

University Academic Curriculum Vitae

Personal information

Name: Miglena Asenova

Education since leaving school

- 2021: PhD in Mathematics and Applied Sciences (Doctoral Thesis in MAT04, Mathematics Education).
- 2017: Master's degree (Laurea Magistrale) in Mathematics, University of Modena and Reggio Emilia.
- 2008: Habilitation for teaching in Secondary School (SSIS) in Applied Mathematics, University of Bologna.
- 1995: Degree in Business Management, University "Otto von Guericke", Magdeburg, Germany.

Present appointment

- Title of appointment: Assistant Professor.
- Start of appointment: September 1st, 2021.
- Level of appointment: Pre-tenure (RTD A).
- Employer: Free University of Bolzano.
- Brief description of responsibilities: the aim of the research project is to develop, test, evaluate and optimize learning environments in the sense of current mathematics education. On a theoretical level, it deals with the generation, differentiation, and control of (local) theories for the learning of mathematics in the early years. Theoretically, the aim is to generate, differentiate and control (local) theories for learning mathematics in the early years based on carefully developed and orchestrated educational proposals.

**Professional
experience**

From / to	Job title	Name of academic Institution	Academic level	Responsibilities
2021-2023	Contract Professor	University of Modena and Reggio Emilia		<ul style="list-style-type: none"> • Academic teaching activity: Course in History of Mathematics and in Mathematics Education • Academic teaching activity: Mathematics Education Laboratory, undergraduate students of the Faculty of Education.
2018-2021	Contract Professor	University of Bozano		
2016-2021	High School Teacher	IIS "A. Baggi" Sassuolo (MO)		<ul style="list-style-type: none"> • Teacher in Mathematics • Member of the headmaster's staff responsible for the school's educational project (PTOF), evaluation (RAV) and improvement of the teaching processes (PdM)
2015/2016	High School Teacher	I.T.C.G. "A. Paradisi", Vignola (MO); I.T.C.G. "J. Barozzi", Modena		<ul style="list-style-type: none"> • Mathematics teacher
2014/2015	High School Teacher	I.T.C.G. "A. Baggi", Sassuolo (MO)		<ul style="list-style-type: none"> • Special education teacher covering scientific subjects, languages and humanities
2012/2014	High School Teacher	I.P.S.I.A. "A. Ferrari", Maranello (MO)		<ul style="list-style-type: none"> • Special education teacher covering scientific subjects, languages and humanities
2011/2012	High School Teacher	I.T.I. "Primo Levi, Vignola (MO)		<ul style="list-style-type: none"> • Mathematics teacher
2010/2011	High School Teacher	I.T.C. "A. Paradisi", Vignola (MO)		<ul style="list-style-type: none"> • Mathematics teacher
2008/2010	High School Teacher	I.T.C. "G. A. Cavazzi", Pavullo nel Frignano (MO)		<ul style="list-style-type: none"> • Mathematics teacher

Further professional experiences

- 2023: Workshop titled “Chissà perché Johnny risponde così? La conoscenza (semiotica) interpretativa dell’insegnante di matematica” at the Conference BRIMA Primar, 14th October 2023, Brixen (BZ).
- 2023: Teacher Training course for primary and secondary school teachers in Bolzano
- 2022: Teacher Training course for primary and secondary school teachers in Tione (TN)
- Since 2013: Author of INVALSI-tasks.
- 2016: Collaboration in the project “Formative Assessment for Mathematics Teaching and Learning” at the University of Bologna, Italy.
- 2016: Workshop “Problem solving in continuità tra scuola primaria e secondaria” at the Formathday, Bologna.
- 2016: Teacher training course for primary and secondary teachers in Cerveteri (Roma).
- 2015-2019: Author of a Mathematics Educational-section in the journal “La Vita Scolastica”.

Experience in academic teaching

- AA 2021/2022, 2022/2023: “Storia della Matematica”; University of Modena and Reggio Emilia.
- AA 2022/2023: “Didattica della Matematica”; University of Modena and Reggio Emilia.
- AA 2021/2022: Seminar titled “Research Paradigms and other (un)comfortable issues”, hold at the Doctorate Course in Pedagogia speciale, Didattica generale e Didattica disciplinare della t the Univesrity of Bolzano.
- AA 2020/2021: Seminar titled “Categorical definition of Mathematical Object specific to Mathematics Education”, hold at the Doctorate Course tenuto in Enfasis Matemática at the Universidad Distrital José de Caldas di Bogotá, Colombia.
- AA 2018/2019, 2019/2020, 2020/2021, 2021/2022, 2022/2023: “Grundlagen der Mathematik und ihrer Didaktik mit besonderer Berücksichtigung der Altersstufe (0)-2-7”; University of Bolzano, MAT/04, undergraduate level.
Mark over two years of course evaluation: 97,17% of positive responses.
- AA 2018/2019: Seminar titled “L’evoluzione epistemologica del concetto di dimostrazione nella tradizione occidentale”, hold at the University of Parma.

Other academic responsibilities

- November 2023: Co-Editor of the Proceedings of the Annual National Conference “Incontri con la Matematica”.
- AA 2021/2022: Master Thesis Direction in Degree in Educational Sciences at the University of Bolzano; Thesis titled “Einsatz des Bilderbuchs in der frühen mathematischen Bildung”.
- AA 2020/2021: Thesis co-direction in Degree in Educational Sciences at the University of Bolzano; Thesis titled “Moltiplicare come processo di oggettivazione. Un incontro tra la cultura germanica e quella italiana”.
- Since November 2021: Co-Editor in Chief of the Journal “La matematica e la sua didattica”.
- Since 2021: member of the Editorial board of the “Mediterranean Journal for Mathematics Education”.
- Since 2012: member of the Organizing Committee of the National Conference “Incontri con la matematica”.

- Since 2017: member of the Editorial board of the Journal “La matematica e la sua didattica”.
- Collaboration in the editing of the Proceedings of the National Conference “Incontri con la matematica” in the years 2017, 2018, 2019, 2020.
- Member of the Organizing Committee of the Conference in occasion of the 70 years of Bruno D’Amore in October, 2016, at the University of Bologna, Italy.

Memberships

- Since 2013 member of the NRD research group of the University of Bologna (since 2009 member of the RSDDM Group of the same University);
- Since 2017 member of the GL08 of the INVALSI-task team of Mathematics (since 2013 task author for INVALSI).

Publications

Books authored

01. Asenova, M., D’Amore, B., Fandiño Pinilla, M.I., Funeme, C.C., Iori, M., & Santi, G. (2023). *Teorie rilevanti in Didattica della Matematica*. Bologna: Bonomo.
02. Asenova, M., D’Amore, B., Del Zozzo, A., Fandiño Pinilla, M.I., Iori, M., Marazzani, I., Monaco, A., Nicosia, G. G., Santi, G. (2022). *I problemi di matematica nella scuola primaria tra ricerca didattica e prassi scolastica*. Bologna: Pitagora.
03. D’Amore, B., Asenova M., Del Zozzo, A., Fandiño Pinilla, M.I., Iori M., & Santi, G. (2021). *I numeri: Matematica, storia, giochi e curiosità, per una didattica corretta ed efficace*. Bologna: Pitagora.
04. Asenova, M. *Definizione categoriale di oggetto matematico in Didattica della matematica*. Bologna: Pitagora. (Doctoral Thesis)

Chapter in book

05. Asenova, M., Fandiño Pinilla, M. I. & Monaco, A. Il Curricolo Verticale di matematica. In: Cerini, G., Loiero, S. & Spinosi, M. (Eds.) (2012). *Indicazioni per il curricolo 2012*. Napoli: Tecnodid.

Conference papers

01. Asenova, M., Del Zozzo, A., & Santi, G. (2023). La conoscenza semiotica interpretativa dell’insegnante di matematica: esempi e riflessioni. In M. Asenova & B. D’Amore (Eds.), *Riflettere sulla Didattica della Matematica per Insegnare: Ricerche ed Esperienze, Atti del XXXVI Convegno "Incontri con la matematica, Castel san Pietro Terme (BO), 10-12 novembre 2023* (pp. 89-90). Bologna: Bonomo.
02. Asenova, M. (in press). An Epistemic-Logical Model for Analysis of Students’ Argumentation in Mathematics Education Research. In the *Proceedings of CERME 13, 10th-14th July 2023*, Budapest, Hungary.
03. Asenova, M., Del Zozzo, A., & Santi, G. (2023). From Interpretative Knowledge to Semiotic Interpretative Knowledge in prospective teachers’ feedback to students’ solutions. In M. Ayalon, B. Koichu, R. Leikin, L. Rubel, M. Tabach (Eds.), *Proceedings of the 46th of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 51-58). University of Haifa and PME.
05. Asenova, M. (2023). Mathematical objects within a transitory epistemology. In E. Barbin. R. Capone, M. N. Fried, M. Menghini, H. Pinto, & F.S. Tortoriello (Eds.) *Proceedings of the 9th European Summer University of History and Epistemology in Mathematics Education* (pp. 237-242). Edizioni Nuova Cultura Roma.

06. Gaidoschik, M., & Asenova, M. (2022). La scomposizione additiva al centro dell'aritmetica all'inizio della scuola primaria: basi teoriche ed esempi d'aula. In B. D'Amore (Ed.), *Didattica della matematica come attività di ricerca in aula. Atti del XXXVI Convegno "Incontri con la matematica, Castel san Pietro Terme (BO), 21-23 ottobre 2022* (pp. 93-94). Bologna: Pitagora.
07. Asenova, M. (2022). Questioning the exclusivity of classical logic and set-theoretic assumptions in analysis of classroom argumentation and proof. *Proceedings of CERME12, February 3 - 6, 2022*.
08. Asenova, M. (2021). Oggetti matematici in Didattica della matematica. In B. D'Amore (Ed.), *Atti del XXXV Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 211-212). Bologna: Pitagora.
09. Asenova, M., & Marazzani, I. (2020). Discussioni fra alunni della scuola primaria sul concetto di altezza di un poligono. In B. D'Amore & S. Sbaragli (Eds.), *Atti del XXXIV Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 43-44). Bologna: Pitagora.
10. Asenova, M. (2019). Epistemological obstacles in the evolution of the concept of proof in the path of ancient Greek tradition. In U. T. Jankvist, M. Van den Heuvel-Panhuizen, M., & M. Veldhuis (Eds.), *Proceedings of CERME11, February 6 - 10, 2019*. Utrecht, the Netherlands: Utrecht University and ERME, Freudenthal Group & Freudenthal Institute. Available at: http://www.mathematik.uni-dortmund.de/~prediger/ERME/CERME11_Proceedings_2019.pdf
11. Asenova, M. & Polidoro, S. (2018). L'equazione di Laplace: Una prospettiva storico-epistemologica. *Atti del XXXII Convegno nazionale "Incontri con la matematica", Castel San Pietro Terme (BO)* (pp. 139-140). Bologna: Pitagora.
12. Asenova, M. (2016). Ragionamento deduttivo e modello deduttivo nyaya. In: Iori M. (Ed.). *La matematica e la sua Didattica. Mathematics and Mathematics Education*. Proceedings of the International Conference in occasion of the 70 yeras of Bruno D'Amore, Bologna, October 8, 2017 (pp. 61-65). Bologna: Pitagora.
13. *Asenova, M. (2015). Aspetti sintattici e semantici delle costruzioni geometriche alla scuola primaria. In: D'Amore B., Sbaragli S. (Eds.). *La didattica della matematica disciplina per l'apprendimento*. Atti del Convegno "Incontri con la matematica", n. 29, Castel San Pietro Terme (BO). (pp. 99-100). Bologna: Pitagora.
14. Asenova, M. & Bolondi, G. (2015). A hermeneutic approach in mathematics education: the case of probability. In: Barbin, E., Jankvist, U.T. & Kjeldsen, T.H. (Eds.). *History and Epistemology in Mthematics Education*. Proceedings of the Seventh European Summer University, Copenhagen, Denmark, 14-18 July 2015. Copenhagen: Danish school of education, Aarhus University. Available at: https://conferences.au.dk/fileadmin/conferences/ESU-7/ESU7_e-version-red.pdf.
15. Asenova, M. (2013). Il ruolo delle rappresentazioni visive nell'apprendimento della matematica. In: D'Amore, B. & Sbaragli, S. (Eds.). *La didattica della matematica come chiave di lettura delle situazioni d'aula*. Atti del Convegno "Incontri con la matematica", n. 27, Castel San Pietro Terme (BO) (pp. 141-142). Bologna: Pitagora.
16. Asenova, M. (2011). Linguaggio e didattica della matematica: una parafrasi algebrica e le sue implicazioni didattiche. In: D'Amore, B. & Sbaragli, S. (Eds.). *Un quarto di secolo al servizio della didattica della matematica*. Atti del Convegno "Incontri con la matematica", n. 25, Castel San Pietro Terme (BO) (pp.143-144). Bologna: Pitagora.

Journal articles in refereed academic journals

01. Asenova, M. (2023). Is theoretical topic-specific research "old fashioned"? An epistemological inquiry about the ontological creativity of Mathematics Education Research. *Mathematics Education Research Journal*. <https://doi.org/10.1007/s13394-023-00471-z>
02. Asenova, M., Del Zozzo, A., & Santi, G. (2023). Unfolding Teachers' Interpretative Knowledge into Semiotic Interpretative Knowledge to Understand and Improve Mathematical Learning in an Inclusive Perspective. *Education Sciences*, 13(1), 65. <https://doi.org/10.3390/educsci13010065>
03. Asenova, M., Bagossi, S., & Arzarello, F. (2023). Una definizione categoriale di covariazione al secondo ordine. *CEMER- Caminhos da Educação Matemática em Revista*, 13(2), 11-32.
04. Asenova, M. (2022). Non-classical approaches to logic and quantification as a means for analysis of classroom argumentation and proof in mathematics education research. *Acta Scientiae*, 24(5), pp. 404–428. <https://doi.org/10.17648/acta.scientiae.7405>
05. Asenova, M., D'Amore, B., Fandiño Pinilla, M. I., Iori, M., & Santi, G. (2020). Parole sconosciute non matematicamente rilevanti: influenzano davvero la risoluzione di un problema? *La matematica e la sua didattica*, 28(2), 191-253.
06. Asenova, M., D'Amore, B., Fandiño Pinilla, M. I., Iori, M., & Santi, G. (2020). Análisis de algunos aspectos de la teoría de la objetivación. *RECME-Revista Colombiana de Matemática Educativa*, 5(2), 33-50.
07. Asenova M., D'Amore B., Fandiño Pinilla, M.I., Iori M. e Santi G. (2020). La teoria dell'oggettivazione e la teoria delle situazioni didattiche: Un esempio di confronto tra teorie in didattica della matematica. *La matematica e la sua didattica*, 28(1), 7-61.
08. Asenova, M. (2018). Vedere geometricamente: La percezione non iconica alla scuola primaria. *La matematica e la sua didattica*, 26(2), 173-210.
09. Asenova, M. & Polidoro, S. (2018). L'equazione di Laplace: Una riflessione storico-epistemologica. *La matematica e la sua didattica*, 26(2), 153-171.

Journal articles in professional journals

10. Asenova, M. (2020). La filosofia della matematica elimini tutti i dogmi. Intervista a Fernando Zalamea. *Prisma*, 22(9), 62–65. (Interview with Fernando Zalamea).

Other Publications in Mathematics Education

11. Asenova, M. (2012). *Avanti tutta! (cl.2). Libro - quaderno di matematica per le scuole secondarie di primo grado*. Firenze: Giunti T.V.P.
12. Asenova, M. (2012). *Avanti tutta! (cl.1). Libro - quaderno di matematica per le scuole secondarie di primo grado*. Firenze: Giunti T.V.P.
13. Asenova, M. (2011). Prodotti notevoli e scomposizioni. Una parafrasi algebrica e le sue implicazioni didattiche. In: Sbaragli, S. (Ed.). *Buone pratiche d'aula in Matematica. Percorsi didattici in continuità tra scuola dell'infanzia e secondaria di secondo grado* (pp. 181-188). Bologna: Pitagora.
14. Asenova, M., Foresti, I., Grassi, G., Iori, M., Sangiorgi, M. C. & Sbaragli, S. (2011). *Prove nazionali di matematica: prepariamoci alle prove INVALSI. Test per la classe terza della scuola secondaria di primo grado*. Firenze: Giunti Scuola.

Book reviews

01. D'Amore, B. (2021). Memorie di una vita: i personaggi, le storie, le idee. Bologna. Pitagora. [Review published in *La matematica e la sua didattica*, 30(1-2), 77-79. (with Maura Iori e George Santi)]
02. Lolli, G. (2018). Matematica come narrazione: Raccontare la matematica. Bologna: il Mulino. Bologna: il Mulino. [Review published in *La matematica e la sua didattica*, 26(2), 311-316. (with Bruno D'Amore)]
03. Raymond Duval (2017). *Understanding the mathematical way of thinking: The registers of semiotic representations*. Prefazione di Bruno D'Amore. Cham: Springer International Publishing. [Review published in *La matematica e la sua didattica*, 26(1), 120-124.]
04. Bruno Jannamorelli (2017). *Strumenti di calcolo ingenui ... ma ingegnosi e multiculturali*. Bologna: Pitagora. *La matematica e la sua didattica*, 26(1), 116-117. [Review published in *La matematica e la sua didattica*, 26(1), 116-117.]

Further data

Presentations at scientific conferences

- November 2023: Seminar titled “La conoscenza semiotica interpretativa dell’insegnante di matematica: esempi e riflessioni” at the National Conference “Incontri con la Matematica”, Castel San Pietro Terme (BO), 10th-12th November, 2023.
- July 2023: Presentation titled “From Interpretative Knowledge to Semiotic Interpretative Knowledge in Prospective Teachers’ Feedback to Students’ Solution” at PME 46- 16th-21st 2023, Haifa, Israel.
- July 2023: Presentation titled “An Epistemic-Logical Model for Analysis of Students’ Argumentation in Mathematics Education Research” at CERME 13- Conference European Research in Mathematics Education- 10th-14th July 2023, Budapest, Hungary.
- November 2022: Seminar titled “What kind of logic in Mathematics Education Research?” at the Conference “Logical and Epistemological Aspects of Proof in Mathematics Education”, 26th-27th November 2022, University of Milan, Italy.
- November 2022: Seminar titled “La scomposizione additiva al centro dell’aritmetica all’inizio della scuola primaria: basi teoriche ed esempi d’aula” at the Annual National Conference “Incontri con la matematica”, Castel san Pietro Terme (BO), 21st-23rd October 2022 (with M. Gaidoschik).
- July 2022: Presentation titled “Mathematical Objects specific to Mathematics Education: A Categorical Definition within a Transitory Epistemology” at the 9th Summer University on the History and Epistemology in Mathematics Education, 18-22 July, 2022, University of Salerno, Italy.
- May 2022: Webinar titled “Categorical Definition of Mathematical Object specific to Mathematics Education” in the PhD-Webinar-Series “PhD in Mathematics Education”, organized by YERME (Young Reseracher in Mathematics Education), 30th May 2022.
- February 2022: Presentation titled “Questioning the Exclusivity of Classical Logic and Set-Theoretic Assumptions in Analysis of Classroom Argumentation and Proof” at CERME 12- Conference European Research in Mathematics Education- 2th-5th February 2022, University of Bolzano.
- June 2022: invited speaker at the International Workshop “Methodologies and Mathematics Education Research”, Turin, 14th-15th June, 2022. Presentation titled “Ontological, epistemological and methodological reflexivity in Mathematics Education Research”.

- November 2021: invited speaker at the National Conference “Incontri con la matematica”, Castel San Pietro Terme (BO), Seminar titled “Oggetti matematici in Didattica della matematica”.
- November 2020: invited speaker at the National Conference “Incontri con la matematica”, Castel San Pietro Terme (BO), seminar titled “Discussioni fra alunni della scuola primaria sul concetto di altezza di un poligono”.
- 2020: Contribution accepted as short communication at ICME 14, Shanghai, China, titled “An example of student’s hidden epistemology within an ancient Indian logic (nyaya) (posposed at 2021).
- October, 2019: Seminar titled "Costruzioni geometriche in un approccio dimostrativo alla scuola primaria", at the Conference GIMat 2019, October 18-19, 2019, University of Palermo.
- September 2019: Short communication titled "Strumenti matematici e concettuali per l'analisi della continuità / discontinuità tra argomentazione e dimostrazione" at the XXI UMI Congress, September, 2-7, 2019, University of Pavia.
- May 2019: Seminar titled "L'evoluzione epistemologica del concetto di dimostrazione nella tradizione occidentale", held at the University of Parma.
- April 2019: Invited speaker at the International Workshop on "Habermas' Elaboration on Rationality and Mathematics Education", April 9-11, 2019, Department of Mathematics of the University of Genoa; Seminar titled "Some reflections on the concepts of Zurechnungsfähigkeit (accountability) and objective world in Habermas and their interpretation in reference to Mathematics and Mathematics Education”.
- February 2019: Speaker at *CERME11*, February 6 - 10, 2019. Utrecht, the Netherlands; Communication titled “Epistemological obstacles in the evolution of the concept of proof in the path of ancient Greek tradition”.
- November 2018, speaker at the National Conference “Incontri con la matematica”, Castel San Pietro Terme (BO), seminar titled “L’equazione di Laplace: Una prospettiva storico-epistemologica” [with Sergio Polidoro].
- March 2018: Invited speaker at the National Conference “La didattica della matematica: dalla ricerca scientifica alla pratica d’aula”, Formigine (MO), seminar titled “Esempi di apprendimento strategico e apprendimento comunicativo in matematica nella scuola primaria”.
- August 2017: Invited speaker at the Seminar-cycle “Seminarios de la Maestría en Educación”, at the Tunja-University, Colombia, seminar titled “Las construcciones geométricas en el primer ciclo de instrucción. Una interpretación duvaliana”.
- August 2017: Invited speaker at the Seminario Internacional “Reflexiones críticas sobre la didáctica de la matemática: de la investigación al aula” at the Universidad de la Sabana, Colombia, seminar titled “Las construcciones geométricas en el primer ciclo de instrucción”.
- March 2017: Invited speaker at the Conference “Non temiamo la matematica”, Ravarino (MO), conference titled “Le costruzioni geometriche del primo ciclo d’istruzione”.
- July 2015: Poster presentation with communication at ESU7 in Copenhagen, Denmark, poster titled “A hermeneutic approach in mathematics education: the case of probability”.

- August 2015: Poster presentation at the EARLI-Conference in Bologna, Poster titled “A hermeneutic approach in mathematics education”.
- November 2015: Spekaer at the National Conference “Incontri con la matematica”, Castel San Pietro Terme (BO), Seminar titled “Aspetti semantici e sintattici delle costruzioni geometriche alla scuola primaria”.
- June 2013: Invited speaker at the National Conference “Insegnare e imparare la Matematica: due facce della stessa medaglia” in Cerchio (AQ), Italy, Conference titled “Interpretare per capire e scegliere per imparare”.
- November 2013: Speaker at the National Conference “Incontri con la matematica”, Castel San Pietro Terme (BO), Seminar titled “Il ruolo delle rappresentazioni visive nell’apprendimento della matematica”.
- November 2011: Invited speaker at the National Conference “Incontri con la matematica” Castel San Pietro Terme (BO), Seminar titled “Linguaggio e didattica della matematica: una parafrasi algebrica e le sue implicazioni didattiche”.
- November 2008, Invited speaker at the Research seminar- cycle of the NRD Group at the University of Bologna, Italy, Seminar titled “Il concetto di verità in Didattica della Matematica”.

Statement of interest

- My research interests are related to the Epistemology and the theoretical foundations of Mathematics Education Research, to the relation between mathematical objects in Mathematics and in Mathematics Education Research, to logic, argumentation and proof in Mathematics Education Research, as well as to the semiotic aspects in teacher training.

Language competence

- Bulgarian: advanced (mother tongue)
- German: advanced (C1)
- Italian: advanced (C1)
- English: intermediate (B2)
- Russian (basic)
- French (basic)
- Spanish (basic)

Brixen, 02.01.2024

Miglena Asenova

