Natanael Karjanto

Curriculum Vitaæ

Employment

2010–now	**Sungkyunkwan University**, Republic of Korea	Assistant Professor
2007–2010	**University of Nottingham**, Malaysia Campus	Assistant Professor

Education

2003–2006	**Universiteit Twente**, The Netherlands	PhD in Applied Mathematics
2001–2003	**Universiteit Twente**, The Netherlands	MSc in Mathematical Sciences
1997–2001	**Bandung Institute of Technology**, Indonesia	BS in Mathematics

Publication

Journal Articles

42 R. Kudiantara, H. Susanto, F. T. Adriano, and N. Karjanto. Analysis of multistability in discrete quantum droplets and bubbles. *Chaos, Solitons and Fractals*, **187**: 115410, 2024. https://doi.org/10.1016/j.chaos.2024.115410

41 N. Karjanto. Teaching mathematical modeling in a sustainability context. *The Undergraduate Mathematics and Its Applications (UMAP) Journal*, **45**(2): 129–136, 2024. arxiv.org/abs/2312.02165 [math.HO]

40 N. Karjanto and P. Sadhani. Unraveling the complexity of inverting the Sturm-Liouville boundary value problem to its canonical form. *Mathematics*, **12**(9): 1329, 2024. arxiv.org/abs/2402.00408 [math.CA]

39 N. Karjanto. Modeling wave packet dynamics and exploring applications: A comprehensive guide to the nonlinear Schrödinger equation. *Mathematics*, **12**(5): 744, 2024. https://doi.org/10.3390/math12050744

38 N. Karjanto. Investigating difficulties and enhancing understanding in linear algebra: Leveraging SageMath and ChatGPT for (orthogonal) diagonalization and singular value decomposition. *Mathematical Biosciences and Engineering*, **20**(9): 16551–16595, 2023. arxiv.org/abs/2303.17163 [math.HO]

37 K. Sakkaravarthi, S. Singh, and N. Karjanto. Exploring the dynamics of nonlocal nonlinear waves: Analytical insights into the extended Kadomtsev-Petviashvili model. *Frontiers in Physics*, **11**: 1168830, 2023. arxiv.org/abs/2304.05717 [nlin.PS]

36 N. Karjanto. On spatial Fourier spectrum of rogue wave breathers. *Mathematical Methods in the Applied Sciences*, **46**(3): 3405–3421, 2023. arxiv.org/abs/2107.10547 [nlin.PS]

36 N. Karjanto. Bright soliton solution of the nonlinear Schrödinger equation: Fourier spectrum and fundamental characteristics. *Mathematics*, **10**(23): 4559, 2022.

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arxiv.org/abs/2205.01521 [nlin.PS]

35 N. Karjanto and M. J. Acelajado. Sustainable learning, cognitive gains, and improved attitudes in college algebra flipped classrooms. *Sustainability*, **14**(19): 12500, 2022. arxiv.org/abs/2210.15979 [math.HO]

34 N. Karjanto. Revisiting indigenous wisdom of Javanese Pranata mangsa. Comment on Zaki et al. Adaptation to extreme hydrological events by Javanese society through local knowledge. Sustainability 2020, 12, 10373. *Sustainability*, **14**(15): 9632, 2022. arxiv.org/abs/2204.13893 [math.HO]

33 N. Karjanto. Perturbed potential temperature field in the atmospheric boundary layer. *Zeitschrift für Angewandte Mathematik und Mechanik*, **102**(8): e202100484, 2022. arxiv.org/abs/2110.15524 [physics.flu-dyn]

32 N. Karjanto. Seeking genuine vocations through sustainability in chemical engineering. *Sustainability*, **14**(15): 9632, 2022. arxiv.org/abs/2203.01547 [math.HO]

31 N. Karjanto. On modified second Paine–de Hoog–Anderssen boundary value problem. *Symmetry*, **14**(1): 54, 2022. arxiv.org/abs/2202.00249 [math.CA]

30 N. Karjanto. Peregrine soliton as a limiting behavior of the Kuznetsov-Ma and Akhmediev breathers. *Frontiers in Physics*, **9**: 599767, 2021. arxiv.org/abs/2009.00269 [nlin.PS]

29 N. Karjanto. Calculus and digital natives in rendezvous: *wxMaxima* impact. *Education Sciences*, **11**(9): 490, 2021. arxiv.org/abs/2104.00295 [math.HO]

28 C.-S. Lee, N. Karjanto, D. E. Drew, and A. M. Halim. Perceptions towards sustainable transportation and recommendations: A survey case study in Jakarta, Indonesia. *International Journal of Computer Information Systems and Industrial Management Applications*, **13**: 209–221, 2021. http://www.mirlabs.org/ijcisim/regular_papers_2021/IJCISIM_20.pdf

27 N. Karjanto and H. S. Husain. Not another Computer Algebra System: highlighting *wxMaxima* in Calculus. *Mathematics*, **9**(12): 1317, 2021. arxiv.org/abs/2104.00295v2 [math.HO]

26 N. Karjanto. On physical optics approximation of stratified shear flows with eddy viscosity. *Physics of Fluids*, **33**(5): 054107, 2021. arxiv.org/abs/1908.05457 [physics.ao-ph]

25 O. Kirikchi and N. Karjanto. Discrete solitons dynamics in $\mathscr{PT}$-symmetric oligomers with complex-valued couplings. *Nonlinear Dynamics*, **103**(3): 2769–2782, 2021. arxiv.org/abs/2005.08947 [nlin.PS]

24 S. T. Yong, N. Karjanto, P. Gates, A. Chan, and T.-M. Khin. Let us rethink how to teach mathematics using gaming principles. *International Journal of Mathematical Education in Science and Technology*, **52**(8): 1175-1194, 2021. https://doi.org/10.1080/0020739X.2020.1744754

23 N. Karjanto and L. Simon. English-medium instruction Calculus in Confucian-Heritage Culture: Flipping the class or overriding the culture? *Studies in Educational Evaluation*, **63**: 122–135, 2019. arxiv.org/abs/1611.08377 [math.HO]

22 H. Susanto, N. Karjanto, Zulkarnain, T. Nusantara, and T. Widjanarko. Soliton and breather splitting on star graphs from tricrystal Josephson junctions. *Symmetry*, **11**: 271, 2019. arxiv.org/abs/1906.04901 [nlin.PS]

21 N. Karjanto, S.G Lee, and J.H. Lee. Flipped class with electronic book and *SageMathCell* for Linear Algebra. *The Electronic Journal of Mathematics and Technology*, **13**(1): 109–120, 2019. arxiv.org/abs/1705.00739 [math.HO]

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20 O.B. Kirikchi, B. A. Malomed, N. Karjanto, R. Kusdiantara, and H. Susanto. Solitons in a chain of charge-parity-symmetric dimers. *Physical Review A*, **98**(6): 063841, 2018. arxiv.org/abs/1806.10413 [nlin.PS]

19 N. Karjanto. Attitude toward mathematics among the students at Nazarbayev University Foundation Year Programme. *International Journal of Mathematical Education in Science and Technology*, **48**(6): 849–863, 2017. arxiv.org/abs/1609.00480 [math.HO]

18 N. Karjanto and B. Yermukanova. Integral of radical trigonometric functions revisited. *The Mathematics Enthusiast*, **13**(3): 243–354, 2016. arxiv.org/abs/1606.08544 [math.HO]

17 N. Karjanto, W. Hanif, B. Malomed, and H. Susanto. Interactions of bright and dark solitons with localized $\mathscr{PT}$-symmetric potentials. *Chaos*, **25**: 023112, 2015. arxiv.org/abs/1401.4241 [nlin.PS]

16 N. Karjanto. On the method of strained parameters for a KdV type of equation with exact dispersion property. *IMA Journal of Applied Mathematics*, **80**: 893–905, 2015. arxiv.org/abs/1609.00781 [physics.flu-dyn]

15 N. Karjanto and R. Osman. On the transition period of implementing new mathematics curriculum for Foundation engineering students. *Hellenic Mathematical Society International Journal for Mathematics in Education*, **5**: 24–45, 2013. arxiv.org/abs/1503.08921 [math.HO]

14 N. Karjanto and S. T. Yong. Test anxiety in mathematics among early undergraduate students in a British university in Malaysia. *European Journal of Engineering Education*, **38**(1): 11–37, 2013. arxiv.org/abs/1507.08749 [math.HO]

13 N. Karjanto. Calculus teaching and learning in South Korea. *Jurnal Matematika Integratif*, **9**(2): 179–193, 2013. arxiv.org/abs/1504.07803 [math.HO]

12 N. Karjanto and H. Susanto. Exploiting bifurcations in waveguide arrays for light detectors. *Physical Review A*, **85**(4): 045803, 2012. arxiv.org/abs/1706.00582 [nlin.PS]

11 N. Karjanto. Mollweide's equation in teaching trigonometry. *Teaching Mathematics and Its Applications: International Journal of the IMA*, **30**(2): 70–74, 2011. arxiv.org/abs/1808.08049 [math.HO]

10 N. Karjanto and K. M. Tiong. Stability of the NLS equation with viscosity effect. *Journal of Applied Mathematics*, vol. **2011**, art. ID 863161, 11 pp., 2011. arxiv.org/abs/1804.06949 [physics.flu-dyn]

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8 N. Karjanto and E. van Groesen. Qualitative comparisons of experimental results on deterministic freak wave generation based on modulational instability. *Journal of Hydro-environment Research*, **3**: 186–192, 2010. arxiv.org/abs/1609.09266 [physics.flu-dyn]

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6 H. Susanto and N. Karjanto. Calculated threshold of supratransmission phenomena in waveguide arrays with saturable nonlinearity. *Journal of Nonlinear Optical Physics and Materials*, **17**(2): 159–165, 2008. arxiv.org/abs/1901.09518 [physics.optics]

5 N. Karjanto and E. van Groesen. Note on wavefront dislocation in surface water waves. *Physics Letters A*, **371**(3): 173–179, 2007. arxiv.org/abs/1908.06260 [nlin.PS]

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4 Andonowati, N. Karjanto, and E. van Groesen. Extreme wave phenomena in down-stream running modulated waves. *Applied Mathematical Modelling*, **31**(7): 1425–1443, 2007. arxiv.org/abs/1710.10804 [physics.flu-dyn]

3 E. van Groesen, Andonowati, and N. Karjanto. Displaced phase-amplitude variables for waves on finite background. *Physics Letters A*, **354**(4): 312–319, 2006. arxiv.org/abs/1906.00959 [nlin.PS]

2 W. M. Kusumawinahyu, N. Karjanto, and G. Klopman. Linear theory for single and double flap wavemakers. *Journal of the Indonesian Mathematical Society*, **12**(1): 41–57, 2006. arxiv.org/abs/1703.09445 [physics.flu-dyn]

1 N. Karjanto, E. van Groesen, and P. Peterson. Investigation of the maximum amplitude increase from the Benjamin-Feir instability. *Journal of the Indonesian Mathematical Society*, **8**(4): 39–47, 2002. arxiv.org/abs/1110.4686 [physics.flu-dyn]

Book Chapter

3 N. Karjanto and F. Beauducel. An ethnoarithmetic excursion into the Javanese calendar. In B. Sriraman, editor-in-chief, *Handbook of the History and Philosophy of Mathematical Practice*, pp. 1097–1126, Springer, Cham, Switzerland, 2024. (ISBN 978-3-030-19071-2) arxiv.org/abs/2012.10064 [math.HO]

2 N. Karjanto. The nonlinear Schrödinger equation: A mathematical model with its wide range of applications. In V. A. Simpao and H. C. Little, editors, *Understanding the Schrödinger Equation: Some [Non]Linear Perspectives*, pp. 135–179, Nova Science Publishers, Hauppauge, New York, 2020. (ISBN 978-1-53617-662-9) arxiv.org/abs/1912.10683 [nlin.PS]

1 N. Karjanto and E. van Groesen. Mathematical Physics Properties of Waves on Finite Background. In S. P. Lang and S. H. Bedore, editors, *Handbook of Solitons: Research, Technology and Applications*, pp. 501–539, Nova Science Publishers, Hauppauge, New York, 2009. (ISBN 978-1-60692-596-6) arxiv.org/abs/1610.09059 [nlin.PS]

PhD thesis

Title *Mathematical Aspects of Extreme Water Waves*, 2006. (ISBN 978-9-03-652431-5)

Advisor E. W. C. (Brenny) van Groesen arxiv.org/abs/2006.00767 [nlin.PS]

Conference Proceedings

14 N. Karjanto. A brief guide for a successful teaching assistantship. In M. Muzuni, et al. (Eds.) *AIP Conference Proceedings*, **2704**(1): 050007, 2023. https://doi.org/10.1063/5.0138497, arXiv.org/abs/2201.00071 [math.HO]

13 N. Karjanto. Active participation and student journal in Confucian heritage culture mathematics classrooms. In K. Wijaya (Ed.) *Proceedings of the International Conference on Mathematics, Geometry, Statistics, and Computation (IC-MaGeStiC 2021)*, vol. **96**, pp. 89–91, 2022. Dordrecht, the Netherlands: Atlantis Press. arxiv.org/abs/1912.07837 [math.HO]

12 N. Karjanto and J. Tan. On varying coefficients of spatial inhomogeneous nonlinear Schrödinger equation. *Journal of Physics: Conference Series*, **1039**(1): 012001. IOP Publishing, 2018. arxiv.org/abs/1709.08622 [nlin.PS]

11 N. Karjanto and H. S. Husain. Adopting *Maxima* as an open-source Computer Algebra System into mathematics teaching and learning. In Kaiser G. (Ed.) *Proceedings of the 13th International Congress on Mathematical Education*. *ICME-13 Monographs*. Springer, Cham, Switzerland, pp. 733–734, 2017. doi.org/10.1007/978-3-319-62597-3_128

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10 N. Karjanto, M. Kairatbekkyzy, and J. Agee. Embedded librarianship and problem-based learning in undergraduate mathematics courses. *International Congress of Women Mathematicians Presentation Book*, Ewha Womans University, Seoul, South Korea. pp. 117–120, 2014. arxiv.org/abs/1504.01466 [math.HO]

9 N. Karjanto and S. T. Yong. Some pros and cons of implementing parallel and block teachings for Mathematics modules. *Proceedings of the 3rd International Conference on Science and Mathematics Education (CosMEd)*, ME-40: 1–10, 2009. arXiv.org/abs/1810.07365 [math.HO]

8 N. Karjanto and E. van Groesen. Experiments on freak wave generation based on modulational instability. *Proceedings of the 2nd International Symposium on Shallow Flows*, The Hong Kong University of Science and Technology, Hong Kong, 6 pp., 2008.

7 N. Karjanto and E. van Groesen. Derivation of the NLS breather solutions using displaced phase-amplitude variables. *Proceedings of the 5th SEAMS-GMU Conference 2007*, pp. 357-368, 2008. arxiv.org/abs/1110.4704 [physics.flu-dyn]

6 Marwan, Andonowati, and N. Karjanto. Maximum temporal amplitude and design of experiments for generation of extreme waves. *Proceedings of the 11th Asian Congress of Fluid Mechanics*, Kuala Lumpur, Malaysia, pp. 978-983, 2006. arXiv.org/abs/1811.01524 [physics.flu-dyn]

5 R. H. M. Huijsmans, G. Klopman, N. Karjanto, and Andonowati. Experiments on extreme wave generation using the Soliton on Finite Background. In M. Olagnon and M. Prevosto, editors, *Rogue Waves 2004*, IFREMER, 10 pp., 2005. arxiv.org/abs/1110.5119 [physics.flu-dyn]

4 E. van Groesen, Andonowati, and N. Karjanto. Deterministic aspect of nonlinear modulation instability. In M. Olagnon and M. Prevosto, editors, *Rogue Waves 2004*, IFREMER, 12 pp., 2005. arxiv.org/abs/1110.5120 [physics.flu-dyn]

3 N. Karjanto and E. van Groesen. Relation among breather type solutions of the nonlinear Schrödinger equation. *Proceedings of the 12th National Mathematics Conference*, Udayana University, Bali, Indonesia, 13 pp., 2004.

2 N. Karjanto. Properties of Chebyshev polynomial. *Publication Scientifique de l'Association de Etudiants Indonésiens en France (PubScieAEIF)*, **2**(1): 127-132, 2002. arxiv.org/abs/2002.01342 [math.HO]

1 S. Rienstra, N. Karjanto, S. D. Destiyani, and Andonowati. The effects of increasing speed on the structure of axle box bogies of NT-11 trains. In Andonowati and B. W. van de Fliert, editors, *Proceedings Supplement of the Industrial Mathematics Week 2000*, ITB, **33**(1), 9 pp., 2001. arxiv.org/abs/2001.09558 [math.OC]

ePrint, Problem, Addendum

16 P. K. Ng and N. Karjanto. Enhancing academic performance: The impact of active learning in mathematical economics. arXiv, 4 pp., 2023. arxiv.org/abs/2311.12837 [math.HO]

15 S. Laudari and N. Karjanto. Enhancing flipped classroom pedagogy in linear algebra through machine learning. arXiv, 5 pp., 2023. arxiv.org/abs/2309.16259 [math.HO]

14 N. Karjanto. Mathematical modeling for sustainability: How can it promote sustainable learning in mathematics education? arXiv, 20 pp., 2023. arxiv.org/abs/2307.13663 [math.HO]

13 N. Karjanto, Z. Zhang, and Y. Park. Young love in contemporary China: Attitudes and behaviors in romantic relationships. Qeios, 23 pp., 2023. https://doi.org/10.32388/hfrjau

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12 R. S. F. Iskandar, N. Karjanto, Y. S. Kusumah, and I. R. Ihsan. A systematic literature review on ethnomathematics in geometry. arXiv, 17 pp., 2022. arxiv.org/abs/2212.11788 [math.HO]

11 N. Karjanto. What is the planetary boundary layer? arXiv, 3 pp., 2021. arxiv.org/abs/2111.15132 [physics.ao-ph]

10 H. Susanto, N. Karjanto, Zulkarnain, T. Nusantara, and T. Widjanarko. Addendum of *Symmetry* 2019, *11*(2), 271. *Symmetry*, **12**(7): 1151, 2020.

9 N. Karjanto. "Dear Kingos, It's all right to be noisy!" Why is it so hard to get them talking? arXiv, 4 pp., 2019. arxiv.org/abs/1912.07837 [math.HO]

8 I. R. Ihsan and N. Karjanto. Optimizing students combinatorial thinking skill through design-based research. arXiv, 5 pp., 2019. arxiv.org/abs/1911.07655 [math.HO]

7 N. Karjanto. Solution of Problem Corner No. 776. *The Pentagon–A Mathematics Magazine for Students* **76**(1): 33–35, 2016. arxiv.org/abs/2112.00257 [math.HO]

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5 B. Yermukanova, L. Zhexembay, and N. Karjanto. On a method of solving the Black-Scholes equation. arXiv, 14 pp., 2015. arxiv.org/abs/1504.03074 [q-fin.PR]

4 R. Lahaye and N. Karjanto. Development of strategies to improve the students' learning by participation in class and out-of-classroom. *Educational Policy Development Project Report*, 62 pp., 2011. arxiv.org/abs/1505.06883 [physics.ed-ph]

3 E. Septiati and N. Karjanto. Challenges in teaching Real Analysis classes at the University of PGRI, South Sumatra, Indonesia. arXiv, 5 pp., 2008. arxiv.org/abs/2008.00182 [math.HO]

2 N. Karjanto. Wave group evolution and interaction. MSc thesis, arXiv, 35 pp., 2003. arxiv.org/abs/2003.05742 [nlin.PS]

1 N. Karjanto. A theoretical study on a two-dimensional flap-type wavemaker. Undergraduate thesis, arXiv, 94 pp., 2001. arxiv.org/abs/2001.05854 [physics.flu.dyn]

Others (Nonscientific)

10 N. Karjanto. Bike–From need to pleasure. *NU Magazine* **1**: 22, 2014.

9 N. Karjanto. The 10^{th} international peace marathon–An event with diversity. *Gangnam News* **207**, 2012.

8 N. Karjanto. Apgujeong Rodeo Street–Then and now. *Gangnam News* **205**, 2012.

7 N. Karjanto. A letter from Garosu-gil. *Gangnam News* **203**, 2012.

6 N. Karjanto. *Een dagje naar gisteren*, Holiday in *het Openlucthmuseum*. *Ideaal!* **11**(2): 62-64, 2005.

5 N. Karjanto and L. Pesch. Classical music performance by the Dutch student orchestra. *Ideaal!* **11**(1):18, 2005.

4 N. Karjanto. Experiences to a Dutch circus show. *Ideaal!* **10**(4): 43-44, 2004.

3 N. Karjanto. Let's keep a good spirit–Few notes on the November fire. *Ideaal!* **8**(6): 45-47, 2002.

2 N. Karjanto and H. Susanto. IAMS-N Seminar–Report on a two-day seminar organized by Indonesian students in The Netherlands. *Ideaal!* **8**(3): 15, 2002.

1 N. Karjanto. One event with international faces. *Ideaal!* **8**(2): 20-22, 2002.

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Supervision

2022–2024	Rachel Park	*Undergraduate research*
2023	Jiho Jeon and Myeong Yoon	*Science High School for the Gifted*
2020–2022	Joshua Park	*Undergraduate research*
2009–2011	Jieqiang Tan (Consultant at *Frost & Sullivan*)	*MPhil degree*

Research Visit

2022	Asia Pacific Center for Theoretical Physics	*Korea*
2020	Centre of Mathematical Modelling and Simulation	*Indonesia*
2018	University of Nottingham	*Malaysia*
2017	University of Essex	*UK*
2012	Providence University	*Taiwan*
2010	LabMath-Indonesia	*Indonesia*
2004	Center of Mathematics ITB	*Indonesia*

Teaching

Fall 2024	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDN055 Mathematical Modeling for Sustainability	*Instructor*
Spring 2024	GEDB001 Calculus 1 (2 sections)	*Instructor*
	GEDN055 Mathematical Modeling for Sustainability	*Instructor*
Fall 2023	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDN055 Mathematical Modeling for Sustainability	*Instructor*
Summer 2023	ISS3210 Engineering Mathematics 2	*Instructor*
Spring 2023	GEDB001 Calculus 1 (2 sections)	*Instructor*
	GEDN055 Mathematical Modeling for Sustainability	*Instructor*
Fall 2022	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Summer 2022	ISS3210 Engineering Mathematics 2	*Instructor*
Spring 2022	GEDB001 Calculus 1 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Fall 2021	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Spring 2021	GEDB001 Calculus 1 (3 sections)	*Instructor*
Fall 2020	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Spring 2020	GEDB001 Calculus 1	*Instructor*
	GEDB003 Linear Algebra (2 sections)	*Instructor*
Fall 2019	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Spring 2019	GEDB001 Calculus 1 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Winter 2018	GEDB001 Calculus 1	*Instructor*

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Fall 2018	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Spring 2018	GEDB001 Calculus 1	*Instructor*
	GEDB003 Linear Algebra (2 sections)	*Instructor*
Fall 2017	GEDB003 Linear Algebra (3 sections)	*Coordinator*
Spring 2017	GEDB001 Calculus 1	*Instructor*
	GEDB003 Linear Algebra (2 sections)	*Instructor*
Winter 2016	GEDB001 Calculus 1 (2 sections)	*Instructor*
Fall 2016	GEDB002 Calculus 2 (2 sections)	*Instructor*
	GEDB003 Linear Algebra	*Instructor*
Summer 2016	GEDB001 Calculus 1	*Instructor*
Spring 2016	GEDB001 Calculus 1	*Instructor*
	GEDB003 Linear Algebra (2 sections)	*Instructor*
Winter 2015	GEDB001 Calculus 1 (2 sections)	*Instructor*
Fall 2015	GEDB001 Calculus 1	*Instructor*
	GEDB002 Calculus 2 (2 sections)	*Instructor*
Spring 2015	MATH-481 Partial Differential Equations	*Instructor*
	MATH-273 Linear Algebra with Applications	*Instructor*
Fall 2014	MATH-301 Introduction to Number Theory	*Instructor*
	MATH-274 Introduction to Differential Equations	*Instructor*
Spring 2014	MATH-273 Linear Algebra with Applications	*Instructor*
	MATH-162 Calculus 2	*Instructor*
	MATH-240 Applied Statistical Methods	*Co-Instructor*
Fall 2013	MATH-251 Discrete Mathematics	*Instructor*
	MATH-240 Applied Statistical Methods	*Instructor*
Spring 2013	MATH-274 Introduction to Differential Equations	*Instructor*
	MATH-273 Linear Algebra with Applications	*Instructor*
Fall 2012	MATH-160 PreCalculus (2 sections)	*Instructor*
Summer 2012	GEDB001 Calculus 1	*Instructor*
	GEDB002 Calculus 2	*Instructor*
Spring 2012	GEDB001 Calculus 1 (2 sections)	*Instructor*
	GEDB001 Calculus 1 with SAGE	*Instructor*
	ECE5903 IT Technical Seminar	*Invited instructor*
Winter 2011	GEDB001 Calculus 1	*Instructor*
Fall 2011	GEDB002 Calculus 2 (3 sections)	*Instructor*
Summer 2011	GEDB001 Calculus 1	*Instructor*
Spring 2011	GEDB001 Calculus 1	*Instructor*
	GEDB004 Engineering Mathematics 1	*Instructor*
	GEDB007 Discrete Mathematics	*Instructor*
	ECE5903 IT Technical Seminar	*Invited instructor*
Winter 2010	GEDB002 Calculus 2	*Instructor*
Fall 2010	GEDB002 Calculus 2 (2 sections)	*Instructor*

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	GEDB007 Discrete Mathematics	*Instructor*
Summer 2010	F40FNA Foundation Algebra	*Instructor*
Spring 2010	HG1M12 Engineering Mathematics 2	*Instructor*
	HG4MPD Partial Differential Equations for Engineers	*Instructor*
	H24HCR Coastal and River Engineering	*Invited instructor*
	F40APA Applied Algebra	*Tutor*
Fall 2009	HG1M11 Engineering Mathematics 1	*Instructor*
	F40FMT Mathematical Techniques	*Tutor*
Summer 2009	F40FNA Foundation Algebra	*Tutor*
Spring 2009	HG2M16 Mathematical Techniques for Electrical Engineers	*Instructor*
	HG4MPD Partial Differential Equations for Engineers	*Instructor*
Fall 2008	HG1FND Foundation Mathematics	*Instructor*
	HG2M16 Mathematical Techniques for Electrical Engineers	*Instructor*
Summer 2008	HG1BMT Basic Mathematical Techniques	*Tutor*
Spring 2008	HG1FND Foundation Mathematics	*Instructor*
	HG2M16 Mathematical Techniques for Electrical Engineers	*Instructor*
Fall 2007	HG1FND Foundation Mathematics	*Tutor*
	HG2M16 Mathematical Techniques for Electrical Engineers	*Instructor*
Fall 2006	150630 Applied Functional Analysis	*Grader*
Spring 2006	152025 Complex Function Theory	*Teaching assistant*
Winter 2005	155010 Partial Differential Equations	*Teaching assistant*
Spring 2001	MA-272 Mathematical Methods	*Teaching assistant*
Fall 2000	MA-111 Calculus 1	*Teaching assistant*
	MA-351 Complex Function Theory	*Grader*
Summer 2000	MA-111 Calculus 1	*Teaching assistant*
	MA-112 Calculus 2	*Teaching assistant*
	MA-225 Matrices and Vector Spaces	*Grader*
	MA-272 Mathematical Methods	*Grader*
Spring 2000	MA-212 Multivariable Calculus	*Grader*
	MA-272 Mathematical Methods	*Grader*
Fall 1999	MA-111 Calculus 1	*Grader*
	MA-293 Elementary Statistics	*Lab assistant*

Services

2018	Shaowei Sun's PhD Thesis	*Internal PhD Examiner*
	T. Sureshkumar's PhD Thesis (Bharathiar University, India)	*External PhD Examiner*
2013–2015	Curriculum committee	
2012–2015	Scheduling committee	*Chair*
	Textbook committee	
2012–2013	Hiring committee	
	Teaching and Learning committee	*Ex officio*
2011–2012	*Calculus with SAGE* textbook	*Editorial board*

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2009–2010 Faculty website committee

2008–2010 IT user group committee

2002 *Indonesian Applied Mathematics Society* seminar — *Co-organizer*

2000 *Physics Competition Week* committee — *Jury*

Professional

2024 *Frontiers in Public Health* — *Editorial Board*

2023 *Frontiers in Psychiatry* — *Editorial Board*

Journal of Fundamental Mathematics and Applications — *Editorial Board*

2022 *Symmetry* — *Editorial Board*

Algorithms — *Editorial Board*

SAGE Open — *Editorial Board*

Frontiers in Education — *Editorial Board*

2021 *Symmetry* — *Reviewer Board*

Athens Journal of Education — *Reviewer Board*

2019 *Mathematics Enthusiast* — *Editorial Board*

2024 *Interactive Calculus: Early Transcendental* — *Textbook Reviewer*

2023 *Introductory & Intermediate Algebra* — *Textbook Reviewer*

Starting Out with Visual C# — *Textbook Reviewer*

2022 *PreCalculus: Graphical, Numerical, Algebraic* — *Textbook Reviewer*

2021 *Linear Algebra & Its Applications* — *Textbook Reviewer*

2020 *Differential Equations & Linear Algebra* — *Textbook Reviewer*

2024 *Sustainability* — *Reviewer*

Inventions — *Reviewer*

Learning and Motivation — *Reviewer*

International Journal of Evaluation and Research in Education — *Reviewer*

Journal of Infrastructure, Policy and Development — *Reviewer*

Journal of Marine Science and Engineering — *Reviewer*

2023 *Computation* — *Reviewer*

Chaos — *Reviewer*

Chaos, Solitons and Fractals — *Reviewer*

Contemporary Mathematics — *Reviewer*

Communications in Nonlinear Science and Numerical Simulation — *Reviewer*

Optical and Quantum Electronics — *Reviewer*

Journal of Fundamental Mathematics and Applications — *Reviewer*

Diagnostics — *Reviewer*

Entropy — *Reviewer*

Heliyon — *Reviewer*

Physics of Fluids — *Reviewer*

Physica Scripta — *Reviewer*

Frontiers in Psychiatry — *Reviewer*

American Journal of Climate Change — *Reviewer*

Pasundan Journal of Mathematics Education — *Reviewer*

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	Annals of Mathematical Physics	*Reviewer*
	Archives of Advanced Engineering Science	*Reviewer*
	International Congress on Industrial and Applied Mathematics	*Reviewer*
2022	*Electronics*	*Reviewer*
	Frontiers in Education	*Reviewer*
	Frontiers in Psychology	*Reviewer*
	SAGE Open	*Reviewer*
	Applied Sciences	*Reviewer*
	Journal of Applied Analysis and Computation	*Reviewer*
	Qeios	*Reviewer*
	Sensors	*Reviewer*
2021	*Axioms*	*Reviewer*
	Journal of Mathematics	*Reviewer*
	Jordan Journal of Mathematics and Statistics	*Reviewer*
	Physica B: Condensed Matter	*Reviewer*
	Engineering Research Express	*Reviewer*
	Physical Science International Journal	*Reviewer*
	Coatings	*Reviewer*
	ChemEngineering	*Reviewer*
	Fractal and Fractional	*Reviewer*
	Materials	*Reviewer*
	Nonlinearity	*Reviewer*
	Universe	*Reviewer*
	Algorithms	*Reviewer*
	Educational Research and Reviews	*Reviewer*
	ComTech: Computer, Mathematics, and Engineering Applications	*Reviewer*
	Journal of the Korean Society of Mathematical Education Series D	*Reviewer*
	Journal of Multilingual and Multicultural Development	*Reviewer*
2020	*Physical Review E*	*Reviewer*
	Nonlinear Dynamics	*Reviewer*
	Mathematical Biosciences and Engineering	*Reviewer*
	Studies in Educational Evaluation	*Reviewer*
	Children and Youth Services Review	*Reviewer*
2019	*Symmetry*	*Reviewer*
	Mathematics	*Reviewer*
	International Journal of Mathematical Education in Science and Technology	*Reviewer*
	International Conference on Fuzzy Systems and Data Mining	*Reviewer*
	Learning and Individual Differences	*Reviewer*
	International Conference on Physics, Mathematics and Statistics	*Reviewer*
	International Congress on Mathematical Education	*Reviewer*
	Mathematics Enthusiast	*Reviewer*
2017–2020	*International Conference on Computers in Education*	*Reviewer*

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2017	*Applicable Analysis*	*Reviewer*
2016	*Wave Motion*	*Reviewer*
2015	*IEEE Transactions on Computational Intelligence and AI in Games*	*Reviewer*
2013	*Journal of Applied Mathematics*	*Reviewer*
	British Journal of Mathematics & Computer Science	*Reviewer*
	Applied Mathematics and Computational Intelligence	*Reviewer*
2011	*Mathematica Æterna*	*Editorial Board*
2011	*Applied Mathematics Letters*	*Reviewer*
	Electronic Journal of Research in Educational Psychology	*Reviewer*
2010–2016	*European Journal of Engineering Education*	*Reviewer*
2010–2013	*Progress In Electromagnetic Research*	*Reviewer*
2009	*Journal of Hydro-Environment Research*	*Reviewer*
	Shekhar (New Series) International Journal of Mathematics	*Reviewer*

Talks

Invited seminar

2022	Diponegoro University	*Indonesia*
2021	Jember University	*Indonesia*
	Halu Oleo University (Plenary speaker)	*Indonesia*
	West Sumatra PGRI University (Plenary speaker)	*Indonesia*
	Bengkulu University (Plenary speaker)	*Indonesia*
	Integrated Science and Technology Institute	*Indonesia*
2020	Korea Foundation–East Asia Institute	*Korea*
	Nusantara Islamic University	*Indonesia*
2018	North Sumatra University	*Indonesia*
2017	Xiamen University	*Malaysia*
2015	Xi'an Jiaotong University	*China*
2014	Applied Science and Technology Institute	*Indonesia*
2012	Providence University	*Taiwan*
	Bandung Institute of Technology	*Indonesia*
	Parahyangan University	*Indonesia*
	Padjadjaran University	*Indonesia*
	Indonesian Education University	*Indonesia*
2008	Multimedia University	*Malaysia*
2007	The Joseph Wibowo Center	*Indonesia*
	The University of Nottingham	*Malaysia*
2006	Alkyon Hydraulic Consultancy and Research	*The Netherlands*
2004	Bandung Institute of Technology	*Indonesia*

Conference

2024	International Congress on Mathematical Education	*Australia*
2023	International Congress on Industrial and Applied Mathematics	*Japan*
2022	Korean Society of Industrial and Applied Mathematics	*Korea*

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2021	International Congress on Mathematical Education	*China*
2019	International Congress on Industrial and Applied Mathematics	*Spain*
	Korean Society of Industrial and Applied Mathematics	*Korea*
	Korean Society of Mathematical Education	*Korea*
2018	Workshop on Mathematical Physics	*Brazil*
2018	Applied Physics and Mathematics	*Thailand*
2017	Nonlinearity and Coherent Structures	*UK*
2016	International Congress on Mathematical Education	*Germany*
2015	Waves	*Germany*
	Actual Problems of Mathematics and Mathematical Modeling	*Kazakhstan*
2014	International Congress of Mathematicians	*Korea*
	International Linear Algebra Society	*Korea*
	Mathematical Theory of Gases and Fluids	*Korea*
2013	Asian Mathematical Congress	*Korea*
2010	International Congress of Mathematicians	*India*
	Nonlinear Waves	*China*
	Science, Mathematics and Technology Education	*Taiwan*
2009	Science and Mathematics Education	*Malaysia*
	Research and Education in Mathematics	*Malaysia*
2008	Shallow Flows	*Hong Kong*
2007	Modern Optics and Its Applications	*Indonesia*
	Mathematics and Its Applications	*Indonesia*
2006	SIAM Conference on Nonlinear Waves and Coherent Structures	*WA, USA*
2005	International Conference on Applied Mathematics	*Indonesia*
2004	Modern Optics and Its Applications	*Indonesia*
	Mathematics National Conference	*Indonesia*
2002	French Indonesian Students Association Scientific Seminar	*France*
	Mathematics PhD students Conference	*Indonesia*
	Indonesian Applied Mathematics Society Seminar	*The Netherlands*
2000	International Modeling Week	*Indonesia*

Honours and Awards

Funded research

2022	National Research Foundation of Korea	*$100000*
2017	National Research Foundation of Korea	*$80000*
2016	Samsung Intramural	*$12500*
2013	Seed Grant	*$22500*
2010	Educational Policy Development Project	*$2500*
2009	New Researchers Fund	*£16000*
2000	Undergraduate Productive and Innovative Research	*$50*

Award

2019–2024	Golden *Shinpum* (신품, 神品) Award in Education

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2020	The best three in Korea Foundation Workshop on East Asia Institute ACE Challenge	
2001	The fifth prize in Workshop on Dynamical Systems	
2000	The first prize in Newspaper Clipping Competition	
1997	The third prize in Mathematics and Statistics Competition	

Travel award

2023	Waseda University, Tokyo, Japan	*$600*
2014	Korean National Institute for Mathematical Sciences	*$1700*
2010	International Mathematical Union and Government of India	*$1700*
2006	Society of Industrial and Applied Mathematics (USA)	*$500*
	Pacific Institute for the Mathematical Sciences (Canada)	*$400*
2004	JM Burgerscentrum (The Netherlands)	*€2000*
2004	International Center for Mechanical Sciences (Italy)	*€500*

Scholarship

2001–2006	STW PhD scholarship	*€90000*
2001	KNAW-EPAM and DELTA MSc fellowships	*€2500*
2000	Supersemar Foundation	*$40*
1999	Undergraduate scholarship	*$100*

References

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