

FACULTY PROFILE

Name : Dr. Sabarmathi A.
Designation : Assistant Professor (Senior)
Qualification : M.Sc., M.Phil., Ph.D., SET
Mobile number : 9443583580
E-mail id : sabarmathi.a@gmail.com
sabarmathii.a@auxiliumcollege.edu.in
Teaching Experience : 22 years
Area of specialization : Nonlinear Differential Equations, Mathematical Biology,
Mathematical Epidemiology

Research Experience and Guidance:

List of Ph.D. Scholars

S. No.	Scholar name	Date of Registration	Date of Viva-Voce Exam	Thesis Title
1.	Ms. Naga Soundarya Lakshmi V. S. V.	11.02.2019	09.11.2022	Differential Equation Analysis and Modelling of Infectious Diseases
2.	Ms. P. Priya	03.05.2021	26.02.2025	Fractal Fractional Order Eco-Epidemic Model; A View of Soil Pollution
3.	Ms. C. Pooja	27.07.2022	25.07.2025	Mathematical Modelling on Plant Epidemiology
4.	Ms. G. Gnana Priya	03.12.2021	Pursuing	
5.	Ms. A. Amalarathinam	15.03.2019	Pursuing	
6.	Ms. Saranya P.		Pursuing	

List of M.Phil. Scholars

S. No.	Scholar name	Year of Completion
1.	M.LAKSHMI	2019
2.	G. GOMATY	2020

Projects Completed:

SEED MONEY PROJECT				
Investigators	Title	Period	Funded By	Amount
Dr. Sabarmathi A. (Research Guide) and Ms. V.S.V. Naga Soundarya Lakshmi (Research Scholar)	Infectious Disease Modelling and Analysis	April 2021- March 2023 (2 Years)	Auxilium College (Autonomous), Vellore	Rs. 50,000/-

No. of Papers Published: 45

No. of Papers Presented in the National/ International/ Seminars/ Workshops/ Conferences: 12

No. of Seminars/Workshops/Conferences organized: 25

Positions held in Auxilium College:

- Dean of Research and IPR
- Member - RUSA Project Committee (2018-2019)
- Member - DST-FIST Project Committee (2018-2019)
- Project Coordinator - DBT STAR STATUS SCHEME (2019-2020)
- Member - CURIE Project Committee (2021-2022)
- Head In Charge - PG and Research Dept. of Mathematics (2021-2022)
- Unit President - Auxilium Alumni Association (2017-2020)
- Staff In Charge – Mathematics Association (2016-2018, 2021-2023)
- Member- Auxilium Innovation & Incubation Centre
- Coordinator - Student Induction Programme
- Unit Leader - Rangers
- Member - Research Ethics, Publication & IPR committee
- Member - Board of Studies
- Member- Educative Community
- Mentor & Tutor
- Staff In charge - Department NIRF details
- Staff In charge - Department Website Updates
- Staff In Charge - Department Time Table
- Staff In charge – Department E contents & YouTube Channel
- Faculty Organizer – Online Courses offered by Spoken Tutorial- IIT Bombay (2020-Till date) -III B.Sc. Mathematics

Membership in professional bodies:

- Life Time Membership-ISTAM-Indian Society of Theoretical and Applied Mechanics
- Life Time Membership-AARM-Academia for Advanced Research in Mathematics
- Member of Board of Studies (PG Mathematics), Thiruvalluvar University (2023-2026)

Membership in other bodies:

- Membership-NSF-Nature Science Foundation
- Executive Member-Don Bosco Scout District
- Lay Collaborator-Youth Pastoral of INM Province

Honors & Awards received:

- Received **SERVICE AWARD** for the appreciable service in Scouting, in the Silver Jubilee Celebrations of Don Bosco Scout District held at St. Bede's School, Santhome, Chennai on 18.11.2023.
- Received **BEST RANGERS' COORDINATOR AWARD** from Nature Science Foundation, Coimbatore, Tamil Nadu on 28.11.2022.
- **RESEARCH AWARD (2012-2014)**, VIT University, Vellore-14.
- **GOLD MEDALIST** in M.Sc. Mathematics, Stella Maris College, Chennai-86.

- **MERIT AWARD** in Catechism- 2001, Auxilium College.
- **RAJAYAPURASKAR AWARD**, the Governor Award for Bharat Scouts and Guides.
- **SCHOOL TOPPER** in X and XII standards, St.Anne's Girls Higher Secondary School, Chetpet - 606 801, ThiruvannaMalai District, Tamil Nadu.

Sports Achievements:

- Member of **Madras University Football Team** (1998 – 2001) and played in the **All India Inter University Foot Ball Tournaments**.
- Member of **Madras University Kho-Kho Team** (1998 – 1999) and played in the **Inter University South Zone Kho-Kho Tournaments**.
- Received Special Award for **OUT STANDING PERFORMANCE IN SPORTS AND GAMES**, Auxilium College, Vellore-6.
- **INDIVIDUAL CHAMPIONSHIPS** in Zonal Level sports for consecutive 3 years (1995 –1998).

No. of Online Courses completed (Minimum of 4 Weeks): 5

Served as a Resource Person/ Chair Person

- As a **Chairperson**-National Conference on Pure and Applied Mathematics-VIT University on 12th March 2016
- As a **Guest Speaker** for Investiture ceremony of the Students Council, SPARK CBSE SCHOOL, Sripuram, Vellore on 5th August 2016
- As a **Chairperson**-International Conference on Advances in Mathematical Sciences-VIT University on 2nd December 2017
- As an **Invited Speaker**-International Conference on Advances in Mathematical Sciences-VIT University on 2nd December 2017 (Topic: Education for Social Development)
- As an **Invited Speaker**-International Conference on Applications of Fluid dynamics, VIT, Vellore on 14th December 2018 (Topic: Value Based Learning)
- As an **Invited Speaker** in the International Conference on Integrated Knowledge towards Enriched Society organized by Loyola-Racine Research Institute of Mathematical and Computing Sciences on 22 & 23 January 2020 at Loyola College, Chennai and delivered a talk on Role of Stochastic Perturbations in Stability of Detritus based Ecosystem.
- Delivered a **Guest Lecture** on Student Induction Programme to Faculty members under PARAMARSH scheme of UGC in Don Bosco College, Dharmapuri (24.02.2020)
- Delivered a **Guest Lecture** on Student Induction Programme to Faculty members under PARAMARSH scheme of UGC in St. Joseph's College of Arts and Science for Women, Hosur (05.03.2020)
- Delivered a **Guest Lecture** on Student Induction Programme to Faculty members under PARAMARSH scheme of UGC in Loyola College, Vettavalam (10.03.2020),
- Delivered a **Guest Lecture** on Student Induction Programme to Faculty members under PARAMARSH scheme of UGC Don Bosco College, Yelagiri (18.03.2020)
- As a **Training Councilor** for the Basic Course for Ranger Leaders held at Don Bosco Scout Centre, Yelagiri-(04.03.2021-10.03.2021)

- As a **Guest speaker** to the Mathematics Association Activity and delivered a lecture on "Recent Trends in Mathematics" in Mazharul Ullom College, Ambur. -27.04.2023
- As a **Resource Person** in the State Level Seminar and delivered a lecture on Applications of Differential Equations in Machine Learning organized by MMES Women's Arts and Science College, Melvisharam - 632 509 on 31.08.2024
- Served as a **Resource Person** in the Science Fest 2K25, an Intercollegiate Meet organised by the Department of Mathematics, Don Bosco College (Co-Ed.), Yelagiri on 13.02.2025
- As a **Resource Person** and delivered a lecture on "Higher Education Guidance" and Awareness on legal Education" on 29.09.2025 in the NSS camp of Auxilium GHS School, Katpadi, held at Govt. Hr. Sec. School, Brammapuram.

PUBLICATIONS

Publications in Journals

1. Prasenjit Das, Debasis Mukherjee, Kalyan Das, **A.Sabarmathi**, "Fluctuating Role of Parameters in the Analysis of the Continues and Discrete Version of a Susceptible-Incubated-Infected Model", International Journal of Modern Nonlinear Theory and Application, 2012, 1, pp.47-50. (**impact factor: 0.69**)
2. Prasenjit Das, Kalyan Das, Nurul Huda Gazi, **Ayyavu Sabarmathi**, "Delayed stochastic disease model", Journal of Advanced Research in Dynamical and Control Systems, 2012, 4(4), pp.28-42. (**Scopus, Impact factor:0.18, h-index:4**)
3. M.N.Srinivas, K.Shivareddy, **A.Sabarmathi**, "A stochastic study of a four species syn eco-system with bio economic yielding of both victim & killer", International Journal of Advances in Engineering and Technology, 6(4), Sept. 2013, pp.1571-1584 (**Impact factor: 2.35**).
4. M.N.Srinivas, K.Shiva Reddy, **A.Sabarmathi**, "Optimal Harvesting Strategy and Stochastic Analysis for a Two Species Commensaling System", **Ain Shams_Engineering Journal (Elsevier-Scopus Indexed, Impact factor:1.72, h-index:14)**, 5, 2014, 515-523.
5. M.N. Srinivas, K.S. Reddy, K. Das, **A. Sabarmathi**, P. Das, "Stochastic effects on an ecosystem with predation, commensalism, mutualism and neutralism", **Journal of Advanced Research in Dynamical and Control Systems (Scopus indexed)**, Vol. 6, Issue. 3, 2014, pp. 62-78 (**Impact factor:0.18, h-index:4**)
6. Kalyan Das, **A.Sabarmathi**, M.N.Srinivas, NurulHuzaGazi, B.Rushi Kumar "Trophic cascades scenario of a detritus-based stage-structured model in marine ecology", Int. journal of Non-linear Evolution Equations and Applications (JNEEA), vol. 2014, No.6, 77-100.

7. M.N.Srinivas, K.Shiva Reddy, **A.Sabarmathi**, M.A.S.Srinivas, “An optimal harvesting strategy of a 3 species syn eco system with commensalism and stochasticity”, Int. Journal of Applications and Applied Mathematics, Vol. 9, Issue 1 (December 2014), pp. 672-695.
8. Kalyan Das, MN Srinivas, **A Sabarmathi**, NH Gazi, B RushiKumaur, Time Delay Inference for Nonlinear Ecological Dynamic System: a Mathematical Study, Nonlinear Phenomena in Complex Systems, vol. 18, no. 1 (2015), pp. 15 – 24.**(Scopus, Impact factor: 0.28)**
9. **A.Sabarmathi**, M.N.Srinivas, K.Shiva Reddy, Kalyan Das, B.RushiKumar, “Stochastic Stability Of A Fishery Model With Optimal Harvesting Policy”, International Journal of Pure and Applied Mathematics, Volume 101 No. 6 2015, 975-983. **(Scopus Indexed)(Impact factor:0.635) (h index:21)**
10. K.Shiva Reddy, V.SrinivasaRao,**Sabarmathi.A**, M. N. Srinivas, “Influence of Ecological Discrepancy’s on The Immovability of Two Species Model With Mutualism Using Lyapunov Function”, International Journal of Scientific and Innovative Mathematical Research (IJSIMR) Volume 3, Special Issue 3, July 2015, PP 891-896. **(impact factor: 4.433)**
11. G. Basava Kumar, M. N. Srinivasand **A. Sabarmathi**, “Diffusive and Stochastic Prey-Predator-Competitor Model, Journal of Applied Sciences Research, 11(14): pages 54-58. 2015. **(Scopus Indexed, Impact factor: 0.22, hindex:13)**
12. K. Shiva Reddy, M.N.Srinivas, **A.Sabarmathi**, Kalyan Das, N.H. Gazi, Stochastic analysis with harvesting of a prey-predator model in food web dynamics, International Journal of Dynamical System and Differential Equations, Inder Science Publishers, 36-62, Vol. 6, No. 1, 2016. **(Scopus Indexed, impact factor:0.31, h-index-9)**
13. M.N. Srinivas, **A. Sabarmathi**, A.V.S.N. Murty, Study on a stochastic model for fishery resource with harvesting of migrating preys among two zones, Global Journal of Pure and Applied Mathematics, Vol.12, Special issue Number 3, 884-889, September 2016 **(Scopus)**
14. G. Gomahy, A. Sabarmathi, Pankaj Shukla, “CREEPING FLOW OF NON-NEWTONIAN FLUID PAST A FLUID SPHERE WITH NON-ZERO SPIN BOUNDARY CONDITION”, Advances in Mathematics: Scientific Journal, 9 (2020), no.8, 5979–5986. **(Scopus)**
15. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, “COVID-19 ANALYSIS BY SEIR MODEL WITH MULTIPLE CONTROLS, Advances in Mathematics: Scientific Journal 10 (2021), no.3, 1581–1589. **(Scopus)**

16. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "An Analysis of Reinfection Pneumonia Model with Carrier State, Turkish Journal of Computer and Mathematics Education, 12(10), 2021, 1257-1265. (**Scopus**)
17. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "Analysis of SEIR model with a single control for COVID-19, Journal of Computational Mathematica, 5(1), 2021:028-037.
18. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "A Mathematical Study on Coronavirus Model with Two Infectious States", Journal of Informatics and Mathematical Sciences, Vol. 13, No. 2, pp. 71–81, 2021.
19. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "A STABILITY ANALYSIS OF TYPHOID DISEASE MODEL WITH TREATMENT AND BACTERIA COMPARTMENTS", International Journal of Biology, Pharmacy and Allied Sciences, October, 2021, 10(10): 3764-3772.
20. P. Priya · A. Sabarmathi, "Caputo Fractal Fractional Order Derivative of Soil Pollution Model Due to Industrial and Agrochemical", Int. J. Appl. Comput. Math (2022) 8:250. 1-22. (Springer)
21. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "Dynamics of SEIR model of Nipah Virus", Recent Advances in Applied mathematics and Applications to the Fluid Flows, Lecture Notes in Mechanical Engineering, Springer Nature, Singapore Pvt. Ltd., 273-284, 2023.
22. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "A mathematical analysis for pneumonia model with carrier state", AIP Conference Proceedings 2516, 130003 (2022), pp. 1-9,
23. Naga soundarya lakshmi V.S.V. and A. Sabarmathi, "A Graphical Analysis of Mosquito Infection Model with Host and Vector Population", International Journal of Zoological Investigations, Vol. 8, Spl 1, 12-22(2022).
24. P. Priya · A. Sabarmathi, "Uniform Asymptotic Stability of Sir Model with Distributed Delay: A Case Study of Nipha Virus", Mathematical Statistician and Engineering Applications, Page Number: 8547-8554, Vol. 71 No. 4 (2022).
25. Gnana Priya G., A.Sabarmathi, Naga Soundarya Lakshmi V.S.V., A dynamical analysis of a mathematical model on type-2 diabetic from obesity, Ratio Mathematica –Journal of Mathematics, Statistics and Applications, 46, 156-171, 2023
26. P. Priya, **A. Sabarmathi**, "Dynamic Efficacy of soil pollution model using fractional order model- An Adomian Decomposition Approach", Tuijin Jishu/ Journal of Propulsion Technology, ISSN:1001 4055, Vol. 44, No. 4, pp. 2962-2974, 2023.

27. C. Pooja and **A. Sabarmathi**, “A Fractional Order Approach in the Ecoepidemiological Model of Sugarcane Grassy Shoot Disease Using Controls”, Tuijin Jishu/ Journal of Propulsion Technology, ISSN:1001 4055, Vol. 44, No. 4, pp.5909-5915, Nov 2023.
28. Gnana Priya G. , **Sabarmathi A.**, Naga Soundariya Lakshmi V.S.V., A Mathematical Analysis on A Mathematical Model on Stress and Depression among Women”, Tuijin Jishu/ Journal of Propulsion Technology, ISSN:1001 4055, Vol. 44, No. 4, pp. 5928-5938, Nov 2023
29. C.Pooja , A. Sabarmathi and Naga Soundarya Lakshmi V.S.V., Analysis of Plant Growth and Disease models of Groundnut, pp. 119-126, Vol. 44 No. 5 (Dec 2023), ISSN: 1001-4055, Tuijin Jishu/Journal of Propulsion Technology
30. Gnana Priya G. , Sabarmathi A. , Study on a Mathematical Model of Polycystic Ovarian Syndrome, pp. 176-183, Vol. 44 No. 5 (Dec 2023), ISSN: 1001-4055, Tuijin Jishu/Journal of Propulsion Technology
31. C.Pooja and A.Sabarmathi, A Mathematical Model for Tikka Disease of Groundnut with Intercropping of Grams, Journal of Xidian University, ISSN No:1001-2400, VOLUME 18, ISSUE 1, pp. 776-793, January 2024, <http://xadzkidx.cn/>
32. C.Pooja , A.Sabarmathi and Naga Soundarya Lakshmi V.S.V., ESTIMATING THE SPREAD AND CONTROL OF TYCLV USING MATHEMATICAL MODEL, Advanced Engineering Science, pp. 1-15, Volume 56, Issue 01, January, 2024, ISSN: 2096-3246
33. G. Gnana Priya and A. Sabarmathi, A MATHEMATICAL STUDY ON THE STAGES OF CERVICAL CANCER, Advanced Engineering Science, ISSN: 2096-3246, pp.105-116, Volume 56, Issue 01, March, 2024.
34. Priya P., Sabarmathi A., Optimal control on ABC fractal fractional order model of micro-plastic pollution in soil and its effect on the nutrient cycle, Journal of Computational and Applied Mathematics-Elsevier, pp. 1-8. Volume 450, May 2024, 115997, ISSN: 0377-0427 (print); 1879-1778 (web) <https://doi.org/10.1016/j.cam.2024.115997>
35. Priya P., Sabarmathi A., Control strategies for fractional order soil micro plastic pollution model and preserving nutrient cycle integrity, Multiscale and Multidisciplinary Modeling, Experiments and Design, <https://doi.org/10.1007/s41939-024-00465-9> , 20 June 2024.
36. Priya Pichandi , Sabarmathi Ayyavu, Global Sensitivity Analysis of Soil Pollution Using Fractal Fractional Order Model, International Journal of Energy and Environmental Science, <http://www.sciencepg.com/journal/ijeess> , ISSN Online: 2578-9546, ISSN Print: 2578-9538, 15 Aug 2024, Vol. 9, No. 2, pp. 38-51, <https://doi.org/10.11648/j.ijeess.20240902.12>
37. P. Priya and A. Sabarmathi, Fractional Order Commensurate Model of Contaminated Soil–Plant Interaction with Non-singular Kernel, Int. J. Appl. Comput. Math (2024) 10:150 , pp.1-20, <https://doi.org/10.1007/s40819-024-01776-8> Published online on 01 Sep 2024
38. C.Pooja, A. Sabarmathi, An Eco-epidemiological Model for Panama Wilt Disease of Banana with Cultural Controls, International Journal of Information Technology (IJIT) – Volume 10 Issue 5, Sep – Oct 2024, Published on 13th Sep 2024, ISSN: 2454-5414, pp.1-7

39. P. Priya, A. Sabarmathi, Ali Akgül & Murad Khan Hassani, Novel adaptive control approach to fractal fractional order deforestation model and its impact on soil erosion, Scientific Reports, Article Number 14: 27996 (2024), 14 Nov 2024, <https://doi.org/10.1038/s41598-024-74352-1>, ISSN 2045-2322 (Online). pp. 1-16, (Impact Factor: 3.8)
40. P. Priya and A. Sabarmathi, Exploring Bifurcation and Optimal control Dynamics in Caputo Fractional Soil-Plant Interaction Systems, Dynamics of Continuous, Discrete and Impulsive Systems Series A: Mathematical Analysis 32 (2025) 67-76, <http://www.watam.org>
41. Pooja C and Sabarmathi A., An Eco-Epidemiological Model of Banana Disease with the Impact of Cultural Controls and Measuring Disease Causes, International Journal of Biology, Pharmacy and Applied Sciences (IJBPAS), March, Special Issue, 2025, 14(3): 263-279. (15 March 2025), ISSN: 2277-4998
42. G. Gnana Priya and A. Sabarmathi, A Mathematical Study on the Stages of Cervical Cancer, Journal of Information Systems Engineering and Management, <https://doi.org/10.52783/jisem.v10i20s.3263>, 2025, 10(20s) e-ISSN: 2468-4376, <https://www.jisem-journal.com/>
43. C. Pooja, A. Sabarmathi, Predicting and Controlling Bacterial Wilt in Brinjal: A Mathematical Model Approach, Journal of Crop Health (2025) 77:85, <https://doi.org/10.1007/s10343-025-01118-8>
44. Gnana Priya G, Sabarmathi A., A Mathematical Model on Women's Osteoporosis, Metallurgical and Materials Engineering, 2 May 2025, DOI:<https://doi.org/10.63278/1476>
45. A. Amalarathinam, Sabarmathi A., Pooja C., A Mathematical model for Obesity in Young Women Aged 18 to 25 Years, International Journal of Applied Mathematics, Volume 38 No. 6s, 2025, ISSN: 1311-1728 (printed version); ISSN: 1314-8060 (on-line version), <https://doi.org/10.12732/ijam.v38i6s.438>

Publications in Proceedings

- **A. Sabarmathi**, M. Lakshmi, V.S.V Naga Soundarya Lakshmi, Study on Delay difference equation with stochastic perturbations, International Conference on Computer Mathematical Engineering, VIT, Chennai, 23-24 December 2018.
- **A. Sabarmathi**, M.N. Srinivas, A.V.S.N. Murty, Study on a stochastic model for fishery resource with harvesting of migrating preys among two zones, National Conference on Pure and Applied Mathematics, VIT University, Vellore, 12th March 2016

- G.Basava Kumar, M.N.Srinivas, **A.Sabarmathi**, Stability and Optimal Harvesting of a Prey-Predator System with Stage Structure, International Conference on Mathematical Computer Engineering, VIT University, Chennai Campus, 14-15 Dec 2015.
- K. Shiva Reddy, C. V. Pavan Kumar, **A.Sabarmathi**, M.N. Srinivas, V. SrinivasaRao, Influence Convinced Noise on a Predator and Prey Delayed Structure, International Conference on Mathematical Computer Engineering, VIT University, Chennai Campus, 14-15 Dec 2015.
- G.Basava Kumar, M.N.Srinivas, **A.Sabarmathi**, “Diffusive and Stochastic Prey-Predator-Competitor Model, Proceedings of the 1st National Conference on Technological Advances In Mechanical Engineering, TAME 2015, AUGUST 20, 2015, Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engg. College, Avadi, Chennai.
- **A.Sabarmathi**, B. Rushi Kumar, Kalyan Das, “Dynamical Behavior of a Stage-Structured Delayed Fishery Model in Plankton Ecology”, National Conference on Pure and Applied Mathematics, VIT University, Chennai Campus, 19-20 April 2013.
- **A.Sabarmathi**, M.N. Srinivas, B. Rushikumar, “Asymptotic Stable Behavior of a Multi-Species Ecosystem with Predation-Commensalism-Mutualism-Neutralism”, National Conference on Recent Trends in Mathematical Computing, VIT University, Chennai Campus, 23-24 August, 2013.
- **A.Sabarmathi**, M. N. Srinivas, K. Shiva Reddy, Kalyan Das, B. Rushi Kumar, “Stability of a Prey-Predator Fishery Model with Taxation & Optimal Harvesting Policy”, International Conference on Mathematical Computer Engineering, VIT University, Chennai Campus, 29-30 Nov 2013.