



SYMBIOSIS SCHOOL OF BIOLOGICAL SCIENCES

Symbiosis International University

(Established under section 3 of the UGC Act, 1956)

Re-accredited by NAAC with 'A' grade

Founder: Prof. Dr. S. B. Mujumdar, M. Sc., Ph. D. (Awarded Padma Bhushan and Padma Shri by President of India)

7.2.1_SSBS_Best Practices 1_2020-2021

Index

S.No.	Name of Practice
1	Industry Academia Collaboration





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7.2.1 Best Practices 1 (2020 – 2021)

1. Title of the Practice: Industry Academia Collaboration

2. Objectives of the Practice:

- Interactions with biotechnology firms on a variety of platforms that are mutually advantageous and serve as springboards for students and staff.
- Visit of Industrial and Academic Experts to SSBS and Interaction with students as well as lectures by experts
- Joint publications between Industries and SSBS
- To create awareness among students about the current developments, job opportunities and start-ups and to establish new contacts with bio-tech and food industries

3. The Context:

The post graduate students in Biotechnology are offered courses such as Bioprocess Engineering, microbiology, clinical biochemistry, immunology, virology and cell biology. In these students are exposed to theoretical and experimental aspects. As a part of practical sessions students visit to Industries and Industrialists visit to SSBS provides students with unique experience of understanding industrial sector that can be replicated in practice.

4. The Practice:

Students benefited greatly from lectures given by industrial professionals from Biopharma and Biotech laboratories. Students turned up for a summit held in conjunction with the pharmaceutical industry. Students and teachers conduct in-depth analyses of scientific research challenges that result in publications.

5. Evidence of Success:

Students expressed a stronger desire to enhance their laboratory abilities. Industrial experts' lectures have piqued students' curiosity in working in various industries and institutes. The effort of Ph.D. students culminated in the publishing of a collaborative research paper with Industries. Industry Research Grants for joint research in SSBS.

6. Problems Encountered and Resources Required:

Students were unable to tour various industries as part of their studies due to the lockdown.





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SSBS, SCNN and NBPL Collaborative Project

Symbiosis School of Biological Sciences (SSBS), Symbiosis Centre for Nanoscience and Nanotechnology (SCNN) and Nutrient Bio Agro-Tech Private Limited (NBPL), Pune have signed a Memorandum of Understanding (MOU) for a new collaborative project work entitled 'Development of Nanostructures as a feed additive for gut health in poultry' on November 2020. Dean Dr. Rajiv Yeravdekar, Faculty of Health Sciences (FOHS), Dr. Vinay Rale Director SSBS, Dr. O.P. Singh, M D NBPL, Dr. Atul Kulkarni Head SCNN, Dr. Vijayanti Kale Head SCSCR and Faculty of SSBS participated in the event. Technical advisor Dr. Satish Tongoankar joined this virtual event from Sydney, Australia. The Dean addressed the audience and highlighted the value of collaborative research. The initiative is a research to be undertaken by Symbiosis School of Biological Sciences (SSBS) and Symbiosis Centre for Nanoscience and Nanotechnology (SCNN).

Finishing School for 19-21 Batch

Finishing school for 19-21 batch was conducted to prepare students for upcoming challenges and trends in latest job markets and higher education. Importance of practical knowledge, skills and proficiency in communication was emphasized by distinguished speakers from various disciplines. It was an interactive session and students had an excellent discussion with speakers from Industries, Academia, student alumni and acquired more understanding.

FINISHING SCHOOL FOR M.Sc. BIOTECHNOLOGY (BATCH 2019-21)			
Date & Day	Speaker	Topic	Time
June 21, 2021 (Monday)	Dr. Sanjay Nene, CEO, Innovation Biologicals Pvt Ltd, Adjunct Professor in Biochemical Engineering, AICTE, Pune	"Career opportunities in Biotechnology"	11 am - 12 pm
June 22, 2021 (Tuesday)	Mrs. Kirti Aphale, Founder Director - Q-Edge Consultancy and Training, Pune	"Introduction to Quality Control, Roles and Responsibilities and Methods in Biotech ' Microbiology QC"	11 am - 1 pm
June 23, 2021 (Wednesday)	Dr. Prabhakar Kulkarni Ph.D., Chief Executive Officer (CEO), NeoDx Biotech Labs Pvt. Ltd.	"Being Entrepreneurial"	10.30 am - 11 am
June 24, 2021 (Thursday)	Dr. Yogita Bhumare and Dr. Archana Bhagwat Faculty, ELTIS, Symbiosis, Pune	"Importance of Communication Skills for better job opportunities"	11 am - 1 pm
June 25, 2021 (Friday)	Ms. Sakina Bombaywala (SSBS Alumni, 17-19 Batch)	"Tips and Tricks for Competitive Exams"	2 pm - 3 pm
	Mr. Sarvesh Surve (SSBS Alumni, 16-18 Batch)	"Taking the research leap: Dos and don'ts of PhD applications abroad"	3 pm - 4 pm
June 26, 2021 (Saturday)	Dr. Sanjeev Gupta, Ph.D., Sr. General Manager and Head- Advanced Biotech Lab (R&D Biosimilar) Ipca Laboratories Ltd., Mumbai-India	"Current Trends and Future Opportunities in Biosimilars and Biologics Development"	11 am - 12 pm





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List of Guest Lectures by Industrial Experts in the Year 2021

SSBS Guest Lectures by Industrial Experts						
Sr. No.	Date	Day	Time	Speaker	Title of talk	Designation
1	11-Jun-21	Friday	4-5 pm	Dr. Amol Raut	Genomics in Healthcare	Dr. Amol D. Raut (Ph.D.) Chief Executive Officer - GeneSupport Director, Operations- GeneOmbio Technologies www.genesupport.in www.geneombiotechnologies.com
2	18-Jun-21	Friday	2-3 pm	Prof. Subhash Padhye	Don't let the Pandemic stop you from Pursuing your Study Abroad Dream	Prof. Subhash Padhye FRSC, CChem, Fulbright Scholar, NIH visiting Professor University of Kansas School of Medicine 3901 Rainbow Blvd. Kansas City, USA
3	21-Jun-21	Monday	11 am – 12 am	Dr. Sanjay Nene	Career opportunities in Biotechnology'	Dr. Sanjay Nene, CEO, Innovation Biologicals Pvt Ltd, Adjunct Professor in Biochemical Engineering, AICTE, Pune
4	22-Jun-21	Tuesday	11 am – 1 pm	Mrs. Kirti Aphale	Introduction to Quality Control, Roles and Responsibilities and Methods in Biotech / Microbiology QC	Mrs. Kirti Aphale, Founder Director – Q-Edge Consultancy and Training, Pune
5	23-Jun-21	Wednesday	10.30 to 11 am	Dr. Prabhakar Kulkarni	Being Entrepreneurial	Dr. Prabhakar Kulkarni CEO, NeoDx Biotech Pvt. Labs, Bangalore, India
6	26-Jun-21	Saturday	11-12 pm	Dr. Sanjeev Gupta	Current Trends and Future opportunities in Biosimilars and Biologic Development	Sanjeev Gupta, Ph.D., Sr. General Manager and Head- Advanced Biotech Lab (R&D Biosimilar) Ipca Laboratories Ltd., Mumbai-India
7	26-Jun-21	Saturday	10-11 am	Dr. Hemant Dhamne	"Viral Vectors - Oligos and Ubers of Gene Therapy"	Dr. Hemant Dhamne Head, Vector and CAR-T Cell processing at Immuneel, Bangalore
8	23th October, 2021	Saturday	11:15 to 12:15 PM	Dr. Hemant Dhamne	CAR-Ts, engineering the Immunity	Dr. Hemant Dhamne Head, Vector and CAR-T Cell processing at Immuneel, Bangalore
9	20th November, 2021	Saturday	2:30 to 3:30 PM	Mr. Suraj Chavan	Careers in the Biotechnology Industries	Mr. Suraj Chavan M. Sc. Biotechnology (Batch: 2013 – 2015) Senior Research Associate at UPL/ Advanta Seeds Pvt. Ltd., Hyderabad.





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RESCOM Summit 2021 was held by Symbiosis School of Biological Sciences in Collaboration with Huvepharma

The summit was focused on food safety, Qualitative protein and one health in the poultry sector. Dr. Santosh Koratkar of SSBS was a member of the organizing committee and gave a talk during the summit.



REC

Sequences of *mgc2* and *vlhA* gene primers and sizes of amplicon used for the sequence analysis

Organism	Gene	Primers	Sequence	Amplicon size (bp)
<i>Mycoplasma gallisepticum</i> (Ferguson, N.M. et al 2005 and Srinivasulu, L. et al 2005)	<i>mgc2</i>	mgc2-3F	5'-GCTTGTGTCGCGGTCGCA'	824 bp
		mgc2-3R	5'-CGGTGGAAACAGCTCTTG'	
<i>Mycoplasma genitalium</i> (A.H. Noorhaneedi et al 2008)	<i>vlhA</i>	MS-94F	5'-TACTATAGCACTAGCTGTC'	300-400 bp
		MS-conR	5'-AGTAAACCGATCCGCTAAT'	

• The *mgc2* is a second CytB-like gene responsible for membrane protein
 • The partial variable *vlhA* gene is the only genomic target identified so far for MS sequence typing (El-Gazzar, et al 2012)

Sequencing and Analysis

- PCR product purification
- Sanger sequencing (F. Sanger et al, 1977)
- Phylogenetic analysis (MEGA7, Sushil Kumar et al, 2016)

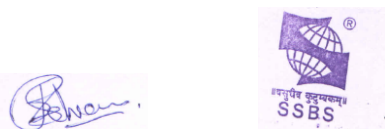
RESCOM SUMMIT 2021

DAY 1 02/08/2021 AGENDA DAY 2 03/08/2021

SL No.	Presentation Topics	Speakers	Timing	SL No.	Presentation Topics	Speakers	Timing
Inauguration				4:00pm - 4:30pm			
	Introduction RESCOM SUMMIT 2021	Mr. O. P. Singh	4:10pm - 4:20pm	1	Most emerging challenges- Avian Influenza biggest disruptor in the poultry industry	Dr. Meike Matthijs	4:00pm - 4:40pm
1	Assessing the Impact of Respiratory disease complex and generating solutions and tool to minimise the economic impact	Dr. Meike Matthijs	4:20pm - 5:00pm	2	Available Practical solutions & tools to combat respiratory complex- A special focus on Avian Influenza control	Dr. Jean Charles BAGLIONE	4:40pm - 5:20pm
2	Molecular and phylogenetic analysis of Avian Mycoplasmosis A tool for futuristic decision making in India	Dr. Santosh Koratkar	5:00pm - 5:40pm	3	Covid pandemic changing meat market dynamics in Asia- An opportunity or threat to Indian producers?	Mr. Osler Desouzart	5:20pm - 6:00pm
Felicitations of the scientists				5:40pm - 5:55pm			
3	Epidemiological Impact study of mycoplasmosis prevalence - A clinician tool in Indian Context	Dr. Devender Hooda	5:55pm - 6:30pm	Concluding session by Dr. Alain Kanora & Mr. O. P. Singh 6:00pm - 6:30pm			

Collaborative Research Publication with Industry

Joint publication between SSBS and Lupin Limited, Pune. Ph.D. student Vishal Pavitrakar is registered for Ph.D. in SSBS and working under the guidance of Dr. Selvan Ravindran in SSBS and Dr. Rustom Modi as his Co-guide.





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Current Pharmaceutical Biotechnology, XXXX, XX, 1-9

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RESEARCH ARTICLE

Amelioration of Cisplatin-induced Renal Inflammation by Recombinant Human Golimumab in Mice

Vishal Pavitrakar^{1,3}, Rustom Mody² and Selvan Ravindran^{3*}

¹Biotechnology division, Vishal N. Pavitrakar, Lupin Limited, Pune, India; ²Biotechnology division, Rustom Mody, Lupin Limited, Pune, India (Currently associated with Sun Pharma Advanced Research Company Ltd., Vadodara, Gujarat, India); ³Faculty of Health Sciences, Symbiosis School of Biological Sciences, Selvan Ravindran, Symbiosis International (Deemed) University, Pune, India.

Joint publication between SSBS and Lupin Limited, Pune. Ph.D. student Santosh Dumbare is registered for Ph.D. in SSBS and working under the guidance of Dr. Selvan Ravindran in SSBS and Dr. Ashish Doshi as his Co-guide.

Pol. J. Environ. Stud. Vol. 30, No. 4 (2021), 3445-3455

DOI: [10.15244/pjoes/130572](https://doi.org/10.15244/pjoes/130572)

ONLINE PUBLICATION DATE: 2021-04-08

Review

Rhodamine B and Rhodamine 6G Based Sensing of Copper Ions in Environmental and Biological Samples: Recent Progress

Santosh Dumbare^{1,2}, Ashish Doshi¹, Selvan Ravindran^{2*}

¹Lupin Research Park, 46/47A, Village Nande, Taluka Mulshi, Pune-412115, Maharashtra, India

²Faculty of Health Sciences, Symbiosis School of Biological Sciences, Symbiosis International (Deemed) University, Lavale, Pune-412115, Maharashtra, India





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M.Sc (Biotechnology) students dissertation work in Industries/CSIR labs/National and International Labs

Name	Institute
Anjali Mishra	DRDO
Tejashree Patel	IISER, Pune

Ph.D. student's dissertation work at Industries, CSIR labs and ICMR labs

Students are also enrolled in the Ph.D. programme in SSBS and work in industries or at Council of Scientific and Industrial Research labs on task-oriented projects to address actual challenges. All Ph.D. students are mentored by members of the SSBS faculty.





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S.No.	Name of Practice 2
1	Training for competitive exams





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7.2.1 Best Practices 2 (2020 – 2021)

1. Title of the Practice: TRAINING FOR COMPETITIVE EXAMS

2. Objectives of the Practice

- Through training, students would be able to participate in competitive exams such as UGC-CSIR, GATE, DBT-JRF, and IELTS.
- To prepare students for competitive exams

3. The Context:

Masters students must pass competitive tests in order to be admitted to Ph.D. programmes at national institutions and universities.

4. The Practice:

Training is delivered in the form of a value-added course. SSBS has established a value-added course, in which many students are enrolled for training.

5. Evidence of Success: Students have shown a strong desire to take tests like as GATE, DBT-JRF, and IELTS. UGC-CSIR examinations

6. Problems encountered and Resources required: More study resources are required. Students must commit more time to their studies on weekends and during the week.





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Guidance for Competitive Exam as a Value-Added Course



SYMBIOSIS SCHOOL OF BIOLOGICAL SCIENCES,
SYMBIOSIS INTERNATIONAL
(DEEMED UNIVERSITY)

PRESENTS

GUIDANCE FOR COMPETITIVE EXAMS

Eligibility:

MSc in life sciences

No. of sessions – 20

Duration – 30 hours

Symbiosis School of Biological Sciences (SSBS) is organizing the value-added Course "Guidance for Competitive Exams". Around 20 online Tests will be conducted based on CSIR-NET Syllabus by Institute For Advanced Studies (IFAS). The analysis for the online test series would be done by Expert Faculty Panel.

On test day, detailed Video Solution will be provided by IFAS Expert Faculty on IFAS App. All the Test Discussion, will be recorded for future reference, so that students can see them anytime in future and revise everything in a better way. Students participating in test series with more than 70 percent attendance get a certificate for participation.

Topics Covered

- Each Test will contain 145 Questions as per CSIR NET Pattern (Part A: 20 Questions, Part B: 50 Questions & Part C: 75 Questions)

APTITUDE (PART A)

LIFE SCIENCE (PART B & PART C)

- Total Test: 20





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Test Schedule

SCHEDULE	APTITUDE (PART A : 20 Q)	LIFE SCIENCE (PART B : 50 Q & PART C : 75 Q)
TEST 1	OBSERVATIONAL SKILL	UNIT I : BIOCHEMISTRY
TEST 2	LOGICAL DEDUCTIONS	UNIT II : CELL BIOLOGY
TEST 3	SEQUENCE & SERIES	UNIT III : MOLECULAR BIOLOGY
TEST 4	NUMERICAL ABILITY	UNIT IV : SIGNALING, IMMUNOLOGY
TEST 5	QUADRATIC EQUATION	UNIT V : DEVELOPMENTAL BIOLOGY
TEST 6	DATA ANALYSIS	UNIT VI : PLANT PHYSIOLOGY
TEST 7	AVERAGE , PROFIT & LOSS	UNIT VII : ANIMAL PHYSIOLOGY
TEST 8	GEOMETRY OF SHAPE	UNIT VIII : GENETICS
TEST 9	MEASUREMENT	UNIT IX : DIVERSITY
TEST 10	DIRECTIONAL GEOMETRY	UNIT X : ECOLOGY
TEST 11	MOVING OBJECT DYNAMICS	UNIT XI : EVOLUTION
TEST 12	PROBABILITY , PERMUTATION & COMBINATION	UNIT XII : BIOTECHNOLOGY
TEST 13	CLOCK , CALENDER , WORK	UNIT XIII : BIOTECHNIQUES
MOCK TEST 1	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 2	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 3	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 4	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 5	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 6	COMPLETE SYLLABUS	COMPLETE SYLLABUS
MOCK TEST 7	COMPLETE SYLLABUS	COMPLETE SYLLABUS

