

# Tay Chai Jian

taycj@ump.edu.my



## ▼ Working Experience

November 2022 - Current

Senior Lecturer • Centre for Mathematical Sciences, Universiti Malaysia Pahang, 26300 Gambang, Pahang

January 2022 - October 2022

Assistant Professor • Department of Physical and Mathematical Sciences, Faculty of Science, Universiti Tunku Abdul Rahman, Kampar, Perak

## ▼ Education

Year	Educational Institution	Degree
2018-2021	Universiti Sains Malaysia (USM)	Doctor of Philosophy (Mathematics)
2017-2018	Universiti Sains Malaysia (USM)	Master of Science (Mathematics)
2012-2016	Universiti Teknologi Malaysia (UTM)	Bachelor of Science (Industrial Mathematics) -CGPA: 3.97
2010-2011	SMK Tinggi Kluang, Johor, Malaysia	Sijil Tinggi Pelajaran Malaysia (STPM)
2005-2009	SMK Tinggi Kluang, Johor, Malaysia	Sijil Pelajaran Malaysia (SPM)

## ▼ Research Field

Mathematical modelling

## ▼ Research Interest

Lake modelling, regime shift, bifurcation analysis, dengue modelling, pharmaco-economic of vaccine

## ▼ Thesis Titles

- 1) Doctor of Philosophy (Mathematics): Regime Shift Analysis for Effective Management of Lakes  
Main Supervisor: Assoc Prof Dr Teh Su Yean, Co-supervisor: Dr Mohd Hafiz Mohd
- 2) Master of Science (Mathematics): Pharmaco-economic Model of Dengue Vaccine in Malaysia  
Supervisor: Assoc Prof Dr Teh Su Yean
- 3) Bachelor of Science (Industrial Mathematics): Analysis of Blood Flow through A Catheterized Stenosed Artery using Mathematica  
Supervisor: Prof Dr Norsarahaida Bt Saidina Amin

## ▼ Computer Skills

C++, Matlab, Mathematica, XPPAUT, MatCont

## ▼ List of Publications

- 1) Tay, C.J., Koh, H.L., Mohd, M.H. and Teh, S.Y., 2022. Assessing the role of internal phosphorus recycling on eutrophication in four lakes in China and Malaysia. *Ecological Informatics*, 72, 101830. (Q1 with impact factor 4.498)
- 2) Tay, C.J., Mohd, M.H., Teh, S.Y. and Koh, H.L., 2022. Internal phosphorus recycling promotes rich and complex dynamics in an algae-phosphorus model: Implications for eutrophication management. *Journal of Theoretical Biology*, 532, 110913. (Q2 with impact factor: 2.691)
- 3) Tay, C.J., Fakhruddin, M., Fauzi, I.S., Teh, S.Y., Syamsuddin, M., Nuraini, N. and Soewono, E., 2022. Dengue epidemiological characteristic in Kuala Lumpur and Selangor, Malaysia. *Mathematics and Computers in Simulation*, 194, 489-504. (Q1 with impact factor 2.463)
- 4) Tay, C.J., Teh, S.Y. and Koh, H.L., 2021. Pricing model for dengue vaccine in Malaysia. In: Kasihmuddin, M.S.M., Teh, W.C., Hamid, N.N.A.H., Sek, S.K., Kong, V.P. and Chong, Z.L. (eds.), International Conference on Mathematical Sciences and Technology 2020 (MathTech 2020), 8–10 December 2020, Penang, Malaysia. *American Institute of Physics (AIP) Conference Proceedings*, 2423(1). <https://doi.org/10.1063/5.0075361>.
- 5) Tay, C.J., Teh, S.Y., Koh, H.L., Mohd, M.H. and Zhang, Z., 2021. Managing regime shift in lake systems by modelling and simulation. In: Mohd M.H., Misro M.Y., Ahmad S., Nguyen Ngoc D. (eds) Modelling, Simulation and Applications of Complex Systems. CoSMos 2019. *Springer Proceedings in Mathematics and Statistics*, vol 359. Springer, Singapore. [https://doi.org/10.1007/978-981-16-2629-6\\_11](https://doi.org/10.1007/978-981-16-2629-6_11)
- 6) Tay, C.J., Teh, S.Y. and Koh, H.L., 2020. Eutrophication bifurcation analysis for Tasik Harapan restoration. *International Journal of Environmental Science and Development*, 11(8), 407-413. DOI: 10.18178/ijesd.2020.11.8.1282.
- 7) Koh, H.L., Tan, W.K., Teh, S.Y. and Tay, C.J., 2019. Water quality simulation for rehabilitation of a eutrophic lake in Selangor, Malaysia. *IOP Conference Series: Earth and Environmental Science*, 380, 012006.
- 8) Tay, C.J., 2019. Dynamical behavior of secondary dengue infection model. *Communication in Biomathematical Sciences*, 2(1), pp. 1-11. DOI: 10.5614/cbms.2019.2.1.1.
- 9) Tay, C.J., Teh, S.Y. and Koh, H.L., 2018. ASEI-SEIR model with vaccination for dengue control in Shah Alam, Malaysia. In: Heijster, P.V., Quam, M. and Handayani, D. (eds.), Symposium on Biomathematics (Symomath 2017), 27–29 August 2017, Bandung Institute of Technology, Indonesia. *American Institute of Physics (AIP) Conference Proceedings*, 1937(1).
- 10) Tay, C.J., Teh, S.Y. and Koh, H.L., 2018. Bistable equilibrium criteria in dengue transmission model for Malaysia. In: Mohamad, D., Akbarally, A.B., Maidinsah, H., Jaffar, M.M., Mohamed, M., Sharif, S.R. and Rahman, W.E.Z.W.A. (eds.), Simposium Kebangsaan Sains Matematik (SKSM25), 27–29 August 2017, Pahang, Malaysia. *American Institute of Physics (AIP) Conference Proceedings*, 1974(1).
- 11) Tay, C.J. and Amin, N., 2016. Analysis of blood flow through a catheterized stenosed artery using Mathematica. In: Salleh, S., Aris, N., Bahar, A., Zainuddin, Z.M., Maan, N., Lee, M.H., Ahmad, T. and Yusof, Y.M. (eds.), Simposium Kebangsaan Sains Matematik (SKSM23), 24–26 November 2015, Johor Bahru, Malaysia. *American Institute of Physics (AIP) Conference Proceedings*, 1750(1).

## ▼ Paper recommended by Prof Donald DeAngelis in Faculty Opinions

DeAngelis D: Faculty Opinions Recommendation of [Tay CJ et al., J Theor Biol 2022 532:110913]. In Faculty Opinions, 22 Nov 2021; 10.3410/f.740892290.793589766.