

**HONOURS CERTIFICATE PROGRAMME PROPOSAL  
AY 2021-2022**

**Department of Microbiology, St. Xavier's College**

We are offering two courses for the year 2021-22:

1. Online lecture series on 'Introduction to Biostatistics'
2. Lecture series on 'Basics of animal tissue culture'

**Activity-1**

<b>General Information of the Activity</b>	
1.	<b>Department and Hub</b> Dept: Microbiology Hub: Biological science
2.	<b>Title of the Activity</b> Online lecture series on 'Introduction to Biostatistics'
3.	<b>Name of the Professor taking the course and Email address</b> Dr. Aparna Talekar aparna.talekar@xaviers.edu
4.	<b>Name/s of the Resource person/s</b> Ms. Snigdha Pain
5.	<b>Name of the Dept Coordinator and Email address</b> Dr. Pampi Chakraborty pampi.chakraborty@xaviers.edu
6.	<b>Name of the Hub Coordinator and Email address</b> Dr. Priya S priya.s@xaviers.edu
7.	<b>Number of credits for the activity and number of hours</b> Credits: 01 Hours: 15
8.	<b>Fees</b> 1000
9.	<b>Eligibility</b> SYBSc and TYBSc students with Biology background
10.	<b>Number of students</b> Minimum quorum required: 15
11.	<b>Duration and Time</b> 3-4 weeks with 4 hours per week in the even semester (December-January)

	<b>Details of the Activity</b>
1	<b>Title: Online lecture series on ‘Introduction to Biostatistics’</b>
2	<p><b>Learning Objectives: To make students competent to,</b></p> <ol style="list-style-type: none"> <li>1. Use the right measure of central tendency and dispersion for given dataset depending upon the scale</li> <li>2. Identify if the dataset follows normal distribution and solve problems based on normal distribution.</li> <li>3. Apply hypothesis testing to experimental data and understand the concepts of errors, confidence intervals with respect to the following statistical tests; z test, t test, chi square test, ANOVA</li> <li>4. Perform correlation and regression analysis</li> <li>5. Use Excel/other easy to use software to perform statistical analysis and formulate a conclusion from the output.</li> </ol>
3	<p><b>Learning Outcomes:</b> After completing the course students will be able to</p> <ul style="list-style-type: none"> <li>• Describe data obtained from biology experiments in quantitative terms</li> <li>• Identify and perform the right statistical test for given dataset depending on the objective of the study (restricted to z, t , chi square test and ANOVA)</li> <li>• Use statistics to detect linear correlation between two variables and also apply simple linear regression analysis to compute unknown parameters</li> </ul>
4	<p><b>Description</b> The course aims to equip undergraduate biology students with statistical tools to analyze data obtained in the biological experiments. This is a single credit course (15hrs) that covers descriptive statistics and commonly used statistical tests.</p>
5	<b>Modules if any: NA</b>

## Activity-2

<b>General Information of the Activity</b>		
1.	<b>Department and Hub</b>	Dept: Microbiology Hub: Biological sciences
2.	<b>Title of the Activity</b>	Lecture series on 'Basics of animal tissue culture'
3.	<b>Name of the Professor taking the course and Email address</b>	Dr. Pampi Chakraborty pampi.chakraborty@xaviers.edu
4.	<b>Name/s of the Resource person/s</b>	Dr. Pampi Chakraborty
5.	<b>Name of the Dept Coordinator and Email address</b>	Dr. Pampi Chakraborty pampi.chakraborty@xaviers.edu
6.	<b>Name of the Hub Coordinator and Email address</b>	Dr. Priya Sundarrajan priya.s@xaviers.edu
7.	<b>Number of credits for the activity and number of hours</b>	Credits: 01 Hours: 15
8.	<b>Fees</b>	Rs. 700/-
9.	<b>Eligibility</b>	SY / TY B.Sc. students Recommended previous knowledge: Basic knowledge in cell biology, biochemistry and aseptic techniques.
10.	<b>Number of students</b>	Minimum quorum required: 15
11.	<b>Duration and Time</b>	3-4 weeks with 4 hours per week in the even semester (December, 2021-January, 2022)

<b>Details of the Activity</b>	
1	<b>Title:</b> Lecture series on ‘Basics of animal tissue culture’
2	<p><b>Learning Objectives: To make students competent to,</b></p> <ul style="list-style-type: none"> <li>• Understand the design and layout of the cell culture laboratory</li> <li>• Describe the significance of aseptic techniques</li> <li>• Discuss the methods for measuring cell viability, sub-culturing, cryopreservation and revival.</li> <li>• Understand the principle of the assays for cell sorting, proliferation and cell death.</li> <li>• Analyze the data for cytotoxicity assay (MTT)</li> </ul>
3	<p><b>Learning Outcomes:</b></p> <p>After completing the course students will be able to</p> <ul style="list-style-type: none"> <li>• demonstrate the design and use the cell culture facilities</li> <li>• describe the basic techniques required for cell culture, the methods for adherent and non-adherent cell line maintenance and cell cultures constraints</li> <li>• demonstrate the principles of cell death and cell proliferation assays</li> </ul>
4	<p><b>Description</b></p> <p>Animal tissue culture plays a significant role in the field of Biotechnology. It is one of the major tools in basic research as well as in modern medicine. This course is designed for SY and TY students to develop an understanding of the practical aspects of animal tissue culture.</p>
5	<b>Modules if any: NA</b>