Arkadiusz Męcel

Curriculum Vitae

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Employment

University of Warsaw, Faculty of Mathematics, Informatics and Mechanics

2024–present **Assistant Professor (teaching track)**, *Institute of Mathematics, University of Warsaw*.
Deputy Director of the Institute of Mathematics for Didactics

2018–2024 **Assistant Professor (research and teaching)**, *Institute of Mathematics, University of Warsaw*.

2014–2018 **Teaching Assistant**, *Institute of Mathematics, University of Warsaw*.

Association for Mathematical Education (SEM)

2019–present **Chair of the Main Committee**, *Junior Mathematical Olympiad (OMJ)*.

Education

2010–2014 **PhD Programme in Mathematical Sciences**, *Faculty of Mathematics, Informatics and Mechanics, University of Warsaw*.

2005–2010 **Mathematics (MSc, 5-year programme)**, *Faculty of Mathematics, Informatics and Mechanics, University of Warsaw*.

Scientific and Popular-Science Publications

2024 *The Finiteness Problem for Hecke–Kiselman Monoids in the Mixed-Graph Case with GAP*, in: *Comp. Algebra Systems in Teaching and Research.* XIII. System Modeling and Computation, Univ. of Siedlce.

2019 *Gröbner basis and the automaton property of Hecke–Kiselman algebras*. Co-author: J. Okniński. *Semigroup Forum* 99(2) (2019), 447–464.

2019 *Algebras with finitely many conjugacy classes of left ideals versus algebras of finite representation type*. Co-author: J. Okniński. *Journal of Pure and Applied Algebra* 223 (2019), 4302–4310.

2019 *Growth alternative for Hecke–Kiselman algebras*. Co-author: J. Okniński. *Publicacions Matemàtiques* 63(1) (2019), 219–240.

2017 *Invariants of finite dimensional algebras recognized by the semigroup of conjugacy classes of left ideals*. Co-author: J. Okniński. *Journal of Algebra and its Applications* 16 (2017).

2016 *On the finiteness of the semigroup of conjugacy classes of left ideals for algebras with radical square zero. Colloquium Mathematicum* 142 (2016).

2013 *Conjugacy classes of left ideals of a finite dimensional algebra*. Co-author: J. Okniński. *Publicacions Matemàtiques* 57(2) (2013), 477–496.

2012 *Zeros of quadratic functions. Delta*, no. 11 (462), 2012.

2010 *Down with the determinant? Mathematics. Society. Teaching*, no. 44 (2010), 18–22.

2009 *Around Helly's theorem. Delta*, no. 6 (421), 2009.

Conference Talks

06/2019 *On the Hecke–Kiselman algebras*, NonCommutative Rings and their Applications, Lens.

06/2017 *Growth alternative for Hecke–Kiselman monoids*, Groups, Rings and the Yang–Baxter equation, Spa.

06/2016 *The semigroup of conjugacy classes of left ideals of a finite dimensional algebra*, Conference on Semigroup and Automata, Lisbon.

05/2015 *Can a semigroup be an invariant?*, "Faces of Algebra" Conference, Kraków.

07/2014 *Conjugacy classes of left ideals of an associative algebra*, 6th Podlasie Conf. on Mathematics, Białystok.

Teaching and Organizational Experience at the Faculty of Mathematics, Informatics and Mechanics (University of Warsaw)

2011–present **Teaching**.
- Co-leader of an MSc seminar on classical algebraic structures (4 years: 2023–2026).
- Lecture: Geometry with Linear Algebra I (6 semesters: 2019–2024).
- Lecture: Geometry with Linear Algebra II (3 semesters: 2020, 2022–2023).
- Lecture: Geometry with Linear Algebra II* (2 semesters: 2021, 2024).
- Lecture and classes: Methodology of Teaching Algebra (3 semesters: 2022–2025).
- Classes: Geometry with Linear Algebra I (6 semesters: 2015, 2017–2021).
- Classes: Geometry with Linear Algebra II (2 semesters: 2015–2016).
- Classes: Geometry with Linear Algebra II* (2 semesters: 2017, 2021).
- Classes and tutorials in mathematics for degree programmes in Chemistry and Geology (9 semesters: 2011–2018).
- Co-leader of a monographic seminar "Methods for Solving Olympiad Problems" (academic year: 2025/26).

2019–present **Selection and editing of teaching materials on personal webpage (in Polish)**.
- Lecture notes: GAL I, GAL II, GAL II*.
- Archive of tests/quizzes: GAL I, GAL II, GAL II*.
- Notes for the lecture and classes in Methodology of Teaching Algebra.

2014–present **Service on faculty teams and committees**.
- Supervisor: 1 MSc thesis and 2 BSc theses; reviewer: 2 MSc theses and 2 BSc theses.
- Deputy Director for Teaching at the Institute of Mathematics (2024–2028).
- Teaching Council for the programmes: Comp. Science, Mathematics, Comput. Engineering (2024–2028).
- Teaching Quality Assurance Team (2024–2028).
- Member of admissions committees for MSc and PhD programmes at the Faculty of MIM UW.
- Member of the team responsible for curriculum changes in the BSc programme (Mathematics).

Other Teaching Activities

2019–present **Talks at conferences related to teaching or popularization**.
- Olympiad problems for primary school, 33rd National SNM Conference, Szczecin (02/2025).
- More problems for primary school, SEM conference *It Can Be Done Differently*, Sielpia (10/2024).
- Transition graphs, *Borderland Mathematics* conference, Białystok (12/2023).
- Perpendicular numbers, SEM conference *Discovering Mathematics*, Sielpia (10/2023).
- Small and large divisors, SEM conference *Mathematics: I Search – I Discover*, Sielpia (11/2022).
- Irrationality, SEM conference *Mathematical Kaleidoscope*, Żerków (11/2021).
- How to get started with OMJ?, SEM conference *Elementary, yet Nontrivial*, Sielpia (10/2019).
- *Down with the determinant?*, 43rd School of Visual Mathematics *Against Intuition*, Grzegorzewice (08/2009).

2019–present **Chair of the Main Committee of the Junior Mathematical Olympiad**, *SEM*.
- Coordination of the Olympiad committees; co-organization of the 2nd and 3rd stage contests.
- Editing website content, including parts of the teaching materials.
- Leading seminars for mathematics teachers; teaching at training camps.
- Member of the Problem Committee; author (or co-author) of 6 open problems and 5 multiple-choice problems.
- Correspondence with educational institutions; representing the Olympiad at conferences.

2007–present **Mathematics workshops and popular-science talks for students**.
- Organization of 18 editions of three-day workshops for mathematics classes at I LO in Koszalin.
- Teaching olympiad students at workshops and math camps and at outreach events (incl. the University of Warsaw Science Festival, Warsaw University of Technology Day of Mathematics Popularization).

2014–2017 **Geometry teacher in the "Matex" classes**, *XIV High School in Warsaw*.
- Author's curriculum in geometry at both school and olympiad level.
- Students' achievements: 14 finalist titles and 4 laureate titles in the Polish Mathematical Olympiad.
- Preparation of teaching materials, including two extensive geometry problem collections.

2008–2014 **Volunteer work at an after-school club for primary school students**, *St. James Parish in Warsaw*.
- Working with primary school students with significant gaps in mathematics.
- Camp counsellor.

Awards and Distinctions

2021 Individual UW Rector's Award (3rd degree) for teaching and organizational achievements.

2015 Individual UW Rector's Award (3rd degree) for research achievements.