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STAFF HANDBOOK

Name	**Dr. Dipo Aldila**		
Expertise	**Mathematical epidemiology**		
Academic career		**Institution**	**Year**
	Undergraduate degree	Tadulako University	2005 – 2009
	Master degree	Bandung Institute of Technology	2009 – 2011
	Doctoral degree	Bandung Institute of Technology	2011 – 2014
	Post doctoral	-	-
Employment	**Position**	**Employer**	**Period**
	Lecturer	Universitas Indonesia	2015 – 2018
	Assistant Professor	Universitas Indonesia	2018 – now
Research and development projects over the last 5 years	1. Indonesian RistekBRIN with PUPT research grant scheme, "Understanding transmission path of COVID-19 considering medical source limitation through a mathematical model", Period: 2020-2022 Partner: Bevina B. Handari, Ph.D. (member) and Dr. Hengki Tasman (member) Amount of financing: IDR. 396.000.000,- 2. Indonesian RistekBRIN with PUPT research grant scheme, "Mathematical approaches in conservation efforts to balance the ecological systems" ("Pendekatan Matematika dalam upaya konservasi untuk keseimbangan system ekologi"), Period: 2020-2022 Partner: Bevina B. Handari, Ph.D. (member) and Dr. Hengki Tasman (member) Amount of financing: IDR. 184.600.000,- 3. Indonesian RistekBRIN with PUPT research grant scheme, "vector borne disease in Indonesia : A mathematical model approach to understand how far we can relies on vector control intervention", Period: 2021-2022 Partner: Bevina B. Handari, Ph.D. (PI) and Dr. Hengki Tasman (member) Amount of financing: IDR. 132.000.000,- 4. Universitas Indonesia with PPI Q2 research grant scheme, "Analysis of the Influence of Media Awareness in Dengue Hemorrhagic Fever Control" ("Analisa Pengaruh Media Awareness dalam Pengendalian Demam Berdarah Dengue") Period: 2021 Partner: -		

	Amount of financing: IDR. 40.000.000,- 5. Universitas Indonesia with PUTI Q1 research grant scheme, "Slow-fast dynamical analysis on a vector-borne disease transmission with human social awareness", Period: 2020 – 2021 Partner: - Amount of financing: IDR. 129.000.000,- 6. Universitas Indonesia with PUTI 2Q2 research grant scheme, "Dynamical analysis on malaria transmission considering Relapse, Recrudescence, Reinfection and the use of Insecticide Treated Bed-Nets", Period: 2020 – 2021 Partner: Dr. Hengki Tasman (Member) Amount of financing: IDR. 172.000.000,- 7. Universitas Indonesia with PUTI Proceeding research grant scheme, "Sensitivity analysis of the basic reproduction number on a communicable diseases", Period: 2020 Partner: Gianinna Ardaneswari, S.Si., M.Si (Member) Amount of financing: IDR. 23.028.300,- 8. Universitas Indonesia with PUTI Q4 research grant scheme, "Analyzing the impact of quarantine intervention in a novel Covid-19 Coronavirus transmission", Period: 2020 Partner: Bevina D. Handari, Ph.D (Member) Amount of financing: IDR. 17.500.000,- 9. Indonesian RistekBRIN with Thesis for magister research grant scheme, "Coinfection analysis between measles and pneumonia with intervention of gradual vaccination" ("Analisa Koinfeksi penyakit Measles dan Pneumonia dengan intervensi vaksinasi bertahap") Period: 2020 Partner: Bevina D. Handari, Ph.D. (Member) Amount of financing: IDR. 40.000.000,- 10. Universitas Indonesia with QQ research grant scheme, "Bifurcation and chaos phenomena analysis on a mathematical biology models" ("Analisis Bifurkasi dan Fenomena Chaos Pada Model-Model Matematika Biologi") Period: 2019 Partner: Bevina B. Handari, Ph.D. (member) and Dr. Hengki Tasman (member) Amount of financing: IDR. 250.000.000,- 11. Universitas Indonesia with PUTI research grant scheme, "Dynamical analysis analytically and numerically on the models of interacting species) ("Analisa Dinamik Secara Analitik Dan Numerik Pada Model-Model Matematika Interaksi Spesies") Period: 2019 Partner: Bevina D. Handari, Ph.D. (member) Amount of financing: IDR. 90.000.000,- 12. Universitas Indonesia with PUTI research grant scheme, "A mathematical models for qualitative and quantitative analysis on an effort for eradication and endemic reduction of contagious diseases"

	("Model-Model Matematika Untuk Analisa Kualitatif dan Kuantitatif Pada Upaya Pencegahan dan Penanggulangan Penyebaran Penyakit Menular") Period: 2019 Partner: Bevina D. Handari, Ph.D. (PI) Amount of financing: IDR. 90.000.000,- 13. Universitas Indonesia with PITTA research grant scheme, "A mathematical model of vaccination and therapy on the control of Tuberculosis" ("Model Matematika Pada Intervensi Vaksinasi dan Terapi Dalam Pengendalian Penyakit Tuberculosis"), Period: 2018 Partner: Alhadi Bustamam (member) Amount of financing: IDR. 81.000.000,- 14. Universitas Indonesia with PITTA research grant scheme, "A deterministic model approach to understand the complexity on the spread of tuberculosis" ("Pendekatan Model Deterministik dalam Memahami Kompleksitas Penyebaran Penyakit Tuberculosis"), Period: 2018 Partner: Dr. Hengki Tasman (member) and Maulana Malik, S.Si., M.Si. (member) Amount of financing: IDR. 81.000.000,- 15. Universitas Indonesia with PITTA research grant scheme, "An optimal control problem on Human Immunodeficiency virus spread with a deterministic model approach" ("Masalah Kontrol Optimum Pada Model Penyebaran Penyakit Human Immunodeficiency Virus Dengan Pendekatan Model Deterministik"), Period: 2018 Partner: Bevina D. Handari, Ph.D. (PI) Amount of financing: IDR. 81.000.000,- 16. Indonesian Research and Higher Education Ministry (Kemenristekdikti) with PDUPT research grant scheme , "Deterministic and stochastic approach to understand the complexity of disease spreads", Period: 2018 – 2020 Partner: Bevina B. Handari, Ph.D. (PI) and Dr. Hengki Tasman (member) Amount of financing: IDR. 525.772.000,- 17. Universitas Indonesia with PITTA research grant scheme, "A mathematical model approach to understand the complexity of eradication of contagious diseases" ("Pendekatan Model Matematika Dalam Memahami Kompleksitas Penanggulangan Penyebaran Penyakit Menular"), Period: 2017 Partner: Bevina D. Handari, Ph.D. (member) and Maulana Malik, S.Si., M.Si. (member) Amount of financing: IDR. 90.000.000,- 18. Universitas Indonesia with PITTA research grant scheme, "Optimization problems on the topic of mathematical epidemiology" ("Masalah Optimasi Dalam Topik-topik di Matematika Epidemiologi"), Period: 2017

	Partner: Dr. Hengki tasman (member) Amount of financing: IDR. 90.000.000,- 19. Indonesian Research and Higher Education Ministry (Kemenristekdikti) with PDUPT research grant scheme, "Prevention and endemic reduction model analysis of dengue disease in a complex network" ("Kajian Model Pencegahan dan Penanggulangan Penyebaran Penyakit Menular Dalam Complex Network"), Period: 2017 – 2019 Partner: Dr. Hengki Tasman (member) and Bevina B. Handari, Ph.D. (member) Amount of financing: IDR. 465.545.100,- 20. Indonesian Research and Higher Education Ministry (Kemenristekdikti) with PDUPT research grant scheme, "Identification and analysis on the impact human mobility on the success of eradication of airborne diseases" ("Identifikasi dan analisis pengaruh mobilitas manusia pada kesuksesan penanggulangan penyebaran airbone diseases"), Period: 2016 – 2018, Partner: Dr. Hengki Tasman (PI) and Bevina B. Handari, Ph.D. (member), Amount of financing: IDR. 383.560.000,-
Industry collaborations over the last 5 years	Project title: -- Partners: --
Patents and proprietary rights	**Published book chapter :** **Year** **Dipo Aldila**, P.S.Adhyarini , Mathematical Methods and Modelling in Applied Sciences : A Predator-Prey Model with Fear Factor, Allee Effect and Periodic Harvesting, Lecture Notes in Networks and Systems, 123, pp. 12–23. 2020
Important publications over the last 5 years	**Selected recent publication** 1. **D. Aldila**, Analyzing the impact of the media campaign and rapid testing for COVID-19 as an optimal control problem in East Java, Indonesia, Chaos, Solitons and Fractals 141 (2020) 110364, 2020. 2. **D. Aldila**, M. Angelina, Optimal control problem and backward bifurcation on malaria transmission with vector bias, Heliyon, 7(4), e06824, 2020. 3. **D. Aldila,** B.M. Samiadji, G.M. Simorangkir, S.H.A. Khosnaw, M.Shahzad, Impact of early detection and vaccination strategy in COVID-19 eradication program in Jakarta, Indonesia, BMC Research Notes, 14(1), 132, 2021. 4. K.P. Wijaya, J.P. Chavez, R. Pochampalli, R. Rockenfeller, **D. Aldila**, T. Goetz, E. Soewono, Food sharing and time budgeting in predator-prey interaction, Commun Nonlinear Sci Numer Simulat, 97 (2021) 105757, 2021. 5. N. C. Ganegoda, K. P. Wijaya, M. Amadi, K. K. W. H. Erandi, **D. Aldila**, Interrelationship between daily COVID-19 cases and average temperature as well as relative humidity in Germany, Scientific Reports, 11302:11, 2021. 6. **D. Aldila,** A superinfection model on malaria transmission: Analysis on the invasion basic reproduction number, Commun. Math. Biol. Neurosci. 2021:30, 2021.

	7. **D. Aldila**, Cost effectiveness analysis and backward bifurcation analysis on COVID-19 transmission model considering direct and indirect transmission, Commun. Math. Biol. Neurosci. 2020, 2020. 8. **D. Aldila,** MZ Ndii, Samiadji BM. Optimal control on COVID-19 eradication pro- gram in Indonesia under the effect of community awareness. Math Bios Eng , 17(6):6355–6389 , 2020 9. **D. Aldila**, et al., A mathematical study on the spread of COVID-19 considering social distancing and rapid assessment: The case of Jakarta, Indonesia, Chaos, Solitons and Fractals, 2020(139), 110042, 2020. 10. M. Shahzad, A. Abdel-Ety, R A M Attia, S H A Khosnaw, **D. Aldila**, et al., Dynamics models for identifying the key transmission parameters of the COVID-19 disease, Alexandria Enggineering Journal, 60(1), pp. 757–765, 2021. 11. **D. Aldila,** N.Azizah, B.D.Handari, Optimal control problem arises from illegal poaching of southern white rhino mathematical model, Advances in Difference Equations, 2020:605, 2020. 12. K. P. Wijaya, **D. Aldila,** et al., Learning from panel data of dengue incidence and meteorological factors in Jakarta, Indonesia, Stoch Environ Res Risk Assess, 35(2), pp. 437–456, 2021. 13. **D. Aldila**, Handari, B.D., Widyah, A., Hartanti, G., Strategies of optimal control for hiv spreads prevention with health campaign, Communications in Mathematical Biology and Neuroscience 2020, 7 , 2020 14. Ali, M., Hamza, S., **D. Aldila**, et al., Evaluation of steady-state to identify the fast-slow completion-route in the multi-route reaction mechanism, Applied Nanoscience (Switzerland), 10(9), pp. 3405–3410, 2020. 15. Wijaya, K.P., Páez Chávez, J., **D. Aldila,** An epidemic model highlighting humane social awareness and vector–host lifespan ratio variation, Communications in Nonlinear Science and Numerical Simulation, 90,105389, 2020. 16. B.D. Handari, A. Amalia, S.R. Arsal, **D. Aldila,** Numerical simulation of malaria transmission model considering secondary infection, Communications in Mathematical Biology and Neuroscience, 2020, pp. 1–24, 36, 2020. 17. **D. Aldila**, Seno, H., A Population Dynamics Model of Mosquito-Borne Disease Transmission, Focusing on Mosquitoes' Biased Distribution and Mosquito Repellent Use, Bulletin of Mathematical Biology, 81(12), pp. 4977-5008, 2019. 18. B. D. Handari, F. Vitra, R. Ahya, S.T. Nadya, **D. Aldila,** Optimal control in a malaria model: intervention of fumigation and bed nets, Advances in Difference Equations 2019(1),497, 2019**.**

	19. K.P. Wijaya, **D. Aldila**, Schäfer, L.E., Learning the seasonality of disease incidences from empirical data, Ecological Complexity, 38, pp. 83-97, 2019. 20. **D. Aldila,** Padma, H., Khotimah, K., Desjwiandra, B., Tasman, H., Analyzing the MERS disease control strategy through an optimal control problem, International Journal of Applied Mathematics and Computer Science, 28(1), pp. 169-184, 2018. 21. A. Bustamam, **D. Aldila,** Yuwanda, A., Understanding Dengue Control for Short- and Long-Term Intervention with a Mathematical Model Approach, Journal of Applied Mathematics, 2018,9674138, 2018. 22. **D. Aldila,** Hutchinson, A.J., Woolway, M., Owen-Smith, N., Soewono, E., A mathematical model of black rhino translocation strategy, Journal of Mathematical and Fundamental Sciences 47(1), pp. 104-115, 2015. 23. **D. Aldila,** Götz, T., Soewono, E., An optimal control problem arising from a dengue disease transmission model, Mathematical Biosciences 242(1), pp. 9-16, 2013. 24. **D. Aldila,** COVID-19 disease transmission model considering direct and indirect transmission, E3S Web of Conferences**,** 2020(202), 12008, 2020 25. **D. Aldila,** Optimal control problem on COVID-19 disease transmission model considering medical mask, disinfectants and media campaign**,** E3S Web of Conferences, 2020(202), 12009, 2020. 26. **D. Aldila,** B.R. Saslia, W. Gayarti, H. Tasman, Backward bifurcation analysis on Tuberculosis disease transmission with saturated treatment, Journal of Physics: Conference Series, 1821(1), 012002, 2021. 27. **D. Aldila,** et al., A mathematical model of Zika disease by considering transition from the asymptomatic to symptomatic phase, Journal of Physics: Conference Series, 1821(1), 012001, 2021. 28. Delavani, **D. Aldila,** B.D. Handari, Effect of Healthy Life Campaigns on Controlling Obesity Transmission: A Mathematical Study, Journal of Physics: Conference Series, 1747(1), 012003, 2021. 29. S. Latifah, **D. Aldila,** W. Gayatri, H. Tasman, Mathematical study for an infectious disease with awareness-based SIS-M model, Journal of Physics: Conference Series, 1747(1), 012017, 2021. 30. M. Fatimah, **D. Aldila,** B.D. Handari, Backward bifurcation arises from the smoking transmission model considering media campaign, Journal of Physics: Conference Series, 1722(1), 012004, 2021. 31. A. Islamilova, **D. Aldila,** W. Giyarti, H. Tasman, Modelling the spread of atherosclerosis considering relapse and linear treatment, Journal of Physics: Conference Series, 1722(1), 012039, 2021. 32. S. Kompas, **D. Aldila,** B.D. Handari, Modelling the spread of diabetes transmission through social contact, AIP Conference Proceedings, 2296, 020098, 2020. 33. A.P. Amalia, **D. Aldila,** P.A.Dumbela, Eco-epidemiological model in the interaction betwen pelecanidae and tilapia, AIP Conference Proceedings, 2296, 020089, 2020. 34. A. Maulana, **D. Aldila**, S. Utama, E. Safitri, Model of predator-prey for interaction between agrotis segetum and Zea mays, AIP Conference Proceedings, 2296, 020088, 2020.

	35. N.P. Pratiwi, **D. Aldila**, B.D. Handari, G.M. Simorangkir, A mathematical model to control mosaic disease of Jatropha curcas with insecticide and nutrition intervention, AIP Conference Proceedings, 2296, 020096, 2020. 36. **D. Aldila,** Understanding the effects of vector-bias in the success of biolarvicides interventions for malaria prevention, AIP Conference Proceedings, 2264, 020010, 2020. 37. S.R. Arsal, **D. Aldila,** B.D. Handari, Short review of mathematical model of measles, AIP Conference Proceedings, 2020, 2264, 020003. 38. G. M. Simorangkir, **D. Aldila,** H. Tasman, Modelling the effect of hospitalization in tuberculosis spread, AIP Conference Proceedings, 2020, 2264, 020006 . 39. A. Rizal, B.d. Handari, **D. Aldila,** S.A. Rahmayani, Mathematical models for the dynamics of the HIV with antiretroviral treatment interventions and the effect of apoptosis on T-cells, AIP Conference Proceedings, 2020, 2264, 020008. 40. J. Nawawi, **D. Aldila,** Mathematical assessment on the effect of hospitalization in dengue intervention, AIP Conference Proceedings, 2020, 2242, 030002. 41. B.S. Aji, **D. Aldila,** B.D. Handari, Modeling the impact of limited treatment resources in the success of typhoid intervention, AIP Conference Proceedings, 2019, 2202, 020040. 42. E. Safitri, **D. Aldila,** Analyzing effect of harvesting on prey population when prey growth depend on fear-factor and Allee-effect, AIP Conference Proceedings, 2019, 2192, 060017. 43. P.A. Dumbela, **D. Aldila,** Dynamical analysis in predator-prey-scavenger model with harvesting intervention on prey population, AIP Conference Proceedings, 2019, 2192, 060005. 44. **D. Aldila**, D. Asrianti, A deterministic model of measles with imperfect vaccination and quarantine intervention, Journal of Physics: Conference Series, 2019, 1218(1), 012044. 45. D. Setyorini, B.D. Handari, **D. Aldila,** Numerical analysis of the impact of loss-sight and undetected cases in the spread of TB, AIP Conference Proceedings, 2019, 2084, 020019. 46. S. L. Chasanah, **D. Aldila,** H. Tasman, Mathematical analysis of a tuberculosis transmission model with vaccination in an age structured population, AIP Conference Proceedings, 2019, 2084, 020018. 47. **D. Aldila,** Z.A. Sari Ryanto, A. Bustamam, A mathematical model of TB control with vaccination in an age-structured susceptible population, Journal of Physics: Conference Series, 2018, 1108(1), 012050. 48. M. Malik, M. Larasati, **D. Aldila,** Mathematical modeling and numerical simulation of tuberculosis spread with diabetes effect, Journal of Physics: Conference Series, 2018, 1108(1), 012061. 49. F.T. Rahmawati, A. Bustamam, **D. Aldila,** A mathematical model for chemotherapy paradoxical reaction in Tuberculosis transmission, Journal of Physics: Conference Series, 2018, 1108(1), 012057. 50. A. Putri, **D. Aldila,** Prey-predator interaction model between herring and seals with phocine distemper virus (PDV) infection in seals, AIP Conference Proceedings, 2018, 2023, 020239.

<table>
<tr><td></td><td colspan="3">51. R.Q. Aini, D. Aldila, K.A. Sugeng, Basic reproduction number of a multi-patch SVI model represented as a star graph topology, AIP Conference Proceedings, 2018, 2023, 020237.</td></tr>
<tr><td>Scholar UI ID</td><td colspan="3"><u>https://scholar.ui.ac.id/en/persons/dipo-aldila</u></td></tr>
<tr><td rowspan="2">Activities in specialist bodies over the last 5 years</td><td>Organization</td><td>Role</td><td>Period</td></tr>
<tr><td>The Indonesian Mathematical Society</td><td>Coordinator of biomathematics research group</td><td>2020 - now</td></tr>
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