G. Michael Lavigne

CONTACT INFORMATION

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APPOINTMENTS

Assistant Director for Communication Education and Outreach
Southeast Center for Mathematics and Biology (SCMB); *July 2020 - present*

Duties include: organizing and administering education and outreach events for SCMB; planning and organizing convening research events; assessment and reporting of Center performance; creation and administration of novel Development Plan for Center trainees.

Visiting Assistant Professor; joint with above
School of Mathematics, Georgia Institute of Technology; *July 2020 - present*

Duties include: teaching two large-section service courses per semester in the School of Mathematics; developing and teaching new upper-division course (MATH-4755 Mathematical Biology), managing a team of TAs, informal student advising.

EDUCATION

North Carolina State University

Ph.D. in Applied Mathematics, May 2020; *Advisor: Kevin Flores*

M.S. in Applied Mathematics, December 2017

Tulane University

B.S. in Mathematics, May 2015; *Suma Cum Laude*

B.A. in Spanish, May 2015;

TEACHING EXPERIENCE

Multivariable Calculus, MATH-2551, GT, Fall 2021 and Spring 2022
Hybrid instruction, two sections each semester.

Mathematical Biology, MATH-4755, GT, Spring 2021
Original course on bio-systems modeling. Received **Class of 1934 Award** for excellence in small-classroom teaching

Integral Calculus, MATH-1552, GT, Fall 2020 and Spring 2021
Remote synchronous instruction, three sections. Received **CIOS Honor Roll Award** for excellence in large-classroom teaching.

Calculus III, MA-242, NCSU, Fall 2018 and Summer 2019
Calculus II, MA-241, NCSU, Spring 2019 and Spring 202
Calculus I, MA-141, NCSU, Fall 2019

Supplemental Instructor, Tulane Academic Success Center , 2013-2015
Led academic support program for Tulane's Calculus sequence courses.

Student Teacher, International School of Louisiana, Spring 2015
Taught 8th grade Geometry. Classroom conducted in Spanish.

Outreach, Events and Involvement

STEAM Workshop, Upcoming April 2022
Workshop for metro Atlanta high school students. Students will use analogue and digital experiments to discover the laws of exponential growth in bio-systems.

SCMB 4th Annual Symposium, December 13-16, 2021
Served as lead organizer for SCMB's flagship annual event, focused on how math-bio researchers can find success in their collaborations and careers. Recruited speakers, panelists, and served as moderator.

SCMB Summer Modeling Accelerator, Summer 2021
Served as principal developer, organizer, and instructor for pilot summer program for early undergraduates to study the mathematical modeling of complex bio-systems.

SCMB 3rd Annual Symposium, December 7-10, 2020
Co-organized SCMB's flagship annual event in online format, focused on highlighting successful inter-disciplinary math-bio collaborations and dissecting the development of *Interactional Expertise*.

Undergraduate Research Mentor, Fall 2016 - Spring 2018
Mentored undergraduate research project on Cellular Automata models of influenza infection.

Mathematical Interests

- ❑ Mathematical Biology and Infectious Disease Modeling
- ❑ Ordinary and Partial Differential Equations
- ❑ Agent-based Modeling and Cellular Automata
- ❑ Inverse Problems, Parameter Estimation, and Machine Learning

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Honors and Awards

Fall 2021	CIOS Teaching Honor Roll
Spring 2021	Class of 1934 Teaching Award
Fall 2020	CIOS Teaching Honor Roll
2016–2018	RTG Fellowship
2015–2016	Provost Fellowship
May 2015	Terry C. Lawson Prize *(Math Dept. honors)*
May 2015	Hispano-american Studies Prize *(Spanish Dept. honors)*
2011–2015	Dean's Honor Scholarship
2011–2015	National Merit Scholar

Coursework and Skills

- ❑ Functional Analysis
- ❑ Matrix Theory
- ❑ Dynamical Systems
- ❑ Control Theory
- ❑ Partial Differential Equations
- ❑ Mathematical Modeling
- ❑ Numerical Analysis
- ❑ Numerical Methods for PDEs
- ❑ Complex Variables
- ❑ Machine Learning

Programming:	MATLAB, Maple, Python, LaTeX.
Learning Platforms:	Canvas, Moodle, Desmos, itempool.
Languages:	English, Spanish

Talks and Activities

What we have learned by living with another discipline, Panel Moderator, SCMB 4th Annual Symposium. (Dec. 2021)

Mathematical Biology: past, present, and future, seminar talk, GT Undergraduate Math Seminar. (Nov. 2021)

What can we learn from embedding in each other's spaces?, Panel Moderator, SCMB 3rd Annual Symposium. (Dec. 2020)

Quantifying Uncertainty in a Stochastic Cellular Automata Model via Equation Learning, SMB Annual Meeting, poster presentation; Montreal, QC. (July 2019) - **Poster Award Recipient**

Non-mechanistic Learning of PDEs from Spatial Biological Data, BAMM!, oral presentation; Richmond, VA. (May 2019)

Non-mechanistic Learning of PDEs from Spatial Biological Data, SAMSI PMED/MUMS Joint Meeting, oral presentation; Raleigh, NC. (May 2018)

Spatial Modeling of in-vivo viral infection with Interferon Response, BAMM!, poster presentation; Richmond, VA. (May 2018)

Spatial Modeling of in-vivo viral infection with Interferon Response, SIAM Southeast Atlantic Section, oral presentation; Chapel Hill, NC. (Feb. 2018)

DARPA INTERCEPT Review Meeting, San Fransisco, SF (Oct. 2017)

Impact of IFN Response of Spatial Dynamics of Viral Infection, SIAM Conference on Applications of Dynamical Systems, oral presentation; Snowbird, UT. (May 2017)

DARPA INTERCEPT Kick-off Meeting, Arlington, VA (March 2017)

Turing Patterns in Biological Morphogenisis, SynTheSys Lunch Talks, oral presentation, NC State University. (Jan. 2017)

Publications

"'Ring Vaccination' and 'Contact Tracing' as strategies of the innate immune response to viral infection," Lavigne et al., *Proceedings of the Royal Society B,* 2021.

"Learning partial differential equations for biological transport models from noisy spatiotemporal data," Lagergren and Nardini et al., *Proceedings of the Royal Society A,* 2020.