CURRICULUM VITAE

Naveen K. Vaidya
Department of Mathematics and Statistics
San Diego State University
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My current research interests include applied mathematics, with specific areas of interest in mathematical biology (viral dynamics and immune systems, epidemiology, and ecology), mathematical and computational modeling, differential equations, dynamical systems, optimal control, biostatistics, and machine learning.

EDUCATION

| 2008 | York University, Toronto, Canada |
| Ph.D. | Applied Mathematics |

| 2004 | York University, Toronto, Canada |
| M.S. | Industrial & Applied Mathematics |

| 2002 | Tribhuvan University, Kathmandu, Nepal |
| B.Ed. | Mathematical Education |

| 1997 | Tribhuvan University, Kathmandu, Nepal |
| M.Sc. | Pure Mathematics |

| 1995 | Tribhuvan University, Kathmandu, Nepal |
| B. Sc. | Mathematics, Physics, Chemistry |

| 1992 | Tribhuvan University, Kathmandu, Nepal |
| I. Sc. | Proficiency of Certificates in Science |

Title of Dissertation/Thesis:

"Membrane Fusion between an Influenza Virus and a Healthy Cell: Mathematical Models." Ph.D. in Applied Mathematics, 2008, Advisor: Professor Huaxiong Huang

- Won the Susan Mann Dissertation Award
- Nominated for the Faculty of Graduate Studies Award
- Dissertation specialization: Mathematical Biology

"Modeling Grown-In Defects in Indium Antimonide Crystals." M.S. in Industrial and Applied Mathematics, 2004, Advisor: Professor Huaxiong Huang

TEACHING/RESEARCH POSITIONS

Fall 2022 – Present
San Diego State University, San Diego, USA

Professor
Mathematics (Teaching and Research)

Fall 2019 – Summer 2022
San Diego State University, San Diego, USA

Associate Professor
Mathematics (Teaching and Research)

Fall 2017 – Summer 2019
San Diego State University, San Diego, USA

Assistant Professor
Mathematics (Teaching and Research)

Spring 2013 – Summer 2017
University of Missouri - Kansas City,
Kansas City, USA

Assistant Professor
Mathematics (Teaching and Research)

Fall 2010 – Fall 2012
University of Western Ontario, London, Canada

Postdoctoral Research Fellow
Mathematics (Teaching and Research)

Fall 2008 – Fall 2010
Los Alamos National Lab., Los Alamos, USA

Postdoctoral Research Associate
Mathematics (Research)

Fall 2004 – Spring 2006
York University, Toronto, Canada

MATHLAB Director
Mathematics (Mathematics Laboratory Management)

Fall 2002 – Summer 2008
York University, Toronto, Canada

Graduate Assistant
Mathematics (Teaching Assistant and Research)

Fall 1998 – Summer 2002
Tribhuvan University, Kathmandu, Nepal

Faculty Member
Mathematics (Teaching)

Fall 2000 – Summer 2002
Nobel Academy, Kathmandu, Nepal

Head of Mathematics Department
Mathematics (Teaching)

Fall 1994 – Summer 1997
Laxmi Shikshya Sadan English School, Kathmandu, Nepal

Science Teacher
Mathematics (Teaching)

PROFESSIONAL GROWTH

Research item summary total: 56 peer-reviewed journal publications (52 published and 4 submitted or in revision), 98 presentations

Grant awarded total: 20 grants (3 NSF grants, 1 Simons Foundation grant, 2 external student research support grants, 6 internal research grants, 2 student fellowship grants, 5 conference grants, 1 teaching grant)

Personal metrics according to Google Scholar (as of October 18, 2022): total of 1062 citations; h-index 18; i10-index 27.

Refereed Journal Articles

Note: Published articles are available at https://nvaidya.sdsu.edu/publication.html

U Undergraduate student   *M* Master's student   *D* Doctoral student

PAPERS UNDER REVIEW or SUBMITTED

1. P. Uhl, **N. K. Vaidya**, Modeling the Effects of Drugs of Abuse on Within-host Dynamics of Two HIV Species (submitted)
2. C. S. Fohona, V. Agrahari, **N. K. Vaidya,** B. C. Youan, Modelling Tenofovir Release Kinetics from Hyaluronidase-Sensitive Nanomedicine: A Deterministic Approach (submitted)
3. E. Akın, G. Yeni, **N. K. Vaidya,** Time Scale Theory on Stability of Discrete Epidemic Models: Applications to Swine Flu Outbreak (submitted)
4. *D* M. I. Rojas, M. Little, S. S Giles, R. Baron, *M* A. Bloomquist, A. Sanchez-Quinto, A. V. Cantu, A. van der Geer, A. G. Cobian-Guemes, G. Burkeen, I. Livingston, J. Aquino, R. John, J. Baer, T. R. T. Dagenais, B. A. Bailey, **N. K. Vaidya**, F. L Rohwer, Presence of SARS-CoV-2 on surfaces of the urban environment and risk of fomite transmission amidst the COVID-19 pandemic (submitted)

PUBLISHED

2022
5. K. Adhikari, R. Gautam, A. Pokharel, M. Dhimal, K. N. Uprety, **N. K. Vaidya**, Insight into Delta Variant Dominated Second Wave of COVID-19 in Nepal, *Epidemics*, Vol. 41, 100642 (2022)
6. B. Pantha, J. Mohammed-Awal, **N.K. Vaidya**, Effects of Vaccination on the Transmission Dynamics of COVID-19 in Dougherty County of Georgia, USA, *Journal of Biological Systems*, Vol. 30, 553-583 (2022)
7. *D* R. Gautam, *D* A. Pokharel, *D* K. Adhikari, K. N. Uprety, **N. K. Vaidya**, Modeling Malaria Transmission in Nepal: Impact of Imported Cases through Cross-Border Mobility, *Journal of Biological Dynamics*, Vol. 16, 528-564 (2022)
8. A. M. Simmons, S. Abd-Rabou, A. A. Farag, B. Pantha, **N. K. Vaidya,** Population prediction of whiteflies (*Bemisia tabaci*) in changing environments of Egypt, *African Journal of Tropical Entomology Research*, Vol. 1, 72-82 (2022)
9. *D* A. Pokharel, *D* R. Gautam, *D* K. Adhikari, K. N. Uprety, **N. K. Vaidya,** Transmission Dynamics of Measles and Control through Vaccination Campaign. Submission plan: Journal – *Mathematical Biosciences and Engineering*. Submitted (2021)
10. *D* C. L. Lehnig, E. Oren, **N. K. Vaidya**, Effectiveness of Alternative Spring Break Schedules on Reducing COVID-19 Incidence on College Campuses, *Scientific Reports,* Vol. 12, 2116 (2022)
11. **N. K. Vaidya**, F. Wang, Persistence of Mosquito Vectors and Dengue: Impact of Seasonal and Diurnal Temperature Variations, *Discrete and Continuous Dynamical Systems - Series B*, Vol. 17, pp 393-420 (2022)

2021

12. **N. K. Vaidya**, [M] A. Bloomquist, A. S. Perelson, Modeling Within-host Dynamics of SARS-CoV-2 Infection: A Case Study in Ferrets, *Viruses*, Vol. 13, 1635 (2021)

13. B. Pantha, S. Acharya, H. R. Joshi, **N. K. Vaidya**, Inter-Provincial Disparity of COVID-19 in Nepal: Transmission Trend, Reproduction Number, and Control Policies, *Scientific Reports.* Vol. 11, 13363 (2021)

14. **N. K. Vaidya** and [M] M. Peter, Modeling Intracellular Delay in Within-host HIV Dynamics under Conditioning of Drugs of Abuse, *Bulletin of Mathematical Biology*, Vol. 83, 81 (2021)

15. [D] K. Adhikari, [D] R. Gautam, [D] A. Pokharel, K. N. Uprety, **N. K. Vaidya**, Transmission Dynamics of COVID-19 in Nepal: Mathematical Model Uncovering Effective Controls, *Journal of Theoretical Biology*, Vol. 521, 110680 (2021)
    - Won Dr. Shankar Raj Pant Research Award-2021 (given for outstanding collaborative research paper)

16. S. Ciupe, **N. K. Vaidya**, J. Forde, Early Events in Hepatitis B Infection: the Role of Inoculum Dose, *Proceedings of the Royal Society B,* Vol. 288 (1944), 20202715 (2021)

17. B. Pantha, S. Giri, H. R. Joshi, **N. K. Vaidya**, Modeling Transmission Dynamics of Rabies in Nepal, *Infectious Disease Modelling*, Vol. 6, pp 284-301 (2021)

2020

18. [D] C. T. Barker, **N. K. Vaidya**, Modeling HIV-1 infection in the brain, *PLoS Computational Biology*, Vol. 16(11), e1008305 (2020)

19. B. Pantha, H. R. Joshi, **N. K. Vaidya**, Controlling Rabies Epidemics in Nepal with Limited Resources: Optimal Control Theory Approach, *Mathematics in Applied Sciences and Engineering*, Vo. 1(4),pp 353-370 (2020)

20. [M] A. Bloomquist, **N. K. Vaidya**, Modeling the Risk of HIV infection for Drug Abusers, *Journal of Biological Dynamics*, Vol. 15 (S1), S81-S104 (2020)

21. [D] J. Mutua, F. Wang, **N. K. Vaidya**, Effects of Periodic Intake of Drugs of Abuse on HIV Dynamics: Mathematical Model and Analysis, *Mathematical Biosciences,* Vol. 326, 108395 (2020)

22. L. F. O. Lima, [U] M. Weissman, M. Reed, B. Papudeshi, A. T. Alker, M. M. Morris, R. A. Edwards, S. de Putron, **N. K. Vaidya**, E. A. Dinsdale, Modeling of the coral microbiome: the influence of temperature and microbial network, *mBio*, Vol. 11(2), e02691-19 (2020)

2019

23. [D] M. Rahman, K. Bekele-Maxwell, [U] L. Cates, H. T. Banks, **N. K. Vaidya,** Modeling Zika Virus Transmission Dynamics: Parameter Estimates, Disease Characteristics, and Prevention, *Scientific Reports* Vol. 9, 10575 (2019)

24. [D] J. M. Mutua, A. S. Perelson, A. Kumar, **N. K. Vaidya,** Modeling the Effects of Morphine-Altered Virus Specific Antibody Responses on HIV/SIV Dynamics, *Scientific Reports* Vol. 9, 5423 (2019)

25. [D] A. Nguyen, J. Mahaffy, **N. K. Vaidya**, Modeling Transmission Dynamics of Lyme Disease: Multiple Vectors, Seasonality, and Vector Mobility, *Infectious Disease Modelling*, Vol. 4, pp 28-43 (2019)

26. **N. K. Vaidya**, X. Li, and F. Wang, Impact of Spatially Heterogeneous Temperature on the Dynamics of Dengue Epidemics, *Discrete and Continuous Dynamical Systems - Series B,* Vol. 24, pp. 321-349 (2019)

2018

27. **N. K. Vaidya**, R. M. Ribeiro, P. Liu, N. Vandergrift, B. F. Haynes, G. D. Tomaras, and A. S. Perelson, Correlation between Anti-gp41 Antibodies and Virus Infectivity Decay during Primary HIV-1 Infection, *Frontiers in Microbiology*, Vol. 09, 1326 (2018)

28. E. J. Schwartz, **N. K. Vaidya**, K. Dorman, S. Carpenter, and R. Mealey, Dynamics of Lentiviral Infection In Vivo in the Absence of Adaptive Immune Responses, *Virology,* Vol. 513, pp. 108-113 (2018)

2017

29. **N. K. Vaidya** and L. Rong, Modeling pharmacodynamics on HIV latent infection: choice of drugs is key to successful cure via early therapy, *SIAM Journal on Applied Mathematics*, Vol. 77(5), pp. 1781-1804 (2017)
    - Featured in the SIAM NEWS as a Research Nugget Article: **Mathematically Modeling HIV Drug Pharmacodynamics.**
      https://sinews.siam.org/Details-Page/mathematically-modeling-hiv-drug-pharmacodynamics-1
    - One of the top 5 most read articles of SIAP (accessed: 08/15/2018)

30. [D] J. M. Mutua, [D] C. T. Barker, and **N. K. Vaidya**, Modeling Impacts of Socioeconomic Status and Vaccination Programs on Typhoid Fever Epidemics, *Electronic Journal of Differential Equations*, Conf. 24, pp. 63-74 (2017)

2016

31. E. J. Schwartz, K. R. H. Bigs, C. Bailes, K. Ferolito, and **N. K. Vaidya**, HIV Dynamics with Immune Responses: Perspectives from Mathematical Modeling, *Current Clinical Microbiology Reports*, Vol. 3, pp. 216-224 (2016)

32. **N. K. Vaidya**, R. M. Ribeiro, A. S. Perelson, and A. Kumar, Modeling the Effects of Morphine on Simian Immunodeficiency Virus Dynamics, *PLoS Computational Biology*, Vol. 12(9), e1005127 (2016) Impact factor: 4.70.

33. [D] S. M. A. Rahman, **N. K. Vaidya**, and X. Zou, Impact of Early Treatment Programs on HIV Epidemics: An Immunity-based Mathematical Model, *Mathematical Biosciences,* Vol. 280, pp. 38-49 (2016)

34. [M] A. Mallela, S. Lenhart, and **N. K. Vaidya**, HIV-TB Co-infection Treatment: Modeling and Optimal Control Theory Perspectives, *Journal of Computational and Applied Mathematics*, Vol. 307, pp. 143-164 (2016)

35. A. Shah, **N. K. Vaidya**, H. Bhat, and A. Kumar, HIV-1 gp120 induces type-1 programmed cell death through ER stress employing IRE1-alpha, JNK and AP-1 pathway, *Scientific Reports*, Vol. 6, pp. 18929 (2016)

36. A. R. Nookala, J. Li, A. Ande, L. Wang, **N. K. Vaidya**, W. Li, S. Kumar, and A. Kumar, Effect of Methamphetamine on Spectral Binding, Ligand Docking and Metabolism of Anti-HIV Drugs with CYP3A4, *PloS ONE*, Vol. 11, pp. e0146529 (2016)

2015

37. [M] J. M. Mutua, F. Wang, and **N. K. Vaidya**, Modeling Malaria and Typhoid Fever Co-infection Dynamics, *Mathematical Biosciences* Vol. 264, pp. 128-144 (2015)

38. **N. K. Vaidya** and L. M. Wahl, Avian Influenza Dynamics under Periodic Environmental Conditions, *SIAM Journal on Applied Mathematics*, Vol. 75, pp. 443-467 (2015)

39. **N. K. Vaidya**, M. Morgan, T. Jones, L. Miller, S. Lapin, and E. J. Schwartz, Modelling the Epidemic Spread of an H1N1 Influenza Outbreak in a Rural University Town, *Epidemiology and Infection*, Vol. 143, pp. 1610-1620 (2015)

40. L. Cao, M. P. Walker, **N. K. Vaidya**, M. Fu, S. Kumar, A. Kumar, Cocaine-Mediated Autophagy in Astrocytes Involves Sigma 1 Receptor, PI3K, mTOR, Atg5/7, Beclin-1 and Induces Type II Programed Cell Death, *Molecular Neurobiology*, pp. 1-14 (2015)

2014

41. [D] S. M. A. Rahman, **N. K. Vaidya**, and X. Zou, Impact of Tenofovir gel as a PrEP on HIV infection: a mathematical model, *Journal of Theoretical Biology,* Vol. 347, pp. 151-159 (2014)

2012

42. [M] S. Akbari, **N. K. Vaidya**, L. M. Wahl, The time distribution of sulfadoxine pyrimethamine protection from malaria, *Bulletin of Mathematical Biology*, Vol. 74, pp. 2733-2751 (2012)

43. **(Equal contribution as joint first author)** N. M. Archin, **N. K. Vaidya**, J. D. Kuruc, A. Lees, A. Weigand, M. Kearney, M. S. Cohen, J. M. Coffin, R. J. Bosch, C. L. Gay, J. J. Eron, D. M. Margolis and A. S. Perelson, Immediate Antiviral Therapy Appears to Restrict Resting CD4+ Cell HIV-1 Infection without Accelerating the Decay of Latent Infection, *Proceedings of the National Academy of Sciences*, Vol. 109, 9523-9528 (2012)

    - N. K. Vaidya (Theory/modeling) and N. M. Archin (Experiment/Clinical) contributed equally to this work as joint first author.
    - Selected as a featured article in the front section of PNAS: **Flushing out dormant HIV** http://www.pnas.org/content/109/24/9221.full?sid=6ee1a300-84e0-46f3-a502-6d10ef9df01f#sec-2
    - Featured in HIVandHepatitis.com: **Immediate Antiretroviral Therapy Reduces HIV Infection of Resting CD4 T-cells** http://www.hivandhepatitis.com/hiv-basic-science/3623-immediate-antiretroviral-therapy-reduces-hiv-infection-of-resting-cd4-t-cells

44. **N. K. Vaidya**, F. Wang and X. Zou, Avian Influenza Dynamics in Wild Birds with Bird Mobility and Spatial Heterogeneous Environment, *Discrete and Continuous Dynamical Systems Series B*, Vol. 17, pp. 2829-2848 (2012)

45. **N. K. Vaidya**, F. Wang, X. Zou and L. Wahl, Transmission Dynamics of the Recently-identified BYD Virus Causing Duck Egg-drop Syndrome, *PLoS ONE*, Vol. 7, e35161, pp. 1-8 (2012)

2011

46. **N. K. Vaidya** and J. Wu, HIV Epidemic in Far-Western Nepal: Effect of Seasonal Labor Migration to India, *BMC Public Health*, Vol. 11, 310 (2011)

47. B.P. Konrad, **N. K. Vaidya** and R.J. Smith?, Modelling Mutation to a Cytotoxic T-lymphocyte HIV Vaccine, *Mathematical Population Studies*, Vol. 18, pp. 122-149 (2011)

2010

48. **N. K. Vaidya**, L. Rong, V. Marconi, D. R. Kuritzkes, S. G. Deeks and A. S. Perelson, Treatment-mediated Alterations in HIV Fitness Preserve CD4+ T Cell Counts but Have Minimal Effects on Viral Load, *PLoS Computational Biology*, Vol. 6(11), e1001012, pp. 1-14 (2010)

49. **N. K. Vaidya**, R.M. Ribeiro, C.J. Miller and A.S. Perelson, Viral Dynamics during Primary SIV Infection: Effect of Time-dependent Virus Infectiousness, *Journal of Virology*, Vol. 84(9), pp. 4302-4310 (2010)

50. **N. K. Vaidya**, H. Huang and S. Takagi, Coarse-Grained Molecular Dynamics Simulation of Interaction between Hemagglutinin Fusion Peptides and Lipid Bilayer Membranes, *Advances in Applied Mathematics and Mechanics*, Vol. 2(4), pp. 430-450 (2010)

51. **N. K. Vaidya** and H. Huang, Influenza Viral Membrane Deformation due to Refolding of HA-protein: Two-dimensional Model and Analysis. *Advances in Applied Mathematics and Mechanics*, Vol. 2(2), pp. 160-182 (2010)

2008

52. **N. K. Vaidya** and J. Wu, Modeling Spruce Budworm Population Revisited: Impact of Physiological Structure on Outbreak Control. *Bulletin of Mathematical Biology*, Vol. 70, pp. 769-784 (2008)
    - Nominated for the MITACS best student paper award 2008

53. **(Equal contribution as joint first author, see 'Acknowledgements' section)** E. F. Long, **N. K. Vaidya** and M. L. Brandeau, Controlling Co-epidemics: Analysis of HIV and Tuberculosis Infection Dynamics. *Operations Research*, Vol. 56, pp. 1366-1381 (2008)

2007

54. **N. K. Vaidya**, H. Huang and S. Takagi, Correct Equilibrium Shape Equation of Axisymmetric Vesicles. *In Integral Methods in Science and Engineering: Techniques and Applications*, C. Constanda and S. Potapenko (eds.), Birkhauser, Boston, pp. 267-276 (2007)

55. **N. K. Vaidya**, H. Huang and S. Takagi, Modeling HA-protein Mediated Interaction between an Influenza Virus and a Healthy Cell: Pre-fusion Membrane Deformation. *Mathematical Medicine and Biology*, Vol. 24, pp. 251-270 (2007)
    - The most downloaded paper of MMB in December 2007, the second most in November 2007, and the third most in January 2008

2006

56. **N. K. Vaidya**, H. Huang and D. Liang. Grown-in Defects of InSb Crystals: Models and Computation. *Communications in Computational Physics*, Vol. 1(3), pp. 513-529 (2006)

Non-refereed Proceedings

1. **N. K. Vaidya**, D. R. Adhikari, Preface: Thematic Issue in Mathematical Biology and Applied Evolutionary Equations. *Mathematics in Applied Sciences and Engineering*, Vol. 1(4), pp. 274 (2020)

2. J. Arino, N. Baddour, C. Breward, A. Gummel, X. Jiang, C. Podder, B. Pourziaei, O. Sharomi, **N. K. Vaidya**, J.F. Williams and J. Wu, Global Migration and Severe Acute Respiratory Syndrome (SARS). *In Proceedings of the First Fields-MITACS Industrial Problems Workshop*, The Fields Institute for Research in Mathematical Sciences, Toronto, Canada (August 20-24, 2006), pp. 51-58.

3. C. S. Bohun, R. Clysdale, D. David-Rus, M. Emmett, D. Henderson, M. Hughes, C. Hogan, E. Lushi, B. Monthubert, P. Smith, **N. K. Vaidya** and R. Westbrook, Mathematical Model of the Mechanics and Dynamics of the Tails in Dinosaur. *In Proceedings of the Ninth PIMS Industrial Problem-Solving Workshop*, University of Calgary (May 15-19, 2005), pp. 3-16.
4. C. S. Bohun, P. Jamali, M. Khorvash, M. Mohajer, C. Nouri, J. Odegaard, P. Smith and **N. K. Vaidya**, Modelling a Stirling Engine. *In Proceedings of the Eighth PIMS Graduate Industrial Math Modelling Camp*, University of Lethbridge (May 7-11, 2005), pp. 1-9.

Scholarly Awards/honors

1. Visiting Scholar, National Center for Theoretical Sciences, Taiwan (5 Week visit support from NCTS, 2019)
2. *Prof. Dr. Shankar Raj Pant Research Award-2021*.
    - Awarded paper: K. Adhikari, R. Gautam, A. Pokharel, K. N. Uprety, **N. K. Vaidya**, Transmission Dynamics of COVID-19 in Nepal: Mathematical Model Uncovering Effective Controls, *Journal of Theoretical Biology*, Vol. 521, 110680 (2021)
    - Given to Khagendra Adhikari for outstanding collaborative research in Nepal.
3. Award for talk/poster by students
    a. *The Windhover Ventures Award* at ACSESS event at SDSU Computational Science Research Center (April 2022)
        - Awardee student: Angelica Bloomquist
        - Awarded poster: Modeling Within-host Dynamics of SARS-CoV-2 Infection: A Case Study in Ferrets – A. Bloomquist and N. K. Vaidya.
    b. *The CSRC's Director's Award* at ACSESS event at SDSU Computational Science Research Center (April 2022)
        - Awardee student: Anuradha Agarwal
        - Awarded poster: Modelling spatio-temporal distribution of HIV particles and nanoparticle based preventive therapy – A. Agarwal and N. K. Vaidya.
    c. *The Best Poster Award* at the Society for Mathematical Biology (SMB) 2021 annual Meeting (June 2021)
        - Awardee student: Angelica Bloomquist
        - Awarded poster: Modeling the Risk of HIV Infection for Drug Abusers – A. Bloomquist and N. K. Vaidya.
        - The conference had 2500+ participants, 47 Speakers countries, 12 parallel tracks, 2 Hours Schedule, 12 Plenary and Public Lecture Talks, 744 Mini-symposium Talks, and 275 Contributed Talks, and 196 Posters from all over the world.
    d. *The President's award 2021* at the 14th annual SDSU Student Research Symposium (March 2021)
        - Awardee student: Angelica Bloomquist
        - Awarded Talk: Modeling the Risk of SARS-CoV-2 Transmission from Environmental surfaces.
    e. *Second Position* at the 35th Annual CSU Systemwide Student Research Competition.
        - Awardee student: Angelica Bloomquist
        - Awarded Talk: Modeling the Risk of SARS-CoV-2 Transmission from Environmental surfaces.
    f. *Undergraduate Research Excellence Award* at the 12th annual SDSU Student Research Symposium (March 2019)

- Awardee student: Maya Weissman
- Awarded poster: Mathematically modeling the coral reef microbiome – M. Weissman, L. Lima, E. Dinsdale, and N. K. Vaidya

4. University of Missouri Faculty Scholars, University of Missouri Systems, USA, 2015/2016.
5. Recognition Award, Global Conference, Non-Resident Nepali Association, Houston, TX, USA, 2010.
6. Pre-approved Industrial Research and Development Fellowship, Natural Sciences and Engineering Research Council (NSERC) of Canada, 2009.
7. Visiting Fellowships in Canadian Government Laboratories, National Sciences and Engineering Research Council (NSERC) of Canada (not taken), 2008/2009.
8. The Susan Mann Dissertation Award, York University, Toronto, Canada (CAD $22,000), 2008.
9. Visiting Research Fellowship, University of Tokyo, Tokyo, Japan (Japanese Yen ¥500,000), 2007.
10. Research Fellowship, MITACS, Canada, 2003.
11. Internship Program, Firebird Semiconductor Ltd., BC, Canada, 2004
   a. Featured as an exemplary intern in MITACS (Mathematics of Information Technology and Complex Systems) annual report 2004
12. Travel Support Award
   - Frontiers of Mathematical Biology Conference, University of Central Florida, Florida, USA, 2018.
   - Host-Pathogen Workshop, Mathematical Biosciences Institute, Ohio, USA, 2018.
   - Spatio-Temporal Dynamics Workshop, Mathematical Biosciences Institute, Ohio, USA, 2011.
   - International Conference of Industrial and Applied Mathematics, Vancouver, MITACS, Canada, 2011.
   - Computational Biology Initiative Conference, University of Florida, National Science Foundation, USA, 2011.
   - Thematic Program in Drug Resistance, Fields Institute, Toronto, Canada, 2010.
   - MITACS-METHEON workshop, Berlin, Germany, MITACS Mobility Fund, Canada, 2007.
   - BICS (Bath Institute for Complex Systems) summer school, University of Bath, Bath, UK, 2006.

Research Grants

1. National Science Foundation (Grant #: DMS-1951793). Award amount: $179,990. Title: *Mathematical Modeling of Antiretroviral Therapy in Pursuit of HIV Prevention and Cure*. Project period: 09/01/2020 – 08/31/2023. Sole Principal Investigator.
2. National Science Foundation (Grant #: DEB-2030479). Award amount: $199,999. Title: *RAPID: Environmental Reservoirs of SARS-CoV-2*. Project period: 06/01/2020 – 05/31/2022. Co-Principal Investigator.
3. Simons Foundation, Mathematics and Physical Sciences-Collaboration Grants for Mathematicians (Grant #: 713918). Award amount: $42,000. Title: *Prevention and Control of Infectious Diseases: Mathematical Modeling Perspective*. Project period: 09/01/2020 – 08/31/2025. Sole Principal Investigator.

- This fund was not taken as per the grant's rule, which states that the fund needs to be returned if the PI receives any large-scale external funding. Since the PI received two large NSF grants, the Simons Foundation grant was not taken.

4. UGP (University Grant Program). Award amount: $10,000. Title: *Modeling the Impact of Environmental Virus Reservoirs on the Spread of COVID-19.* Project Period: 02/05/2021 – 06/30/2022. Sole Principal Investigator.

5. University Graduate Fellowship for student Angelica Bloomquist (PhD student beginning from fall 2021 at SDSU under my supervision). Award amount: $25,000. Proposed Dissertation Title: *Modeling infections in HIV and COVID-19*. Fellowship period: 08/16/2021 – 08/15/2022. Principal Investigator (nominator/proposer).

6. SURP (Summer Undergraduate Research Program). Award amount: $3000. Title: *Local Epidemic Trends of COVID-19 in Sub-regions of San Diego County: Impact of Contact Pattern and Mobility*. Project Period: 08/25/2021 – 12/31/2021. Sole Principal Investigator.

7. SURP (Summer Undergraduate Research Program). Award amount: $3000. Title: *Local Epidemic Trends of COVID-19 in Sub-regions of San Diego County: Impact of Contact Pattern and Mobility*. Project Period: 05/24/2021 – 08/19/2021. Sole Principal Investigator.

8. Research Assigned Time Award for mid-career faculty. Award amount: 3 Units Assigned Time. Title: *Mathematical Modeling of Infectious Disease with focus on COVID-19 and HIV.* Project Period: Fall 2020

9. GRAID (Graduate Research Assistantships in Developing Countries) Program, International Mathematical Union (IMU). Award amount: $14,000. Support for a co-supervised student in Tribhuvan University, Nepal. Fellowship period: 06/01/2021 – 05/31/2025. Role on the proposal: International Collaborative Partner (Investigator).

10. GRAID (Graduate Research Assistantships in Developing Countries) Program, International Mathematical Union (IMU). Award amount: $14,000. Support for a co-supervised student in Tribhuvan University, Nepal. Fellowship period: 06/01/2020 – 05/31/2024. Role on the proposal: International Collaborative Partner (Investigator).

11. National Science Foundation (Grant #: DMS-1836647). Award amount: $78,027. Title: *Mathematical Models to Study the Effects of Drugs of Abuse on HIV Infection and Neurocognitive Disorder*. Project period: 05/22/2018 – 08/31/2021. Sole Principal Investigator.

12. UGP (University Grant Program). Award amount: $10,000. Title: *Mathematical Modeling of HIV Dynamics in the Circulation and in the Brain.* Project Period: 02/01/2019 – 06/30/2020. Sole Principal Investigator.

13. ICTP (The Abdus Salam International Center for Theoretical Physics). Award amount: EURO 3000. Support for the "Second International Conference on Applications of Mathematics to Nonlinear Sciences" and "Summer School in Mathematical Biology", Nepal (June 17-30, 2019). Co-PI.

14. Conference Support Grant, Commission for Developing Countries. Award amount: EURO 1,500. Title: *Conference: Second International Conference on Applications of Mathematics to Nonlinear Science, Kathmandu, Nepal*. Project period: 2019. Co-Principal Investigator (with Kedar Uprety, Tribhuvan University, Nepal).

15. World Outreach Grant, Society for Mathematical Biology. Award amount: $3,000. Title: *Summer School on Mathematical Biology, Kathmandu, Nepal*. Project period: 2019. Co-Principal Investigator.

16. National Science Foundation (Grant #: DMS-1616299). Award amount: $78,026. Title: *Mathematical Models to Study the Effects of Drugs of Abuse on HIV Infection and Neurocognitive Disorder*. Project period: 09/01/2016 – 08/31/2017. Sole Principal Investigator.

17. Conference Support Grant, Commission for Developing Countries. Award amount: EURO 1,100. Title: *Conference: International Conference on Applications of Mathematics to Nonlinear Science, Kathmandu, Nepal*. Project period: 2016. Co-Principal Investigator (with Tanka Dhamala, Tribhuvan University, Nepal).

18. World Outreach Grant, Society for Mathematical Biology. Award amount: $4,700. Title: *Workshop on Mathematical Biology, Kathmandu, Nepal*. Project period: 2016. Sole Principal Investigator.

19. EUReka Course Grant, University of Missouri – Kansas City. Award amount: $2,500. Title: Calculus Course Redesign: Research Activity-Based Learning Approach. Project Period. 2016.

20. Faculty for Excellence Grant, University of Missouri – Kansas City. Award amount: $14,998. Title: Bringing the Field of Applied Mathematics from Shadowed State to the Frontline Discipline Project Period. 01/01/2016 – 12/31/2016. Co-Principal Investigator (with M. Bani, X. Li, N. Rhee, UMKC).

21. UMRB Grant, University of Missouri Research Board. Award amount: $20,000. Title: Modeling HIV Infection and Drug Abuse. Project Period. 06/01/2014 – 12/31/2015. Sole Principal Investigator.

Professional Presentation Experience

Invited Talks

1. August 2022 – (Keynote Lecture) Mathematical Models for COVID-19, Summer School, National Center for Theoretical Science, Taiwan.

2. July 2022 – (Keynote Lecture) Within-Host Dynamics of Virus Infection: Insights from Mathematical Models, Research Seminar and Panel Discussion on Disease Modeling, Purvanchal University, Nepal

3. July 2022 – (Keynote Lecture) Infectious Disease Modeling and Applications, Infectious Disease Workshop on Mathematical Modeling for Epidemic Control and Prevention, Nepal Health Resaerch Council, Government of Nepal, Kathmandu, Nepal.

4. April 2022 – Within-Host Modeling of Human Viruses: Looking into Animal Models is Precious, Colloquium Talk, Interdisciplinary Center for Quantitative Modeling in Biology, University of California – Riverside, USA.

5. April 2022 – Within-Host Modeling of Human Viruses: Looking into Animal Models is Precious, Canadian Within-Host Modeling Seminar Series (online).

6. April 2022 – Modeling Within-Host Dynamics of SARS-CoV-2 Infection, COVID Conversation, Sand Diego State University, USA.

7. January 2022 – COVID-19 Transmission through Complex Network of Interactions within Communities of Nepal: Data-driven Modeling, Joint Mathematics Meeting, Seattle, Washington, USA.

8. January 2022 – Choice of Antiretroviral Therapies to Mitigate HIV in the Brain, Joint Mathematics Meeting, Seattle, Washington, USA.

9. November 2021 – Modeling Covid-19 from Within-host Infection to Between-host transmission, Colloquium Talk, Mathematical Biology Seminar, Washington State University, USA.

10. October 2021 – (Keynote Lecture) Mathematical Models for COVID-19 from Within-Host Infection to Between-Host Transmission, International Public Health and Community Medicine Research Conference, Chang Gung Memorial Hospital, Taiwan.

11. September 2021 – COVID-19 from Within-Host Infection to Between-Host Transmission: Modeling Perspective, Colloquium Talk, Computational Science Research Center, San Diego State University, California, USA

12. July 2021 – Modelling COVID-19 in Nepal: Key Findings and its Implications, Seventh Virtual National Summit of Health and Population Scientists in Nepal, Nepal Health Research Council, Government of Nepal.
13. June 2021 – Modeling the risk of SARS-CoV-2 transmission from fomites, Annual Meeting of the Society for Mathematical Biology, eSMB
14. June 2021 – (Keynote Lecture) Modeling COVID-19 Transmission and Control in Nepal, Research communication virtual workshop, Organized by Nepal Health Research Council and Supported by Ministry of Health and Population, Government of Nepal, Kathmandu, Nepal.
15. May 2021 – (Keynote Lecture) Mathematical Models to Guide COVID-19 Pandemic Response in Nepal, 43rd Anniversary of Nepal Mathematical Society (NMS).
16. April 2021 – COVID-19 Transmission and Control: Mathematical Modeling Perspective, Colloquium Talk, NSCTS Mathematical Biology Seminar, Taiwan
17. December 2020 – Modeling the Role of the Viral Inoculum Size on the Hepatitis B Virus Infection, Colloquium Talk, Chang Gung Memorial Hospital (CGMH), Taiwan
18. December 2020 – COVID-19 Transmission and Control: Mathematical Models, Colloquium Talk, Department of Mathematics and Statistics, California State University – Chico, California, USA
19. October 2020 – Modeling Transmission Dynamics of COVID-19 in Nepal, SIAM Texas-Louisiana Section Meeting, Virtual E-meeting
20. October 2020 – Persistence of HIV under antiretroviral therapy: The Role of the Brain as a Reservoir, AMS Fall Eastern Sectional Meeting, Virtual E-meeting
21. August 2020 – The Basic Reproduction Number (R_0) in Infectious Diseases: Implication to COVID-19 epidemic in Nepal, Stat-Chautari Talk Series, Nepal Statistical Society, Nepal
22. August 2020 – The Basic Reproduction Number (R_0) in Infectious Diseases: Implication to COVID-19 Pandemics, Colloquium Talk, Computational Science Research Center, San Diego State University, California, USA
23. June 2020 – Epidemiologic Modeling of COVID-19 in San Diego county, ACT Faculty Workshop, SDSU.
24. January 2020 – Mathematical Models from Within-Host to Between-Hosts Scales: HIV and Zika Virus as Case Studies, Colloquium Talk, Department of Mathematics and Statistics, University of Missouri – Kansas City, Kansas City, Missouri, USA
25. October 2019 – Modeling the Coral Reef Microbiome and Black Band Disease, Seventh International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems (ICMA-VII), Arizona State University, Arizona, USA
26. July 2019 – Modeling Infectious Diseases (4 invited lectures), 2019 Summer Course: Mathematical Modeling and Analysis of Infectious Diseases, National Taiwan University, Taipei, Taiwan
27. May 2019 – Modeling HIV-1 Infection in the Brain, Fifth Conference on Computational and Mathematical Population Dynamics (CMPD5), Fort Lauderdale, FL, USA
28. May 2019 – Modeling Intracellular Delay in Within-host HIV Dynamics Under Conditioning of Drugs of Abuse, Fifth Conference on Computational and Mathematical Population Dynamics (CMPD5), Fort Lauderdale, FL, USA
29. May 2019 - Role of the immune status of infected individuals on the transmission dynamics of HIV: From within-host to between-hosts models, Fifth Conference on Computational and Mathematical Population Dynamics (CMPD5), Fort Lauderdale, FL, USA
30. January 2019 – Modeling the Risk of HIV Infection: Role of the disease stage of the source partner, Joint Mathematics Meeting, Baltimore, Maryland, USA.
31. November 2018 – HIV Reservoirs: Mathematical Models, Colloquium Talk, Department of Mathematics and Statistics, Arizona State University, Phoenix, Arizona, USA.

32. October 2018 – Mathematical Models of Human Immunodeficiency Virus Reservoirs, Colloquium Talk, Department of Mathematics and Statistics, California State University, Long Beach, California, USA.

33. May 2018 – Modeling the Effects of Antibody Responses on HIV Dynamics under Drugs of Abuse, Frontiers of Mathematical Biology Conference, University of Central Florida, Florida, USA.

34. April 2018 – Infectious Disease Dynamics: Insights from Mathematical Models, Math Club Presentation, MiraCosta College, California, USA.

35. February 2018 – Modeling Pharmacodynamics on HIV Latent Infection, Host-Pathogen Workshop, Mathematical Biology Institute, Ohio, USA.

36. January 2018 – Impact of Environmental Temperature on Dengue Epidemics: Mathematical Models, Joint Mathematics Meeting, San Diego, California, USA.

37. November 2017 – Infectious Disease Dynamics: Perception of Mathematical Models, Math Club Presentation, San Diego State University, California, USA.

38. October 2017 – Modeling Viral Reservoirs during Human Immunodeficiency Virus Infection, Colloquium Talk, Department of Mathematics and Statistics, California State University, Northridge, California, USA.

39. October 2017 – Impact of Spatially Heterogeneous Temperature on Dengue Epidemics, Sixth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems (ICMA-VI), University of Arizona, Arizona, USA.

40. October 2017 – Modeling Pharmacodynamics on HIV Latent Infection, Thirty-Seventh Southeastern-Atlantic Regional Conference on Differential, Equations, Atlanta, Georgia, USA.

41. October 2017 – Infectious Disease Models at Within-Host and Between-Hosts Scales Colloquium Talk, Department of Mathematics and Statistics, Kennesaw State University, Georgia, USA.

42. September 2017 – Disease Modeling at Within-Host and Between-Hosts Scales: HIV and Influenza as Case Studies, Colloquium Talk, Computational Science Research Center, San Diego State University, California, USA.

43. February 2017 – Mathematics for Addressing the Most Challenging Issues in HIV Infection, Colloquium Talk, Department of Mathematics and Statistics, Texas Tech University, Texas, USA.

44. January 2017 – Mathematics for Addressing the Most Challenging Issues in HIV Infection, Colloquium Talk, Department of Mathematics and Statistics, San Diego State University, California, USA.

45. January 2017 – Mathematical Models to Evaluate Morphine-altered Antibody Responses on HIV Dynamics, Joint Mathematics Meeting, Atlanta, Georgia, USA.

46. December 2016 – Mathematical Models to Evaluate the Effects of Drugs of Abuse on Within-host HIV Dynamics, Workshop: Mathematical Modeling and Computation in Medicine/Biology, Tsinghua Sanya International Mathematics Forum, Sanya, China.

47. December 2016 – Beginning Mathematical Biology: Research and Teaching, Keynote Speech, Seminar and Interaction Program, Central Department of Mathematics, Tribhuvan University, Kathmandu, Nepal

48. November 2016 – Within-Host HIV Dynamics: Mathematical Models, Colloquium Talk, Department of Mathematics and Statistics, University of Michigan, Dearborn, Michigan, USA.

49. October 2016 – Mathematical Models of the HIV Dynamics Within a Host, Colloquium Talk, School of Pharmacy, University of Missouri – Kansas City, USA.

50. October 2016 – Modeling movements of HIV in vaginal mucus, SIAM Central States Section Conference, University of Arkansas, Little Rock, AK.

51. July 2016 – Modeling Optimal Control Treatment Strategies for HIV-TB Co-infected Individuals, The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA.

52. May 2016 – Modeling HIV Epidemics affected by Labor Migration and TB Co-infection: Far Western Nepal and Southern India as Case Studies, International Conference on Applications of Mathematics to Nonlinear Sciences, Kathmandu, Nepal.
53. November 2015 – Mathematical Models of the Within-Host HIV Dynamics Department of Mathematics and Statistics, Oakland University, Rochester, Michigan, USA.
54. October 2015 – Modeling the Risk and Dynamics of HIV Infection under Conditions of Drugs of Abuse, Fifth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems (ICMA-V), Western University, London, Canada.
55. July 2015 – Effects of Time-varying Antiretroviral Therapy on the Latent Reservoir of HIV, Annual Meeting of the Society of Mathematical Biology, Atlanta, GA, USA.
56. June 2015 – Infectious Disease Dynamics: Perception of Mathematical Models, Colloquium Talk, Central Department of Mathematics, Tribhuvan University, Kathmandu, Nepal.
57. May 2015 – Modeling HIV Infection Dynamics under Conditions of Drugs of Abuse, SIAM Conference on Application of Dynamical Systems, Snowbird, UT, USA.
58. April 2015 – Infectious Disease Dynamics: Perception of Mathematical Models, Applied Mathematics Seminar Series, Department of Mathematical Sciences, Tennessee State University, Nashville, USA.
59. April 2015 - Modeling Transmission Dynamics of Avian Influenza under Periodic Environmental Conditions, SIAM Central States Section Conference, Missouri, University of Science and Technology, Rolla, MO, USA.
60. August 2014 – Mathematical Modeling of the Within-Host HIV Dynamics, NIMBioS, University of Tennessee, Knoxville, USA.
61. April 2014 – Modeling Disease Dynamics at Within-Host and Between-Host Scales: HIV and Influenza as Case Studies, Department of Mathematics, University of Kansas, Lawrence, Kansas, USA.
62. October 2013 – HIV-1 Treatment in the Face of Drug Resistance: Benefit Analysis via Differential Equations, AMS Fall Central Sectional Meeting, Washington University, St. Louis, Missouri, USA.
63. December 2012 – Early HIV Dynamics and Immune Responses, Colloquium Talk, Department of Applied Mathematics, Western University, London, Canada.
64. July 2012 – Early Antiretroviral Therapy for Limiting HIV-1 Latent Infection, Symposium on Infectious Disease Models by the New Generation, Fields Institute, Toronto, Canada.
65. June 2012 – Effects of Environmental Conditions on the Dynamics of Avian Influenza among Wild Birds, International Conference on Applied Mathematics, Modeling and Computational Science, Waterloo, Canada.
66. February 2011 – Benefit Analysis of HIV Drugs in the Presence of Resistance Computational Biology Initiative Conference, University of Florida, Gainesville, USA.
67. *July 2010 – Immunologic Benefits of Enfuvirtide despite Virologic Failure due to the Emergence of Resistance, Summer Thematic Program on the Mathematics of Drug Resistance in Infectious Diseases, Fields Institute, Toronto, Canada.*
68. November 2009 – Viral Dynamics during Primary HIV-1 Infection: Effect of Time-dependent Virus Infectiousness, University of Western Ontario, London, Canada.
69. November 2009 – Viral Dynamics during Primary HIV-1 Infection: Effect of Time-dependent Virus Infectiousness, McMaster University, Hamilton, Canada.
70. April 2009 – HIV Treatment: From Primary Phase to Chronic Phase CMM Seminar Series, Fields Institute, Toronto, Canada.
71. April 2009 – Viral Dynamics during Primary HIV-1 Infection: Effect of Time-dependent Virus Infectiousness, York University, Toronto, Canada.
72. March 2008 – Membrane Fusion between an Influenza Virus and a Healthy Cell: Mathematical Models, Los Alamos National Laboratory, Los Alamos, New Mexico, USA.

73. February 2008 – Modeling Spruce Budworm Population: Impact of Physiological Structure on Outbreak Control University of Ottawa, Ottawa, Canada.

Other Talks

74. August 2020 – HIV Infection and Antiretroviral Therapy: the Brain as a Reservoir, Annual Meeting of the Society for Mathematical Biology, eSMB
75. January 2020 – Modeling Zika Virus Transmission Dynamics: Parameter Estimates, Characteristics, and Prevention, Joint Mathematics Meeting, Denver, Colorado, USA
76. June 2019 – Population Dynamics Models (2 lectures), CIMPA Summer School in Mathematical Biology, Tribhuvan University, Kathmandu, Nepal
77. August 2018 – Modeling Zika Virus Transmission Dynamics: Parameter Estimates, Disease Characteristics, and Prevention, SIAM Conference on the Life Sciences, Minneapolis, MN, USA.
78. July 2017 – Modeling HIV Infection in the Brain, The Society for Mathematical Biology Annual Meeting and Conference, Utah, USA.
79. January 2015 – Effects of Drugs of Abuse on HIV-1 Dynamics: a Mathematical Model, Joint Mathematics Meeting, San Antonio, Texas, USA.
80. August 2014 – Modeling Effects of Drugs of Abuse on Hiv-1 Dynamics, SIAM Conference on the Life Sciences, Charlotte, North Carolina, USA.
81. June 2013 – Modeling HIV-1 Latent Infection and Early Antiretroviral Therapy, The Society for Mathematical Biology Annual Meeting and Conference, Tempe, Arizona, USA.
82. June 2012 – Benefit Analysis of HIV-1 Treatment in the Face of Drug Resistance, Canadian Applied and Industrial Mathematics Society Meeting, Fields Institute, Toronto, Canada.
83. June 2011 – Modeling Environmental Effect on Avian Influenza dynamics in Wild Aquatic Birds, 7th International Congress on Industrial and Applied Mathematics, Vancouver, Canada.
84. February 2008 – CGMD Simulation of the Hemagglutinin Fusion Peptide and Lipid Bilayer Interaction, Third Annual CSCBC, University of Toronto, Toronto, Canada.
85. February 2008 – Modeling and Analysis of HIV and Tuberculosis Co-infection Dynamics, Biomath Days, University of Ottawa, Ottawa, Canada.
86. June 2007 – Fusion Process: Membrane Deformation and Protein-Membrane Interaction, The University of Tokyo, Tokyo, Japan.
87. May 2007 – Modeling, Analysis, and Control of the HIV Epidemics in Far Western Nepal, CMS-MITACS Joint Conference, Winnipeg, Canada.
88. April 2007 – Computation of Influenza Viral Membrane Deformation due to HA-protein, Southern Ontario Numerical Analysis Day (SONAD), University of Ontario Institute of Technology, Oshawa, Canada.
89. April 2007 – Deformation of Biological Membranes and Influenza Virus Infection: A Mathematical Model, The Spring 2007 meeting of the Seaway Section of the Mathematical Association of America (MAA), SUNY College at Oneonta, Oneonta, New York, USA.
90. June 2006 – Modeling HA-protein Mediated Pre-fusion of an Influenza Virus into a Healthy Cell, The Ninth International Conference on Integral Methods in Science and Engineering, Niagara Falls, Canada.
91. July 2005 – Influenza Viral-Membrane Deformation under HA-protein Force, BICS Summer School: Modeling across the Scales, University of Bath, Bath, UK.
92. February 2005 – The Phase-field Models and Parallel Computation, The Fundamental Series, York University, Toronto, Canada.
93. June 2004 – Modeling Grown-in Defects in InSb crystal and Computation, CAIMS annual meeting, Dalhousie University, Halifax, Canada

Posters

94. June 2019 – Rabies Epidemics in Nepal: Modeling and Optimal Control Theory Perspective AMNS-2019 Conference, Pokhara, Nepal

95. May 2017 – Modeling the Effects of Drugs of Abuse on HIV Infection: Risk Dynamics, and Immune Responses, Conference on "Viral Dynamics: Past, Present, & Future, Santa Fe, NM, USA.

96. December 2016 – Modeling HIV Infection Within a Host, Faculty Research Symposium, University of Missouri – Kansas City, MO, USA.

97. December 2016 – Teaching and Learning Mathematical Techniques Through Real-life Research Activity, Faculty Research Symposium, University of Missouri – Kansas City, MO, USA.

98. December 2015 – Modeling Disease Dynamics at Within-Host and Between-Host Scales: HIV and Influenza as Case Studies, Faculty Research Symposium, University of Missouri – Kansas City, MO, USA.

99. October 2011 – Effects of Environmental Conditions on the Dynamics of Avian Influenza among Wild Birds, Workshop: Spatio-Temporal Dynamics in Disease Ecology and Epidemiology, Mathematical Biosciences Institute, Columbus, USA.

100. August 2008 – CGMD Simulation Method for the Interaction between Influenza HA Fusion Peptides and a Lipid Bilayer Membrane, SIAM Conference on the Life Sciences, Montreal, Canada.

101. June 2008 – The Interaction between Influenza Hemagglutinin (HA) Fusion Peptides and a Lipid Bilayer Membrane, Society for Mathematical Biology Conference, University of Toronto, Toronto, Canada.

102. June 2006 – Modeling Pre-fusion of an Influenza Virus into a Healthy Cell, CAIMS-MITACS, Sixth Annual Conference, York University, Canada.

103. May 2006 – Modeling Pre-fusion of an Influenza Virus into a Healthy Cell, Workshop IV: Systems Biology and Molecular Modeling, Institute for Pure and Applied Mathematics, UCLA, Los Angeles, USA.

104. June 2004 – Modeling Point Defect Distribution in InSb Crystal Grown by Cz-technique, MITACS fifth annual conference, Dalhousie University, Halifax, Canada.

105. January 2004 – Grown-In Defect Modeling of InSb Crystal, Second PIMS-MITACS crystal growth workshop, University of British Columbia, Vancouver, Canada.

Media attention

1. "Hamro Sawal" Nepali News Media (June 03, 2021):
   https://www.hamrosawal.com/2021/06/48068/

2. "KANTIPUR" Nepali News Media (May 31, 2021):
   https://ekantipur.com/news/2021/05/31/162245245094545337.html?fbclid=IwAR1dzInlNa9R0kndv7Ia5IFJ1Ul9B8Bfba1bDE_zEMBBuPR3EqzGQKsmGqo

3. "a KHABAR" Nepali News Media (April 18, 2021):
   https://avenueskhabar.com.np/कोरोना-संक्रमणको-गणित-खो/?fbclid=IwAR2S0VuY-ywuRKFBH0YKNDNZwBXhxP6OLo6O-_CjbXLUGIBWV5QhI0ggMwk

4. Los Angeles Times (May 21, 2020):
   https://www.latimes.com/california/story/2020-05-21/citizen-scientists-enlisted-to-help-find-coronavirus-on-everyday-surfaces

5. The San Diego Union-Tribune (May 14, 2020):

https://www.sandiegouniontribune.com/news/health/story/2020-05-14/door-knobs-trash-cans-gas-pumps-citizen-scientists-enlisted-to-help-find-coronavirus-on-everyday-surfaces

6. San Diego Metro (May 14, 2020):
   http://www.sandiegometro.com/2020/05/daily-business-report-may-14-2020/

7. SDSU NewsCenter (May 12, 2020):
   http://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=78011&mkt_tok=eyJpIjoiTXpRd1pUYzFOemt3TnpNNSIsInQiOiJIS1N0VTU5VWhzQ2dtYURmOXlzWW1Ldld2T2NYZXkwTnhPekgwSWlFdHpPK1hTaXpJU201a2QzREVWU2pzXC9sY3pQTkVGWDg4ZXhObTR4a0FGGd0xcL3JiMkt4bitxQ0FjWk90ZjZRQk1TRURvRN09wNkNVQUo1NVJ1K1BPZmRqaXpUIn0%3D

8. SIAM News (October 19, 2017):
   https://sinews.siam.org/Details-Page/mathematically-modeling-hiv-drug-pharmacodynamics-1

9. Featured article in PNAS (June 12, 2012):
   http://www.pnas.org/content/109/24/9221.full?sid=6ee1a300-84e0-46f3-a502-6d10ef9df01f#sec-2

10. Featured in HIVandHepatitis.com (June 12, 2012):
    http://www.hivandhepatitis.com/hiv-basic-science/3623-immediate-antiretroviral-therapy-reduces-hiv-infection-of-resting-cd4-t-cells

Editorial Services

AFTER TENURE (Materials after Tenure application; Tenure application date: September 2018)

1. 2022 – Present. Editor-In-Chief. Journal of Innovation Sciences and Sustainable Technology (JISST).
2. 2021 – 2022. Topic Editor, Editorial Board, *Mathematics*, a peer-reviewed international journal.
3. 2018 – present. Editorial Board Member, *The Nepali Mathematical Science Report*, a peer-reviewed journal.
4. 2019 – 2020. Guest Editor, Thematic Issue in Mathematical Biology and Applied Evolutionary Equations, *Mathematics in Applied Science and Engineering*, a peer-reviewed international journal.
5. 2010. Editor-In-Chief, Global Nepali, Souvenir, 4th Non-Resident Nepalis Regional Conference, Houston, USA.
6. 2009 – 2010. Editor, Nava-Sandesh, Newsletter, Non-Resident Nepalis – Canada (NRN-Canada).
7. 1996 – 1998. Editor-In-Chief, Navapath, Bi-monthly magazine, Naya Ayam Youth Club, Sindhuli, Nepal.

Participation in Professional Associations

AFTER TENURE (Materials after Tenure application; Tenure application date: September 2018)

1. Life member, Nepal Mathematical Society (NMS), 2021 – Present.
2. Advisor, Association of Nepalese Mathematicians in America (ANMA), 2019 – 2021.
3. President, Association of Nepalese Mathematicians in America (ANMA), 2017 – 2019.
4. Life member, Association of Nepalese Mathematicians in America (ANMA), 2016 – Present.

5. Member, Society for Mathematical Biology (SMB), 2007 – present.
6. Member, Society of Industrial and Applied Mathematics (SIAM), 2011 – present
7. Member, Canadian Applied & Industrial Mathematics Society (CAIMS), 2003 – 2012.
8. Member, American Mathematical Society (AMS), 2003 – 2008 and 2013 – 2017.
9. Member, Mathematical Association of America (MAA), 2007 – 2008.
10. Member, Non-Resident Nepalis – National Coordination Council, Canada, 2008 – 2013

TEACHING EFFECTIVENESS

A. Teaching
1. Fall 2022, MATH 524, Linear Algebra, Department of Mathematics and Statistics, SDSU.
2. Spring 2022, MATH 150, Calculus I, Department of Mathematics and Statistics, SDSU.
3. Fall 2021, MATH 336, Introduction to Mathematical Modeling, Department of Mathematics and Statistics, SDSU.
4. **(COVID-19 affected semester)** Spring 2021, MATH 150, Calculus I, Department of Mathematics and Statistics, SDSU.
5. **(COVID-19 affected semester)** Fall 2020, MATH 636, Mathematical Modeling, Department of Mathematics and Statistics, SDSU.
6. **(COVID-19 affected semester)** Spring 2020, MATH 254, Introduction to Linear Algebra, Department of Mathematics and Statistics, SDSU.
7. **(COVID-19 affected semester)** Spring 2020, MATH 151, Calculus II, Department of Mathematics and Statistics, SDSU.
8. Fall 2019, MATH 636, Mathematical Modeling, Department of Mathematics and Statistics, SDSU.
9. Spring 2019, MATH 596, Mathematical Biology and Biomedicine, Department of Mathematics and Statistics, SDSU.
10. Spring 2019, MATH 254, Introduction to Linear Algebra, Department of Mathematics and Statistics, SDSU.
11. Fall 2018, MATH 254, Introduction to Linear Algebra, Department of Mathematics and Statistics, SDSU.
12. Fall 2018, MATH 524, Linear Algebra, Department of Mathematics and Statistics, SDSU.
13. Spring 2018, MATH 596, Mathematical Biology and Biomedicine, Department of Mathematics and Statistics, SDSU.
14. Fall 2017, MATH 524, Linear Algebra, Department of Mathematics and Statistics, SDSU.
15. Spring 2017, MATH 216, Calculus for Biological Sciences (EUReka course), Department of Mathematics and Statistics, University of Missouri – Kansas City.
16. Spring 2017, MATH 469, Mathematical Modeling, Department of Mathematics and Statistics, University of Missouri – Kansas City.
17. Fall 2016, MATH 216, Calculus for Biological Sciences (EUReka course), Department of Mathematics and Statistics, University of Missouri – Kansas City.
18. Fall 2016, MATH 5532 (Graduate level course), Advanced Numerical Analysis I, Department of Mathematics and Statistics, University of Missouri – Kansas City.

19. Summer 2016, MATH 210, Calculus I, Department of Mathematics and Statistics, University of Missouri – Kansas City.
20. Spring 2016, MATH 300, Linear Algebra, Department of Mathematics and Statistics, University of Missouri – Kansas City.
21. Spring 2016, MATH 5542 (Graduate level course), Advanced Numerical Analysis II, Department of Mathematics and Statistics, University of Missouri – Kansas City.
22. Fall 2015, MATH 300, Linear Algebra, Department of Mathematics and Statistics, University of Missouri – Kansas City.
23. Fall 2015, MATH 5532 (Graduate level course), Advanced Numerical Analysis I, Department of Mathematics and Statistics, University of Missouri – Kansas City.
24. Spring 2015, STAT 235, Elementary Statistics, Department of Mathematics and Statistics, University of Missouri – Kansas City.
25. Spring 2015, MATH 300, Linear Algebra, Department of Mathematics and Statistics, University of Missouri – Kansas City.
26. Fall 2014, STAT 235, Elementary Statistics, Department of Mathematics and Statistics, University of Missouri – Kansas City.
27. Fall 2014, MATH 5532 (Graduate level course), Advanced Numerical Analysis I, Department of Mathematics and Statistics, University of Missouri – Kansas City. Evaluation: 4.55/5.0
28. Spring 2014, MATH 220, Calculus II, Department of Mathematics and Statistics, University of Missouri – Kansas City.
29. Spring 2014, MATH 5542 (Graduate level course), Advanced Numerical Analysis II, Department of Mathematics and Statistics, University of Missouri – Kansas City.
30. Fall 2013, MATH 220, Calculus II, Department of Mathematics and Statistics, University of Missouri – Kansas City.
31. Fall 2013, MATH 5532 (Graduate level course), Advanced Numerical Analysis I, Department of Mathematics and Statistics, University of Missouri – Kansas City.
32. Spring 2013, MATH 5521 (Graduate level course), Differential Equations, Department of Mathematics and Statistics, University of Missouri – Kansas City.
33. Fall 2011, Mathematical Biology, Western University, Canada.
34. Summer 2006, Discrete Mathematics, York University, Canada [Co-taught].
35. 1998 – 2002, Mathematical Analysis, Linear Algebra, Statistics, Business Mathematics, Tribhuvan University, Nepal.
36. 2000-2002, Business Mathematics, Pokhara University, Nepal.

B. Student supervision

PhD students

1. 2018 – Present, Peter Uhl, Computational Science Research Center, SDSU. Research topic: Modeling Bacterial Infection and Therapies in Cystic Fibrosis. Advisor.
2. 2020 – Present, Anjana Pokharel, Central Department of Mathematics, Tribhuvan University, Kathmandu, Nepal. Research Topic: Modeling Transmission Dynamics of Measles in Nepal. Co-Advisor (with Dr. Kedar Uprety)

3. 2020 – Present, Khagendra Adhikari, Central Department of Mathematics, Tribhuvan University, Kathmandu, Nepal. Research Topic: Modeling Transmission Dynamics of COVID-19 in Nepal. Co-Advisor (with Dr. Kedar Uprety)
4. 2020 – Present, Ramesh Gautam, Central Department of Mathematics, Tribhuvan University, Kathmandu, Nepal. Research Topic: Modeling Transmission Dynamics of Malaria in Nepal. Co-Advisor (with Dr. Kedar Uprety)
5. 2015 – 2020, Colin Barker, Department of Mathematics and Statistics, UMKC. Dissertation Title: Modeling HIV-1 Infection in the Brain: The Effect of the Blood-Brain Barrier. Advisor. Graduated in December 2020. Current position: Faculty Member, Drury University, Missouri.
6. 2014 – 2018, Jones Mutua, Department of Mathematics and Statistics, UMKC. Dissertation Title: Modeling HIV-1 Infection and Immune Responses under Drugs of Abuse. Advisor. Graduated in June 2018. Current position: Missouri Western State University, Missouri.

Dissertation Committee member

7. 2016 – 2018, Gerry Baygents, Department of Mathematics and Statistics, UMKC. Research topic: Spatiotemporal Modeling and Analysis of Disease Spread in Wildlife. Graduated in May 2018.
8. 2014 – 2017, Munsur Rahman, School of Engineering, UMKC. Research topic: Musculoskeletal Modeling of the Human Elbow Joint. Graduated in June 2017.
9. 2014 – 2017, Ananta Ram Nookala, School of Pharmacy, UMKC. Research topic: The Effect of HIV-1 Tat and Methamphetamine of Altered Expression of Cytokines/Chemokines and Synaptic Genes: Implications in HIV Neuroaids. Graduated in May 2017.
10. 2014 – 2016, Mohitkumar Gangwani, School of Pharmacy, UMKC. Research topic: The effects of HIV-1 Vpr and antiretroviral drugs in the brain: Implication in HIV-1 associated neurocognitive disorders. Graduated in May 2016.
11. 2012 Ashrafur Rahman, Department of Applied Mathematics, Western University, London, Canada. Research topic: Potential impact of Tenofovir gel on HIV Infection: a mathematical model study. Unofficially Co-supervisor. Graduated in June 2015.

MS students

Chair of the Thesis Supervision Committee

1. 2022 – Present, Audrey Oliver, CSRC, SDSU, Thesis Title: HIV Infection in the Brain. Advisor.
2. 2021 – Present, Angelica Bloomquist, CSRC, SDSU, Thesis Title: Modeling the risk of SRAS-CoV-2 transmission from the environmental surfaces. Advisor.
3. 2021 – Present, Anuradha Agrawal, CSRC, SDSU, Research Topic: Impact of nanomedicine-based preventive therapy on the distribution of HIV particle in vagina mucus. Advisor.
4. 2021 – Present, Alex Busalacchi, Department of Mathematics and Statistics, SDSU, Research Topic: Modeling Effects of Environmental Temperature on Microbiome Structure and Black-Band Disease of Corel Reef. Advisor.
5. 2021 – Present, Thomas Rodriguez, Department of Mathematics and Statistics, SDSU, Research Topic: Modeling Effects of Environmental Temperature on the transmission of SARS-CoV-2. Advisor.
6. 2022 – Present, Samantha Hall, Department of Mathematics and Statistics, SDSU, Research Topic: Computation of the Reproduction Number of COVID-19. Advisor.

7. 2019 – 2021, Angelica Bloomquist, Department of Mathematics and Statistics, SDSU, Thesis Title: Modeling HIV Infection in the Plasma and Brain under Conditioning of Drugs of Abuse: Infection Risk and Persistence. Advisor. Graduated in May 2021.
8. 2018 – 2019, Michael Peter, Department of Mathematics and Statistics, SDSU, Thesis Title: Modeling Intracellular Delay in Within-host HIV Dynamics under Conditioning of Drugs of Abuse. Advisor. Graduated in May 2019.
9. 2018 – 2019, Kyle Lee, Department of Mathematics and Statistics, SDSU, Thesis Title: Hybrid Approach to Predict Resting CD4+ T-Cell Reservoirs of HIV-1: Viral Dynamics Modeling and Machine Learning Framework. Advisor. Graduated in May 2019.
10. 2017 – 2018, Aileen Nguyen, Department of Mathematics and Statistics, SDSU. Thesis Title: Modeling Lyme Disease: Autonomous, Non-autonomous, and Spatial Systems. Co-supervisor (with Joe Mahaffy). Manuscript is in preparation for submission to a peer reviewed journal. Graduated in August 2018.
11. 2016 – 2018, Anup Tuladhar, School of Science, Kathmandu University, Nepal. Thesis topic: Mathematical Model for HIV Epidemic in Far Western Nepal Due to Seasonal Male Labor Migration to India. Co-Advisor. Graduated in August 2018.
12. 2016 – 2017, Peter Uhl, Department of Mathematics and Statistics, UMKC. Thesis topic: Modeling the Effects of Drugs of Abuse on HIV Infections with Two Viral Species. Advisor. Manuscript is in preparation for submission to a peer reviewed journal. Graduated in December 2017.

Project Advisor

13. 2017 – 2018, Pawan Kumar Chalumuri, Department of Computer Science, SDSU. Research topic: Impact of Seasonal and Diurnal Temperature Variation on the Dynamics of Dengue Epidemics. Presented poster during SDSU Student Research Symposium, 2018.
14. 2014 – 2016, Abhishek Mallela, Department of Mathematics and Statistics, UMKC. Research topic: Optimal treatments for HIV-TB co-epidemics. Research published in "*Journal of Computational and Applied Mathematics*". Completed MS in 2016.
15. 2013 – 2013, Jones Mutua, Department of Mathematics and Statistics, UMKC. Research topic: Modeling Malaria-Typhoid co-epidemics. Research published in "*Mathematical Biosciences*". Completed MS in 2014.
16. 2014, Carter Braxton, Department of Mathematics and Statistics, UMKC. Research topic: Forecasting the Unemployment Rate with Labor Market Flow. Graduated in May 2014.
17. 2014, Phuc V. Dang (Jason), Department of Mathematics and Statistics, UMKC. Research topic: TB Treatment Programs for Controlling HIV-TB co-infections. Graduated in May 2014.
18. 2013, Robert Schmitt, Department of Mathematics and Statistics, UMKC. Research topic: Modeling Bubonic Plague Persistence: Dynamical System Approach. Graduated in December 2013.
19. 2010 – 2011, Samira Akbari, Department of Applied Mathematics, University of Western Ontario, London, Canada. Research topic: Modeling transmission dynamics of malaria under SP drug treatment. Graduated in December 2011.

Thesis Committee member

20. 2018 – 2020, Colton J. Johnson, Department of Biology, SDSU. Thesis Title: The Epidermal Microbiome of Leopard Sharks (*Triakis semifasciata*) Shows Taxonomic Flexibility to Maintain Key Functions Across a 4-Year Period. Graduated in Summer 2020.

21. 2018 – 2020, Michael Brandon Reed, Department of Biology, SDSU. Thesis Title: Analysis of Microbial Association Networks. Graduated in Summer 2020.

22. 2018 – 2019, Fei Zhao, Department of Civil, Construction, and Environmental Engineering, SDSU. Thesis Title: Evaluation of T7 coliphage susceptibility to disinfection after repeated exposure to heat and free chlorine. Graduated in December 20219.

Undergraduate students

Research Advisor

23. Spring 2022, Zubin Chang, Department of Mathematics and Statistics, SDSU. Research topic: Modeling the effects of nanoparticle based therapy in controlling SARS-CoV-2 Infection. Advisor.

24. Spring 2022, Rita Herfi, Department of Mathematics and Statistics, SDSU. Research topic: Modeling COVID-19 transmission in the Population with Comorbidity. Advisor.

25. Spring 2022, Robin Stout, Department of Mathematics and Statistics, SDSU. Research topic: Computation of the Basic Reproduction Number of COVID-19. Advisor.

26. Spring 2022, Alyssa Wilhelm, Department of Mathematics and Statistics, SDSU. Research topic: Modeling the Risk of Infection of SARS-CoV-2. Advisor.

27. Spring 2021 – Spring 2022, Abbey Rosario, Department of Mathematics and Statistics, SDSU. Research topic: Effects of Inter-Region Mobility on the Reproduction Number of COVID-19 in San Diego County. Advisor.

28. Spring 2021 – Summer 2022, Audrey Oliver, Department of Biology, SDSU. Research topic: Modeling Effects of Pharmacodynamics of Antiretroviral Therapy on HIV Infection in the Brain. Advisor.

29. Fall 2019 – Spring 2020, Sophia Vargas, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Modeling Effects of Environmental Temperature on Transmission Dynamics of Avian Influenza. Advisor. Presented poster during SDSU Student Research Symposium, 2020.

30. Fall 2019 – Spring 2020, Katherine Reddy, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Modeling Effects of Environmental Temperature on Transmission Dynamics of Avian Influenza. Advisor. Presented poster during SDSU Student Research Symposium, 2020.

31. Fall 2018 – Summer 2019, Maya Weissman, Department of Biology, SDSU. Special Study (Math 499). Research topic: Modeling Microbiome in Corel Reefs. Advisor. Presented award-winning poster during SDSU Student Research Symposium, 2019.

32. Fall 2018 – Summer 2019, Jillian Kiefer, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Role of Environment on the Evolution of Avian Influenza Virus in Aquatic Birds. Advisor. Presented poster during SDSU Student Research Symposium, 2019.

33. Spring 2018 – Summer 2019, Angelica Bloomquist, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Predicting probability of HIV infection. Advisor. Presented poster during SDSU Student Research Symposium, 2018.

34. Fall 2018, Shrewan Zada, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Cost-effective Analysis of HIV Treatment during Early Stage of the Disease. Advisor.

35. Summer 2018, Aidan Backus, Angelica Bloomquist, Carlos Villanueva-Chavez, J Montgomery Maxwell, Elyssa Sliheet, Yuanming Tang, Department of Mathematics and Statistics, SDSU, REU - Summer project. Research topic: Mathematical Models for Linking Within-Host and Between-Host Viral Dynamics. Advisor. Manuscript is in preparation for submission to a peer reviewed journal.

36. Spring 2018, Ashley Schwartz, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Modeling the risk of HIV infection under drugs of abuse. Advisor. Presented poster during SDSU Student Research Symposium, 2018.

37. Spring 2018, Timmy Liang, Department of Mathematics and Statistics, SDSU. Special Study (Math 499). Research topic: Modeling HIV Latent Infection under Drugs of Abuse. Advisor. Presented poster during SDSU Student Research Symposium, 2018.

38. Spring 2018, Maya Weissman, Department of Biology, SDSU. Research Experience. Research topic: Modeling Pharmacodynamics on HIV Latent Infection in the Face of Antiretroviral Resistance. Advisor. Presented research-talk during SDSU Student Research Symposium, 2018.

39. Summer 2016, LeAnna Cates and Fatima Shariff, Research topic: Modeling of the ZIKA Virus from within-host to between-hosts scales, Summer Undergraduate Research Opportunity Program, UMKC. Advisor.

40. Spring 2016 – Fall 2016, LeAnna Cates, Faculty for Excellence Grant, UMKC. Research topic: Modeling Zika Virus Transmission Dynamics: Parameter Estimates, Disease Characteristics, and Prevention. Advisor. Research submitted and under-revision in "*Scientific Reports*".

41. Fall 2015 – Spring 2016, Kevin Woods, Modeling the Probability of HIV in a New Host under Drugs of Abuse, SEARCH grant, UMKC. Advisor.

42. Summer 2015, Peter Uhl, Mathematical Models for Immune Responses against HIV Infection under Drugs of Abuse, Summer Undergraduate Research Opportunity Program, UMKC. Advisor.

C. Participation in Teaching Training or Teaching Conferences

1. July 2020, Modeling Practices in Calculus, Professional Development Workshop, STEM Transformation Workshop, Florida International University.

2. May 2019, DATA Science Workshop, Computational Science Research Center, SDSU.

3. Fall 2018 – Spring 2019 (a year-long program), Transforming STEM Teaching Faculty Learning Program (Run by UC Berkeley). As part of the program (a) Faculty will develop their STEM education expertise, which includes understanding how learning happens and skills to facilitate student discussion and reflection in the large, undergraduate STEM lecture courses. (b) Faculty will re-design their STEM lectures to apply what they learn. (c) Faculty will participate in a learning community of fellow instructors to help support them as they integrate new approaches to their teaching practice.

4. Fall 2015-Spring 2016, University of Missouri – Faculty Scholars Program under award UMFS. Selected topics: building an academic portfolio, communication styles for effective collaboration, inclusive excellence in the classroom and beyond, successful grant strategies, course design for active learning.
5. Fall 2011, Certification of Instructional Skills in Science, Western University, London, Canada.
6. Spring 2014, Western Certificate in University Teaching and Learning, Western University, London, Canada.
   - Advanced Teaching Program. Capstone project title: Undergraduate Research Projects: An Efficient Way of Teaching and Learning Mathematics
   - Teaching Mentor Program
   - Designed an interdisciplinary course: Mathematical Biology
   - Participation in 10 Future Professor Seminar Series

D. Curriculum Development and Teaching Innovations

1. Fall 2020 – Spring 2021, Designed 10 Activity Learning Materials for Math 150 – Calculus I. The group activities include exploration of timely real data (for example, COVID-19 cases in USA), mathematical models, model analysis to facilitate learning calculus materials.
2. Spring 2020 – Spring 2021, Designed Online Instruction Mode for four courses (Math 150 – Calculus I, Math 151 – Calculus II, Math 254 – Introduction to Linear Algebra, Math 636 – Mathematical Modeling). COVID-19 Pandemic affected semesters.
3. Fall 2020, Designed Online Mode for Group Project in the graduate course Math 636 (Mathematical Modeling).
4. Fall 2019, New Course designed, proposed, approved, and listed in Catalog. Department of Mathematics and Statistics, SDSU. Course number: MATH 595. Course title: Mathematical Biology and Biomedicine. Course content: Introduction and Review, Biological Data, Population Dynamics, Infectious Diseases, Evolution and Genetics, Biological Data and Model Parameters.
5. Summer 2019. Designed a course for NCTS Summer Course in Infectious Disease Modeling. I gave invited lectures and supervised student projects at the Summer School at National Taiwan University, Taipei (July 08 – 19, 2019).
6. Summer 2019. Designed courses for Summer School in Mathematical Biology. The summer school was successfully run at the Tribhuvan University of Nepal (June 16 – 26, 2019).
7. Spring 2018. New course designed and offered. Department of Mathematics and Statistics, SDSU. Course number: MATH 596. Course title: Mathematical Biology and Biomedicine. Course content: Introduction and Review, Biological Data, Population Dynamics, Infectious Diseases, Evolution and Genetics, Biological Data and Model Parameters.
8. Fall 2017. Introduced project-based teaching techniques in a Theory Course (MATH 524, Linear Algebra).
9. Summer 2016. Designed EUReka course for Calculus I (teaching calculus via involvement of students in research).
10. Fall 2013. Introduced project-based teaching techniques in graduate courses. Some of the projects initiated in classroom teaching led to peer-reviewed publications. (publication by students Jones Mutua and Abhishek Mallela).

SERVICE

Service for the Department

1. 2020 – Present. Calculus I Coordinator, Department of Mathematics and Statistics, SDSU. Coordination of all activities of 3-4 Instructors, 8-10 Teaching Assistants (laboratory activity), and 1 grader.
2. 2020 – Present. Committee Member, Calculus Sequence Committee.
3. 2019 – Present. Committee Member, SDSU Mathematics Colloquium "Distinguished Lecture Series" Committee, Department of Mathematics and Statistics, SDSU.
4. 2020-2021. Member, RTP Committee, Department of Mathematics and Statistics, SDSU.
5. 2018-2019. Member, Graduate Development Committee, Department of Mathematics and Statistics, SDSU.
6. December 2018 – January 2019. Hosted a collaborator from University of the Western Cape, Dr. Kailash Patidar, for a research visit at SDSU.
7. Summer 2018. Volunteered (without compensation) for 8 weeks as a mentor (project director) for SDSU REU (Research Experience for Undergraduates) program, Department of Mathematics and Statistics, SDSU.
8. 2017 – 2018. College Liaison for Biology, Department of Mathematics and Statistics, SDSU.
9. June 6-8, 2018. Hosted a collaborator from Canada, Dr. Huaxiong Huang, for a research visit at SDSU.
10. January 24 – February 06, 2018. Hosted a collaborator from Taiwan, Dr. Feng-Bin Wang, for a research visit at SDSU.

Service for the College

1. Fall 2017 – Present. Research activity contribution to SDSU Mathematical Biology group and SDSU Viral Information Institute.
2. Spring 2017. Volunteered in contributing service during 5 candidates campus visit interview for SDSU Viral Information Institute (VII) tenure track position.
3. Volunteered in contributing service during BIE candidate (Mathematical Biology) campus visit interview for tenure track position at SDSU Math Department.

Service for the University

1. Fall 2021 – Present. Member (College of Science Representative), the University GE Curriculum Committee.
2. Fall 2021 – Present (3-year term). Committee Member, SDSU Graduate Council.
3. Fall 2020. Volunteer as a mathematical modeler, SDSU President's COVID-19 Response Taskforce. Developed model to predict COVID-19 transmission among SDSU student body.
4. March 2020. Judge at the Student Research Symposium, SDSU.
5. March 2019. Judge at the Student Research Symposium, SDSU.
6. Fall 2018 – Summer 2021. Served as a member in the Thesis committee of 1 Master's student in Department of Civil, Construction, and Environmental Engineering.
7. March 2018. Session Chair at the Student Research Symposium, SDSU.
8. Fall 2017. Co-designed and submitted a new graduate degree program to SDSU CurricUNET. Name of the program: MS in Interdisciplinary Applied Mathematics.

9. Spring 2013 – Summer 2017. Major service experiences as Assistant Professor in University of Missouri – Kansas City. Co-founded Applied Mathematics Group, Designed MS Degree Thesis Option, Tenure Track Search Committee, PhD Committee, Graduate Program Policy Committee, Undergraduate Program Policy Committee, Math Curriculum committee, University Program Assessments.

Service for the Profession

Conferences/Workshops/Seminars Organizing Services

1. January 2023, Co-organizer, Special sessions "Advances in Qualitative Theory and Applications to Life Sciences of Differential, Difference, and Dynamic Equations", Joint Mathematics Meeting, Boston, Massachusetts, USA.
2. June 2020, Co-Organizer, Special Sessions "Advances in qualitative theory and applications to life sciences of differential, difference, and dynamic equations", 13th CHAOS 2020 International Conference, Florence, Italy. (Canceled due to COVID-19 Pandemic)
3. June 2019. Convener, 2nd International Conference on Applications of Mathematics to Nonlinear Science, Pokhara, Nepal. There were 250 participants from 17 different countries around the world. Many colleagues from SDSU, including Plenary Speaker Chris Rasmussen of SDSU, participated in this conference.
4. June 2019, Organizer, Summer School in Mathematical Biology, Kathmandu, Nepal. 10-day summer school was organized based on the course designed that are offered in SDSU. CIMPA (CENTRE INTERNATIONAL DE MATHÉMATIQUES PURES ET APPLIQUÉES) provided scholarship grants for students from Nepal and neighboring developing countries.
5. May 2018, Co-Organizer, Workshop on Collaborative Research in Mathematical Sciences, Mercer University, Macon, Georgia. This workshop brought about 40 Nepalese mathematicians to work collaboratively in mathematical research projects. The workshop developed 5 different projects in which Nepalese mathematicians are currently working together.
6. January 2018, Co-organizer, Special sessions "Advances in Applications of Differential Equations to Disease Modeling", Joint Mathematics Meeting, San Diego, California, USA.
7. October 2016. Co-organizer, Special sessions "Modeling and Computations for General and Chaotic Biological Systems", Annual Meeting of SIAM Central States Section, University of Arkansas, Little Rock, AK, USA.
8. May 2016. Organizer, Mathematical Biology Workshop, Kathmandu, Nepal. One day session helped interact with 80 participants from Nepal and neighboring countries to interact world renowned expert in Mathematical Biology from USA, Canada, China, and India.
9. May 2016. Member, Organizing Committee, International Conference on Applications of Mathematics to Nonlinear Science, Kathmandu, Nepal. The conference gathered 240 participants from 18 different countries.
10. May 2015. Co-organizer, Special sessions "Advances in Viral Infection Modeling, SIAM Conference on Applications of Dynamical System", Snowbird, Utah, USA.
11. October 2015. Co-organizer, Special sessions "Current Trends in Ecology and Disease Modeling", Annual Meeting of SIAM Central States Section, Missouri S & T Campus, Rolla, MO, USA.

12. April 2015. Co-organizer, UMKC Math & Stats Research Day, University of Missouri – Kansas City, MO, USA.
13. October 2013. Co-organizer, Special sessions "Advances in Mathematical Methods for Disease Modeling", AMS Fall Central Sectional Meeting, Washington University, St. Louis, MO, USA.
14. May 2010. Member, Organizing Committee, Global Conference, Non-Resident Nepali Association, Houston, TX, USA.
15. June 2006. Member, Organizing Committee, CAIMS-MITACS Sixth Annual Conference, Toronto, Canada.

Positions of Responsibility

1. October 2022, Panelist, Job Search Webinar, Association of Nepalese Mathematicians in America.
2. October 2021. Panelist, Job Search Webinar, Association of Nepalese Mathematicians in America.
3. November 2019. Panelist, Grant Writing Webinar, Association of Nepalese Mathematicians in America.
4. 2019 – 2021. Advisor, Association of Nepalese Mathematicians in America.
5. June 2019. Panelist, Academic Success Forum, Panel Discussion, Pokhara, Nepal Organizer: Dr. Elissa Schwartz, Washington State University, USA.
6. 2017 – 2019. President, Association of Nepalese Mathematicians in America.
7. 2015 – 2017. Vice President, Association of Nepalese Mathematicians in America.
8. Spring 2011. Judge, Graduate Student Research Presentation, Western Research Forum, University of Western Ontario, London, Canada.
9. 2006 – 2007. Member, Graduate Executive Committee, Department of Maths and Stats, York University, Toronto, Canada.
10. 2006 – 2007. Member, Faculty Tenure and Promotion Adjudication Committee, Department of Maths & Stats, York University, Canada.
11. 1996 – 2002. Managing Director, Board of Directors, Nimble Institute Pvt. Ltd., Kathmandu, Nepal

Journal Review Services

Royal Society Open Science, Advances in Differential Equations, Infectious Disease Modeling, Mathematics in Applied Science and Engineering, Parasites and Vectors, Scientific Reports, PLOS Neglected Disease, Journal of Royal Society Interface, Bulletin of Mathematical Biology, BMC Public Health, Discrete and Continuous Dynamical System B, Journal of Mathematical Biology, AMS Notices, Viruses, Frontiers in Microbiology, Proceedings of the Royal Society B, Chaos: An International Journal of Nonlinear Science, PLoS Computational Biology, Mathematical Biosciences and Engineering, Journal of Theoretical Biology, Bioinformatics, Canadian Applied Mathematics Quarterly, Computers and Mathematics with Applications, SIAM Conference on Control and Its Applications, Journal of Applied Mathematics and Computing, Journal of Biological Systems, Mathematical Biosciences, SIAM Journal of Mathematical Analysis, Mathematical Population Studies, Mathematical Methods in the Applied Sciences, Mathematics-in-Industry Case Studies (MICS) Journal, CSCBC Conference papers

Grant Reviewer

1. Research Grant Review Panel, Nazarbayev University (3 years)
2. Grant Review Panel, Simons Foundation (2 years)

3. Grant Review Panel, National Science Foundation (NSF) of USA (1 year)
4. 2017. Johnson Cancer Research Center. Kansas State University.
5. 2016. University of Missouri – Research Board.

Service for the Community

1. 2020 – Present. Co-Principal Investigator, International Collaborative Partner, Mathematical Biology Research Group, Nepal. I am co-supervising three PhD students at Tribhuvan University of Nepal. During COVID-19 pandemic, we provided on-time (daily updated) prediction of COVID-19 transmission in high and low risk regions of Nepal. (https://mbrgnepal.com/)
2. March 2020 – Present. Modeling Collaborator, Dana Lana School of Public Health, University of Toronto. I helped to model COVID-19 transmission in Canada. Also, I co-supervised a Postdoc, and two Master's students.
3. May 2018 – Present. Coordination of mathematical biology research group of ANMA (Association of Nepalese Mathematicians in America). I am coordinating several research projects running among Nepalese Mathematicians in America. We have already published three peer reviewed articles.
4. March – December 2020. Volunteer as a mathematical modeler, San Diego County Research Group. Developed models to predict COVID-19 transmission among various comorbidity groups of six regions of San Diego County.
5. 2019 – 2021. Served as Advisor, Association of Nepalese Mathematicians in America.
6. 2017 – 2019. Served as President, Association of Nepalese Mathematicians in America.
7. 2015. ANMA Earthquake Relief Fund-Raise Committee. I was involved actively in Fund raising program for devastating Earthquake relief in Nepal. We raised about $10,000 US and handed over to Help Nepal non- profit organization.
8. 2015 – 2016. Member, Grants for Teachers Committee, Cottonwood Point Elementary School, Blue Valley School District, Kansas.
9. 2010 – 2015. Served as executive member, Association of Nepalese Mathematicians in America.