) ● "9th Online Short Term Course on Soft Skill Development" during 07/06/2021 to 13/06/2021 organized by UGC – Human Resource Development Centre, GUJARAT UNIVERSITY, Ahmedabad. ● National Initiative on Undergraduate Science (NIUS) Workshop, HBCSE 22nd Feb -25th Feb 2022
2	Dr. Bhavna Daswani, PhD	<ul style="list-style-type: none"> ● Presented research paper entitled "Influence of estrogen receptor beta on C6 glioma cells' under 'young scientist under 40 category' at Indian Academy of Neuroscience (IAN) Conference, 16th - 18th December, 2021 ● Invited as a judge for the Annual Science Undergraduate Research Meet called "Xplore 2021" organized by Jai Hind College On 28th February 2022.
1	Dr Tressa Jacob, PhD	<ul style="list-style-type: none"> ● Invited as resource person for "National Initiative on Undergraduate Science (NIUS)" at Homi Bhabha Centre for Science Education (HBCSE)-Mumbai 29th-3rd Dec. 2021 ● Participated in IP Awareness/Training program under National Intellectual property awareness mission on March 16,2022

4	Ms. Kajal Sankhala, M.Sc	National Initiative on Undergraduate Science (NIUS) Workshop, HBCSE 22nd Feb -25th Feb 2022
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Publications by Faculty (2021-22)

Sr. No.	Name of the Faculty	Paper Title	Name of the Book/Journal etc
	Dr. Bhavna Daswani, PhD	Daswani, B., & Khan, Y. (2021). Insights into the role of estrogens and androgens in glial tumorigenesis.	Journal of carcinogenesis, 20, 10. https://doi.org/10.4103/jcar.JCar_2_21
2.	Dr Tressa Jacob, PhD	Zebrafish twist2/dermo1 regulates scale shape and scale organization during skin development and regeneration (2021) Jacob T, Chakravarty A, Panchal A, Patil M, Ghodadra G, Sudhakaran J, Nuesslein-Volhard	Cells Dev. 2021 Jun;166:203684. doi: 10.1016/j.cdev.2021.203684. Epub 2021

Articles in Scribe

1	Khan, Y., & Dhaval, S.	Can zebrafish (<i>Danio rerio</i>) replace rodents as a vertebrate model? <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 2-7. (Invited Article)
2	Kodakandla, V., Sinha, D., & Ramachandran, H.	Duration of Unconscious Exposure does not affect Logo Retention. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 8-15.
3	Behal, T., & Khan, Y.	Cell migration: Machinery and Regulatory Signaling Networks. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 26-32.
4	Farhan, Z. Z., & Khan, Y.	Hox genes-master regulator of body patterning: A mini review. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 33-36.
5	Bhagat, S., & Martin, S.	A reflection on the impact of anthropogenic actions on the future of life on Earth. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 37-41.
6	Bhandarkar, S., & Nair, S.R.	Exploring a link between obesity and diabetes through autophagy. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 42-50.
7	Chandran, G., & Daswani, B.	Epigenetics and Autoimmunity. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 51-59.
8	Daswani, B., & Ramachandran, H.	Nest building in birds: A behavioral and neurobiological perspective. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 81-85.
9	Chattoraj, A., & Subramaniam, H.	Role of metals in neurodegenerative diseases. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 86-98.
10	Khatri, M., Chattoraj, A., & Subramaniam, H.	Diagnostic methods for Alzheimer's Disease. <i>Science Chronicles in Research and Investigation Based Education</i> , 2, 99-105.

11	Kodakandla, V., & Ramachandran, H.	Getting high on social media vs Getting high on exercise. Science Chronicles in Research and Investigation Based Education, 2, 106-109.
12	Lobo, S. D., & Sinha, D.	Mental Health during COVID-19. Science Chronicles in Research and Investigation Based Education, 2, 110-112.
13	Nair, K., Rao, A., & Daswani, B.	SARS – CoV2: Structure, life cycle, and specialized bioinformatic databases. Science Chronicles in Research and Investigation Based Education, 2, 113-119.
14	Pereira, M., & Ramachandran, H.	COVID-19 and its current diagnostic techniques. Science Chronicles in Research and Investigation Based Education, 2, 125- 135.

Research Guide (MPhil/PhD)

Name of guide	Paper Title (MPhil/PhD)	Registered	Awarded
Dr. Hemalatha Ramachandran	Neurological basis of Mindfulness Based Stress Reduction (MBSR) on Premenstrual syndrome in Young Adults	Th./Ph.D./2016-2017/1910-8	Submitted thesis
Dr. Yasmin Khan	Hypoxia response, signaling and its modulation in <i>Caenorhabditis elegans</i> .	Th./Ph.D./2016-2017/1910-7	Submitted synopsis
	Investigation on Lithium Induced Changes in Differentiation State of Glial Cells	9/01-08-2018	Submitted thesis

Student research guide: EXSP (2021-22)

Paper Title	Name of the Guide	Name of the student (s)
The role of Pseudogenes in human evolution	Dr Tressa Jacob	S21019 Megha Pillai and S21081 Tania Shroff
In Silico Design of an Epitope-Based Vaccine Against SARS-CoV-2 and Variants for the Indian Population	Ms. Sukaina Abbas	Muqadas Wani
Recent trends in green synthesis of nanoparticles and its applications in biofilms	Ms. Sukaina Abbas	Valarie Anthony
Gut Brain Axis	Ms. Sukaina Abbas	Fatima Momin, Aditi Dsouza

56	Medicine and Pharmacy	UG	R-1-09-MD-UG-16	Sophia College for Women, Bhulabhai Desai Road	Wani Muqadas Manzoor
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Consultancies

Lab Facility/ Organisms	College/Institute
Zebrafish	College of Pharmacy, Vivekananda Education Society,Chembur

Members in College Club/Committee

Dr. Sree Nair

Post Graduate Examination Committee

Admission Committee – Senior College Science

Staff member in-charge of Suman Tulsiani Research Centre

Time-Table Committee

Learning Enhancement Programme Committee

Education to Excellence in Science Programme

Committee to plan and update programmes for laboratory staff

Dr. Hemalata Ramachandran

RUSA Mentor-mentee programme

SSRI

Dr Bhavna Daswani

College Magazine Committee

Research Development Cell