

Staff Handbook

Name	<i>Dr. Elly Arliani, M.Si.</i>		
Post	<i>Mathematics Education</i>		
Academic career	<i>Undergraduate Degree</i>	<i>Universitas Negeri Medan</i>	<i>1991</i>
	<i>Master Degree</i>	<i>Universitas Gadjah Mada</i>	<i>2002</i>
	<i>Doctoral Degree</i>	<i>Universitas Negeri Yogyakarta</i>	<i>2019</i>
Employment	<i>Position: Lecturer</i>	<i>Employer: UNY UNP</i>	<i>Period: 2004-Present Period: 1992-2004</i>
Research and development projects over the last 5 years	<i>1. Eksplorasi Pelaksanaan Asesmen Dalam Pembelajaran Matematika SMP dan SMA dengan Kurikulum Merdeka di Yogyakarta (year: 2025, amount of financing: Rp.24.000.000,00)</i> <i>2. Pengembangan Instrumen kemampuan Penalaran Kritis dan berpikir kreatif dengan penskalaan Stimulus dalam Pembelajaran Matematika Berbasis Pendekatan Deep Learning (year: 2025, amount of financing: Rp.50.000.000,00)</i> <i>3. Modifikasi metode Surveys of Enacted Curriculum (SEC) untuk mengevaluasi keselarasan antara asesmen dan kurikulum pada asesmen standarisasi pendidikan daerah tingkat SMA di Daerah Istimewa Yogyakarta (year: 2025, amount of financing: Rp.50.000.000,00)</i> <i>4. Pengembangan Asesmen Autentik Matematika SD Model Testlet berbasis Komputer Terintegrasi Deep Learning dan Adiwiyata (year: 2025, amount of financing: Rp.120.000.000,0)</i> <i>5. Desain Didaktis Digital: Mengintegrasikan Emergent Model dengan Dynamic Ethno Situation untuk Menjembatani Proses Abstraksi Siswa (year: 2025, amount of financing: Rp.51.380.000,00)</i> <i>6. Pemanfaatan Teknologi Informasi Pada Asesmen Pendidikan di Asia Tenggara (year: 2024, amount of financing: Rp.24.000.000,00)</i> <i>7. Model Pembelajaran PBL Berbantuan UNO Math Berbasis QR Code untuk Meningkatkan Kemampuan Berpikir Tingkat Tinggi dan Minat Belajar Siswa SMP (year: 2024, amount of financing: Rp.20.000.000,00)</i> <i>8. Konstruksi Mathematical Proficiency Siswa Visual Impairment di Kelas Inklusif SMA (year: 2024, amount of financing: Rp.49.580.000,00)</i>		

	9. <i>Design Differentiation Instructional: Prespektif Learning Profile untuk Meningkatkan Computational Thinking Skill Siswa SMP pada Materi Geometri</i> (year: 2024, amount of financing: Rp.53.100.000,00) 10. <i>Pengembangan Instrumen Tes Diagnostik Model Testlet berbasis TIK untuk Pembelajaran Matematika SMP: Solusi atas permasalahan guru menyiapkan formatif asesmen dalam kurikulum merdeka</i> (year: 2024, amount of financing: Rp.50.000.000,00) 11. <i>Model asesmen sebelum pembelajaran matematika untuk mendukung perencanaan pembelajaran terdiferensiasi pada implementasi Kurikulum Merdeka</i> (year: 2023, amount of financing: Rp.24.000.000,00) 12. <i>Konstruksi Mathematical Proficiency Siswa Visual Impairment diKelas Inklusif SMA</i> (year: 2023, amount of financing: Rp. 27.400.000) 13. <i>Model Pengukuran Capaian Pembelajaran Lulusan sebagai Upaya Peningkatan Mutu Pendidikan: Implementasi pada Prodi S2 Pendidikan Matematika</i> (year: 2023, amount of financing: Rp.40.000.000,00) 14. <i>Pengembangan Manajemen Model Perkuliahan Semiriset pada Program Studi Doktor Pendidikan Matematika</i> (year: 2023, amount of financing: Rp.20.000.000,00) 15. <i>Analisis Cognitive Dissonance Siswa SMP Kelas VIII ditinjau dari Kemampuan Pemecahan Masalah dan Berpikir Kritis Matematis</i> (year: 2023, amount of financing: Rp.20.000.000,00) 16. <i>Pengaruh Analisis Kecocokan Model pada Teori Respons Butir Terhadap Reliabilitas Bersyarat, Nilai Fungsi Informasi, dan Kesalahan Pengukuran Instrumen Pengukuran</i> (year: 2023, amount of financing: Rp.50.000.000,00) 17. <i>Pengembangan Bahan Ajar Metodologi Penelitian Pengembangan dalam Pendidikan Matematika</i> (year: 2023, amount of financing: Rp.40.000.000,00) 18. <i>Studi tentang literasi matematika siswa SMP</i> (year: 2022, amount of financing: Rp.24.000.000,00) 19. <i>Analisis Kemampuan Siswa dalam Menyelesaikan Soal Literasi Matematika Ditinjau dari Self-efficacy Matematis Siswa Kelas VIII SMP di D.I.Yogyakarta</i> (year: 2022, amount of financing: Rp.25.800.000,00) 20. <i>Penerapan Remediasi Kesulitan Belajar Matematika dan Efektivitasnya ditinjau dari Prestasi Belajar Matematika Siswa</i> (year: 2021, amount of financing: Rp.24.000.000,00)
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Industry collaborations over the last 5 years	<i>Pelatihan Analisis Data Kuantitatif dengan JASP/Jamovi bagi Guru Matematika SMA di Kabupaten Bantul</i> Year: 2025 Amount of financing: Rp.10.000.000,00 Partners: Jailani, Heri Retnawati, Kana Hidayati, Dwi Lestari Industry collaboration : MGMP SMA Kabupaten Bantul <i>Workshop Desain Pembelajaran Matematika Berbasis Deep Learning dan Asesmennya Bagi Guru Matematika SMP di Kabupaten Bantul Yogyakarta</i> Year: 2025 Amount of financing: Rp.35.000.000,00 Partners: Kana Hidayati, Djamilah Bondan Widjajanti, Husna 'Arifah Industry collaboration : MGMP SMP Kabupaten Bantul <i>Best Practice Pelaksanaan Pembelajaran Matematika SMP pada Implementasi Kurikulum Merdeka di Yogyakarta</i> Year: 2024 Amount of financing: Rp.8.000.000,00 Partners: Jailani, Heri Retnawati, Kana Hidayati Industry collaboration : MGMP SMP Kabupaten Sleman dan Bantul <i>Pelatihan Penyusunan Instrumen dalam Penilaian Sebelum Pembelajaran Matematika yang Menggunakan Model Pembelajaran Berdiferensiasi Bagi Guru Matematika SMP di Kabupaten Bantul yang Menerapkan Kurikulum Merdeka</i> Year: 2023 Amount of financing: Rp.8.000.000,00 Partners: Jailani, Heri Retnawati, Kana Hidayati Industry collaboration : MGMP SMP Kabupaten Bantul <i>Identifikasi Permasalahan Penerapan Kurikulum Merdeka di SMP Negeri 1 Banguntapan</i> Year: 2022 Amount of financing: Rp.8.000.000,00 Partners: Jailani, Heri Retnawati, Kana Hidayati Industry collaboration : SMP Negeri 1 Banguntapan <i>Webinar Implementasi Pembelajaran dengan Frame Work Stem (Science, Technology, Engineering, and Mathematics) dan Penilaiannya di SMP</i> Year: 2021 Amount of financing: Rp.9.000.000,00 Partners: Jailani, Heri Retnawati, Kana Hidayati, Fitriana Yuli Saptaningtyas, Kus Prihantoso Krisnawan Industry collaboration : guru matematika dan IPA SMP seluruh Indonesia
Patents and proprietary rights	<i>Aplikasi Tes Diagnostik Model Testlet Berbasis TIK untuk Pembelajaran Matematika SMP (2024)</i>

	2. <i>AnaliSis Diacnostic Belajar (2024)</i> 3. <i>Model Pembelajaran CAKAP (2024)</i> 4. <i>Instrumen Pengukuran Kecakapan Matematis (2024)</i> 5. <i>Instrumen Kemampuan Berpikir Kritis Materi (2024)</i> 6. <i>Instrumen Tes Penalaran Matematis Bangun Ruang Sisi Datar untuk Siswa SMP Kelas VII (2024)</i> 7. <i>Instrumen Tes Kemampuan Siswa SMA Dalam Menyelesaikan Masalah Kombinatorik (2023)</i> 8. <i>LKPD Materi SPLDV Pada Pembelajaran Matematika dengan Pendekatan Problem Solving dan Strategi DAPIC untuk Siswa Kelas VIII (2023)</i> 9. <i>Modul Ajar Materi SPLDV Pada Pembelajaran Matematika dengan Pendekatan Problem Solving dsan Strategi DAPIC untuk Siswa Kelas VIII (2023)</i> 10. <i>Instrumen Tes Kemampuan Literasi Matematika Materi SPLDV untuk Siswa Kelas VIII (2023)</i> 11. <i>Tes Kognitif Fisika Terintegrasi Dengan Keterampilan Berpikir Kritis Dan Keterampilan Berpikir Kreatif (2022)</i> 12. <i>Instrumen Tes Literasi Matematika Materi Bangun Ruang Sisi Datar dan Statistika (Pemusatan Dan Penyebaran Data) untuk Siswa SMP Kelas VIII (2022)</i> 13. <i>Modul Pembelajaran Remedial Matematika Persamaan dan Pertidaksamaan Nilai Mutlak Linear Satu Variabel untuk SMA/MA Kelas X (2021)</i> 14. <i>Video Pembelajaran Remidial Dengan Pendekatan Contextual Teaching and Learning (CTL) pada Materi Bangun Ruang Sisi Datar Kelas VIII (2021)</i>
Important publications over the last 5 years	1. Senjayawati, E., Isnawan, M.G., Sugiman, Arliani, E. (2025). Didactical Design Based on Lesson Studies for Enhancing Problemsolving Abilities when Learning Numerical Patterns. <i>Mathematics Teaching Research Journal Spring</i>, 17(2), 129-153. https://s3.amazonaws.com/files.commonsc.cuny.edu/wp-content/blogs.dir/34462/files/2025/05/6.Didactical-Design-.pdf 2. Anggraini, A., Arliani, E. (2025). CTL-Deep Learning: Its Influence on Critical Thinking Skills and Self-Confidence in Linear Equation System Material. <i>Jurnal Math Educator Nusantara</i>, 11(1), 42-57. https://ojs.unpkediri.ac.id/index.php/matematika/article/view/25185 3. Firdayana Makmur, Heri Retnawati, Elly Arliani. Development and Evaluation of Cognitive Test Instruments of Sequence and Series Topic Grade XI: The Rasch Model. <i>AIP Conf. Proc.</i> 3285, 030001; 27 Maret 2025. https://doi.org/10.1063/5.0262927

4. Amini, N., Arliani, E. (2025). Assessment Quality in Mathematics Learning: An Analysis Critical Thinking Instruments for Derivative Topics. *Jurnal Ilmiah Profesi Pendidikan*, 10(1), 897-905.
DOI: <https://doi.org/10.29303/jipp.v10i1.3087>
5. Retnawati, H., Kardanova, E., Sumaryanto, Prasajo, L.D., Jailani, Arliani, E., Hidayati, K., Susanti, M., Lestari, H.P., Apino, E., Rafi, I., Rosyada, M.N., Tuanaya, R., Dewanti, S.R., Sotlikova, R., Kassymova, G.K. (2024). A Systematic Review of the Use of Technology in Educational Assessment Practices: Lesson Learned and Direction for Future Studies. *International Journal of Robotics and Control Systems*, 4(4), 1656-1693: ISSN 2775-2658.
<http://pubs2.ascee.org/index.php/ijrcs>
6. Sumbaji, P., Marsigit, Arliani, E., (2024). The Voice of Visually Impaired Students: Differentiated Mathematics in Instruction in an Inclusive Class. *Specijalna Edukacija I Rehabilitacija*, 23(4), 361-377.
<https://doi.org/10.5937/specedreh23-50095>
7. Sumbaji, P., Marsigit, Arliani, E., (2024). Active Learning Barriers in Developing Mathematical Proficiency: Comparing Visual Impairment Students' and Teachers' Perspective. *Journal of Curriculum and Teaching*, 13(1), 48-60.
<https://doi.org/10.5430/jct.v13n1p48>
8. Sumbaji, P., Marsigit, Arliani, E., Ratnasari, G.I., (2024). Differentiated Mathematics Instruction: Perception, Readiness, and Practice Of Indonesian Teachers. *Jurnal Aula de Encuentro*, 26(1), 24-52.
<http://dx.doi.org/10.17561/ae.v26n1.8790>
9. Sinaga, Y.D.K., Arliani, E. (2024). Do Habits of Mind and Cognitive Style Affect Critical Thinking Ability of High School Students? *Jurnal Kependidikan*, 10(3), 1243-1254. E-ISSN: 2442-7667.
DOI: [10.33394/jk.v10i3.12730](https://doi.org/10.33394/jk.v10i3.12730)
10. Sinaga, Y.D.K., Arliani, E., Ngala, J.C., Agustina, N.L. I.T. (2024) Accuracy of Self-Assessment and Peer Assessment in Learning : A Systematic Literature Review. *Jurnal Paedagogy*, 11(2), 312-322.
DOI: <https://doi.org/10.33394/jp.v11i2.9417>
11. Azizah, N.L., Arliani, E., Purbaningrum, M., Ramadhan, S. (2024). Literasi Matematika Materi Sistem Persamaan dan Pertidaksamaan Linier: Pengembangan Butir Soal. *Aksioma*, 13(2), 708-719.
<https://doi.org/10.24127/ajpm.v13i2.8547>
12. Dewi, E., Arliani, E., Setyaningrum, W.(2024). STEM approach in middle school mathematics learning: What is teacher's perception of it? *AIP Conf. Proc.* 2622, 140006; 29 April 2024.
<https://doi.org/10.1063/5.0133954>
13. Julianingsih, E., Retnawati, H., Arliani, E. (2024). Analysis of Statistics Test Based on Yogyakarta Culture for Grade VIII with Anbuso 8.0. *AIP Conf. Proc.* 2622, 080009; 29 April 2024.
<https://doi.org/10.1063/5.0133856>

14. Hayuningrat, S., Retnawati, H., Arliani, E. (2024). Assessment of Mathematics: A review of Literature Largescale Assessment and Classroom Assessment on its Outcomes and Implementation Issues. *AIP Conf. Proc.* 2622, 080016; 29 April 2024.
<https://doi.org/10.1063/5.0133842>
15. Virdaus, M., Retnawati, H. Arliani, E. (2024). Analysis of Indicators which Items are Difficult to Solve in Solving Social Arithmetic Problems in Junior High School? *AIP Conf. Proc.* 2622, 080015; 29 April 2024.
<https://doi.org/10.1063/5.0133673>
16. Nisa, F.K., Arliani, E. (2023). Junior High School Students' Mathematical Literacy in Terms of Mathematical Self-Efficacy. *Jurnal Elemen*; 9(1), 283–297.
<https://doi.org/10.29408/jel.v9i1.7140>
17. Jailani, Retnawati, H., Rafi, I., Mahmudi, A., Arliani, E., Zulnaidi, H., Hamid, H.S.A., Prayitno, H.J. (2023). A Phenomenological Study of Challenges that Prospective Mathematics Teachers Face in Developing Mathematical Problems that Require Higher-Order Thinking Skills. *EURASIA Journal of Mathematics, Science and Technology Education*, 19(10), em2339.
<https://doi.org/10.29333/ejmste/13631>
18. Susanti, D., Retnawati, H., Arliani, E., Irfan, L. (2023). Peluang dan Tantangan Pengembangan Asesmen High Order Thinking Skills dalam Pembelajaran Matematika di Indonesia. *Jurnal Inovasi Pembelajaran Matematika: PowerMathEdu (PME)*, 2(2), 229-242.
[DOI: 10.31980/powermathedu.v2i2.3096](https://doi.org/10.31980/powermathedu.v2i2.3096)
19. Ramadhan, S., Arliani, E., Purbaningrum, M., Azizah, N.L. (2023). The Development of Hots-Based Financial Mathematics Question to Support Studets' Mathematical Communication Skill. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 12(4); 3657-3669.
[DOI: 10.24127/ajpm.v12i4.8118](https://doi.org/10.24127/ajpm.v12i4.8118)
20. Azriah, A., Retnawati, H., Arliani, E. (2023). Potential EffectsoOf Pisa-Type Mathematical Assessment.): *Jurnal Pedagogi Matematika*, 9(1); 29-37.
[DOI: 10.21831/jpm.v9i1.19027](https://doi.org/10.21831/jpm.v9i1.19027)
21. Sari, A.F.K., & Arliani, E. (2023). Effectiveness Of Situation Based Learning Model on Problem Solving Abilities and Mathematical Disposition. *Jurnal Riset Pendidikan Matematika*, 10(1); 78-88.
[DOI: 10.21831/jrpm.v10i1.56320](https://doi.org/10.21831/jrpm.v10i1.56320)
22. Bazuri, A., & Arliani, E. (2022). Development of Trigonometry Module Based on PBL that Oriented to High School Students' Concept of Understanding. *Jurnal Riset Pendidikan Matematika*, 9(1), 57–69.
<https://doi.org/10.21831/jrpm.v9i1.50119>
23. Septiani, S., Retnawati, H., Arliani, E. (2022). Designing Closed-Ended Questions into Open-Ended Questions to Support Student's Creative Thinking Skills and Mathematical Communication Skills. *JTAM (Jurnal Teori dan Aplikasi Matematika)*, 6(3), 616-628.
<https://journal.ummat.ac.id/index.php/itam/article/view/8517>

	24. Hilmi, I., Fadlila, N., Ramadanti, E., Retnawati, H., Arliani, E. (2022). <i>Development of Higher Order Thinking Skills Test based on Revised Bloom Taxonomy JTAM (Jurnal Teori dan Aplikasi Matematika)</i>, 6(2), 341-353. https://journal.ummat.ac.id/index.php/jtam/article/view/7292/pdf
Activities in specialist bodies over the last 5 years	Tim Unit Penjaminan MUTU FMIPA UNY (Gugus Penjaminan Mutu Prodi Doktor Pendidikan Matematika, 2023-2025)