

## Course Content

- Mathematical modelling
- Basic infectious disease models
- Stability analysis of systems
- Basic reproduction number
- Control strategies
- Model fitting to real data
- Bifurcation in one and two dimension
- Limit cycles
- Bendixson-Dulac negative criterion
- Hopf bifurcation
- Poincare-Bendixson theorem
- Exploration with software
- Examples in real life

## Speakers

### Dr. Prashant Kumar Srivastava

Associate Professor  
Department of Mathematics  
Indian Institute of Technology  
Patna

### Dr. B. S. R. V. Prasad

Assistant Professor (Sr.)  
Department of Mathematics  
School of Advanced Sciences  
VIT, Vellore

## Registration Details

Students : Rs 500  
Research Scholars : Rs 750  
Faculty : Rs 1000

For registration visit:

[www.stjohns.ac.in/nsme](http://www.stjohns.ac.in/nsme)

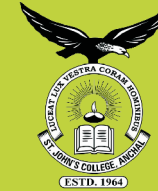
## Steps to Register

- Visit [www.stjohns.ac.in/nsme](http://www.stjohns.ac.in/nsme)
- Click on Register here
- Fill the google form
- Scan the QR code for payment
- Submit the google form

## Contact

### Dr. Smitha Mary Mathew

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St. John's College, Anchal  
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## ST. JOHN'S COLLEGE

ANCHAL, KERALA - 691306

Re-accredited with A Grade by NAAC

## DEPARTMENT OF MATHEMATICS

# NATIONAL SEMINAR ON MATHEMATICAL EPIDEMIOLOGY

16 - 17 FEBRUARY, 2023

Venue : Audio Visual Theatre



Co-sponsored by KSCSTE

Paid accommodation will be provided on prior request.

## About the College

Founded in 1964, St. John's College is a higher education institution affiliated with the University of Kerala. It is run by the Syro-Malankara Catholic Church and is located in Anchal, Kollam district, Kerala, India. The college was founded under the vision of late Archbishop Benedict Mar Gregorios and is now flourishing under the patronage of Moran Mor Baselios Cleemis Catholicos. From the beginning, St. John's College has been committed to promoting learning and fostering holistic development in the region.

## About the Department

The Department of Mathematics was established in 1964, and has since offered graduate (B.Sc) and post graduate (M.Sc) degree programs in Mathematics. The department's goal is to cultivate a love for mathematics in bright, young students, encouraging them to think independently and pursue higher levels of study in the field. With its focus on exposing students to the thrill of doing mathematics and promoting deep understanding, the department is dedicated to preparing its students for successful careers in a variety of fields.

## About the Programme

In this seminar on Mathematical Epidemiology, we explore the use of mathematical models to understand the patterns of health and diseases in human populations. Specifically, we will focus on the mathematics of infectious diseases and use differential equations to analyze these models. This seminar is designed to provide you with the necessary skills and tools to understand how these models work and how they can be used to better understand the progression and control of diseases. We will take a dynamical systems approach to analyze these models, allowing us to understand how diseases spread and how interventions can be implemented to prevent or mitigate their impact.

## Advisory Committee

**Dr. Peeyush Chandra**  
Professor ( Retired)  
Department of Mathematics and Statistics  
IIT, Kanpur

**Dr. C V Anil Kumar**  
Professor and Head  
Department of Mathematics  
IIST, Thiruvananthapuram

**Dr. K R Arun**  
Assistant Professor  
IISER, Thiruvananthapuram

## Organising Committee

**Dr. Cherian John** (Principal)

**Rev. Fr. Jinoy Mathew** (Bursar)

**Mr. Sibi C Babu** (HOD)

**Mr. Tony Philip**

**Dr. Minimol S**

**Dr. Sunitha Grace Zacharia**

**Dr. Dhanya Ramachandran**

**Dr. Limnaraj B P**

**Mr. Adersh V K**

(TKM College of Arts and Science, Kollam)

**Mr. Roy John**

(St. Stephen's College, Pathanapuram)

**Dr. Jino Nainan**

(S G College, Kottarakara)

**Dr. Divya Sadasivan**

(S N College, Punalur)

## Organising Secretaries

Dr. Smitha Mary Mathew

Dr. Dilip D S