

Nabil Kahouadji

Northeastern Illinois University
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Curriculum Vitae, January 19, 2026.

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Academic Positions

- 2025 – Present **Professor**, *Mathematics Department, Northeastern Illinois University, Chicago, IL.*
- 2024 – Present **Audrey Reynolds Distinguished Teaching Professor**, *Northeastern Illinois University, Chicago, IL.*
- 2019 – 2025 **Associate Professor**, *Mathematics Department, Northeastern Illinois University, Chicago, IL.*
- 2016 – 2019 **Assistant Professor**, *Mathematics Department, Northeastern Illinois University, Chicago, IL.*
- 2012 – 2016 **Lecturer**, *Mathematics Department, Northwestern University, Evanston, IL.*
- 2015 – 2016 **Instructor**, *The SESAME Program, The University of Chicago, Chicago, IL.*
- 2010 – 2012 **CRM-ISM Postdoctoral Fellow**, *Centre de Recherches Mathématiques – Institut des Sciences Mathématiques, hosted at McGill University, supervised by Niky Kamran, Montréal, QC, Canada.*
- 2009 – 2010 **Research and Teaching Postdoctoral Fellow**, *Universitté Paris Diderot - Paris VII, Paris, France.*

Education

- 2006 – 2009 **Doctorat de Mathématiques (Ph.D.)**, *Université Paris Diderot - Paris VII (France)*, **directed** by Frédéric Hélein, **reviewed** by Robert L. Bryant (MSRI-University of California at Berkeley (USA)) and Jean-Marie Morvan (Université Claude Bernard - Lyon I (France)), **defended** on October 22, 2009 at Institut de Mathématiques de Jussieu. **Honors** : Très Honorable (Highest honors), **Ph.D. Thesis's Title**: Conservation Laws and Generalized Isometric Embeddings.
- 2004 – 2006 **Master de Sciences et Technologies (M.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*, **field**: Mathématiques et Applications, **specialty**: Mathématiques Fondamentales, **orientation**: Recherche (Research). **Honors**: Très Bien (Highest honors).
- 2004 – 2001 **Licence de Mathématiques (B.S.)**, *Université Pierre et Marie Curie - Paris VI (France)*.

Awards and Honors

- 2023 – 2024 Faculty Excellence in Research Award, Northeastern Illinois University.
- 2024 Audrey Reynolds Distinguished Teaching Award, Northeastern Illinois University.
- 2021 – 2022 Faculty Excellence in Teaching Award, Northeastern Illinois University.
- 2016 – 2017 Faculty Excellence in Teaching Award, Northeastern Illinois University.
- 2015 – 2016 ASG Faculty Honor Roll for Excellence in Teaching, Northwestern University.
- 2014 – 2015 Mathematics Department Excellence in Teaching Award, Northwestern University.

Employment History and Teaching Experience

Northeastern Illinois University (Professor of Mathematics, Chicago, IL)

- 2016 – Present
- MATH 474 - *Mathematical Modeling*, Fall 2020.
 - MATH 472 - *Simulation Modeling and Analysis*, Fall 2020 & 2016.
 - MATH 441 - *Multivariate Statistical Analysis*, Spring 2022, 2020 & 2017.
 - MATH 421 - *Modern Geometry*, Fall 2025, 2022, 2019 & Spring 2018.
 - MATH 406 - *Linear Programming: Theory and Practice*, Fall 2018.
 - MATH 357 - *Financial Mathematics for Actuaries with Actuarial Exam Preparation*, Fall 2025, 2021, 2020, & 2019.
 - MATH 347 - *Probability for Actuaries with Actuarial Exam Preparation*, Spring 2025, 2022, 2021 & 2019.
 - MATH 336 - *Inferential Statistics*, Spring 2018.

- MATH 334 - *Mathematical Statistics I*, Fall 2017.
- MATH 305 - *Probability and Statistics*, Fall 2019.
- MATH 275 - *Applied and Computational Statistics*, Fall 2025, Spring 2023, Fall 2022, 2021, 2018, 2017 & 2016.
- MATH 149 - *Mathematics for Elementary Teachers I*, Spring 2017.
- MATH 112 - *Statistics in Daily Life*, Fall 2017, Spring 2017 & Fall 2016.

The University of Chicago (Instructor, Chicago, IL)

- Fall 2015 • MATH 50400 - *Probability for Elementary School Teachers*.
- Summer 2015 • MATH 51100 - *Calculus for Elementary School Teachers*.

Northwestern University (Lecturer, Evanston, IL)

- 2012 – 2016 • MATH 385 - *Probability and Statistics for MMSS*, Fall 2015.
- MATH 381 - *Fourier Analysis and Boundary Value Problems for ISP*, Fall 2015 & 2014.
- MATH 368 - *Introduction to Optimization*, Spring 2016 (2 sections), Winter 2016, Spring 2015, Winter 2015 & Winter 2014.
- MATH 351 - *Fourier Analysis and Boundary Value Problems*, Fall 2012.
- MATH 340 - *Geometry*, Spring 2015 & 2014.
- MATH 240 - *Linear Algebra*, Spring 2014.
- MATH 230 - *Differential Calculus of Multivariable Functions*, Winter 2015 (2 sections) & 2014.
- MATH 202 - *Finite Mathematics*, Winter 2016 (School of Professional Studies), Fall 2014, Spring 2013, Winter 2013 (2 sections) & Fall 2012.

McGill University (CRM-ISM Postdoctoral Fellow, Montréal, QC, Canada)

- 2010 – 2012 • MATH 133 - *Linear Algebra and Geometry*, Summer 2012.
- MATH 111 - *Mathematics for Education Students*, Winter 2012 and Winter 2011.

Université Paris Diderot - Paris 7, (“A.T.E.R” Teaching & Research Fellow, Paris, France)

- 2009 – 2010 • MI3 - *Algebra & Analysis III*, Fall 2009
- CS3 - *Parametrized Curves and Surfaces*, Fall 2009.

Université Paris Diderot - Paris 7, (“Monitorat” Graduate Lecturer, Paris, France)

- 2006 – 2009 • *Exterior Differential Calculus and Differential Geometry*, 2nd-year Master students in collaboration with Frédéric Hélein, Fall 2008.
- MP4 - *Algebra and Analysis III*, Fall 2007.
- MPQ1 - *Algebra and Analysis I*, Fall 2006.
- Mentored six 1st-year undergraduate math projects (**MK2**): The Sphere's Geodesics, and The Lotka-Volterra System (winter 2008), The Matrix Tool, The number π , Planet's Movement, and Cartography (winter 2007).

Université Pierre et Marie Curie - Paris 6 (“Tutor”, Paris, France)

- 2003 – 2006 • Tutor in mathematics, physics, and computer sciences.

Mentored Students at Northeastern Illinois University

Research Supervision

- Summer 2025 Esteban Ramirez, SPEED GRAD Research and Career Accelerator Program.
- Lia Goldmeier, Student Center for Science Engagement Summer Research Project.
- Damian Orozco, Student Center for Science Engagement Summer Research Project.

- Summer 2024 Alain Iniestra, Student Center for Science Engagment Summer Research, co-mentored with Dr. Beth Reinke (NEIU, Biology).
- 2023 – 2024 Caroline Byrne, Research Project, co-mentored with Dr. Beth Reinke (NEIU, Biology).
- Summer 2023 Courtney Pomije, MATH 493 - Individual Study, *Hyperbolic Trigonometry*.
- Spring 2023 Courtney Pomije, MATH 495 - Master Research Project, *Hilbert's Arithmetic of Ends*.
- Spring 2020 Paul Rummelhoff, MATH 495 - Master Research Project, *Lane Tech High School Class of 2020 Math SAT Growth Analysis*.
- 2017 – 2018 Stephanie Webb, MATH 591, 592 and 593 - Master Thesis, *Geometrization of Tumor Modeling for MRI*.
- 2017 – 2018 Husham Al Hashimi, MATH 495 - Master Research Project, *Image Compression Techniques*.
- Fall 2017 Meem Ahsan, MATH 495 - Master Research Project, *Human Resource Analytics*.

Major Areas of Research

Machine learning in cancer and health research, time series forecasting, and actuarial sciences.

Zoo-archaeology, turtle ecology, mathematical and statistical modeling.

Differential geometry, geometric analysis and partial differential equations.

Research Publications

Preprints

[13] N. Kahouadji, *Variations on two-parameter families of forecasting functions: seasonal/nonseasonal Models, comparison to the exponential smoothing and ARIMA models, and applications to stock market data*, arXiv:2207.04882.

Submitted

[12] **N. Kahouadji**, *A comprehensive comparison of the Wald, Wilson and adjusted Wilson confidence intervals for proportions*. <https://arxiv.org/abs/2508.10223>

[11] B. Reinke, C. Byrne, and **N. Kahouadji**, *Righting response does not predict survival in adult painted turtles (*Chrysemys picta*)*.

Publications

- 2025 [10] **N. Kahouadji**, S. Alairys, E. Chen, L. H. Diaz-Flores, J.E. Ngwe, and J. Brinkman, *Chicago Cancer Health Equity Collaborative: Outcomes from an intensive and mixed curricular summer program on cancer health disparities*, J. Cancer Education.
- 2024 [9] A. Hamm, E. Karayeva, M. Lima Oliveira, **N. Kahouadji**, P. Grippo, P. G. Wolf, E. Mutlu, L. Tussing-Humphreys, and S. J. Kim, *Neighborhood homicide rate and odds of colorectal adenoma among adult patients seeking colonoscopy*, JNCI Cancer Spectrum, Vol 8, Issue 6, December 2024, pkae110, doi: <https://doi.org/10.1093/jncics/pkae110>
- 2024 [8] **N. Kahouadji**, *On the Generalizability of Machine Learning Classification Algorithms and Their Application to the Framingham Heart Study*, Information 2024, 15, 252. <https://doi.org/10.3390/info15050252>
- 2019 [7] **N. Kahouadji**, N. Kamran, and K. Tenenblat, *Local Isometric Immersions of Pseudo-spherical Surfaces and k -th Order Evolution Equations*, Commun. Contemp. Math. **21** (2019), no. 4, 1850025, 21 pp.
- 2016 [6] **N. Kahouadji**, N. Kamran, and K. Tenenblat, *Second-order equations and local isometric immersions of pseudo-spherical surfaces*, Comm. Anal. Geom., **24** (2016), no. 3, pp. 605-643.
- 2015 [5] **N. Kahouadji**, N. Kamran, and Keti Tenenblat, *Local Isometric immersions of pseudo-spherical surfaces and evolution equations*, Fields Inst. Commun., **75** (2015), pp. 369-381.
- 2011 [4] **N. Kahouadji**, *Construction of local conservation laws by generalized isometric embedding of vector bundles*, Asian J. Math., **15**, no. 4 (2011), pp.521-538.
- Ph.D. Thesis [3] **N. Kahouadji**, *Conservation laws and generalized isometric embeddings*, October 2009, Thèse en Ligne (T.E.L): <https://tel.archives-ouvertes.fr/tel-00427033>.
- 2009 [2] **N. Kahouadji**, *Energy-Momentum's local conservation laws and generalized isometric embeddings of vector bundles*, Geometry, Topology, QFT and Cosmology, Travaux en cours en Physique-Mathématiques, Hermann (2009), no. 76, pp. 45-70.

- 2008 [1] **N. Kahouadji**, *Cartan–Kähler theory and application to local isometric and conformal embeddings*, Systèmes Intégrables et Théorie Quantique des Champs, Travaux en cours en Physique-Mathématiques, Herman (2008), no. 75, pp. 295-316.

Fellowships and Grants

- Apr 16, 2025 SPEED GRAD Research and Career Accelerator Program stipend, \$1500, for mentoring NEIU graduate student Esteban Ramirez.
- Mar 4, 2025 NEIU Student Center for Science Engagement Summer Research stipend, \$3000, for mentoring NEIU undergraduate students Lia Goldmeier and Damian Orozco.
- Feb 7, 2024 Indiana University's Institute for Advanced Study 2024 Repository Research Fellows, William R. Adams Zooarchaeology Laboratory, Bloomington, IN, USA.
- Oct 17, 2023 NAWA Polish Agency for Academic Exchange, The 22nd Mathematical and Statistical Modeling of Complex Systems Workshop, Travel Grant, Warsaw School of Economics (SGH), Poland.
- Aug 15, 2023 Principal Investigator of a National Science Foundation PRIMES Award (FAIN 2331502) Division of Mathematical Sciences, project title *PRIMES: A Biological and Socio-Environmental Approach to Machine Learning for Equitable and Proactive Cancer and Health Screening*. Award period of performance August 15, 2023 - July 31, 2025. Total award amount \$278,537.
- Sep 22, 2022 NEIU Research/Creative Activities Travel Fund, \$1300, for a talk at *42th International Symposium of Forecasting*, Oxford, England - July 13, 2022.
- May 16, 2022 NAWA Polish Agency for Academic Exchange, The 19th Mathematical and Statistical Modeling of Complex Systems Workshop, Travel Grant, Warsaw School of Economics (SGH), Poland.
- Jan 13, 2021 National Science Foundation and American Mathematical Society Travel Grant Program for ICM 2022 award, \$3,500 to support my travel and participation in the International Congress of Mathematicians (ICM 2022), July 6-14, 20122, in Saint Petersburg, Russia. ICM Cancelled.
- Nov 24, 2021 Erasmus+ Grant from University of Warsaw, Poland.
- Dec 5, 2019 NEIU Research/Creative Activities Travel Fund \$664, for a talk at the special session *Geometry of Differential Equations I* of the *Joint Mathematics Meetings 2020* Jan 13-18, 2020 in Denver, Co, USA.
- Aug 7, 2019 Midwest Geometry Conference 2019 Travel Grant, \$550, Iowa State University.
- June 5, 2019 NEIU Mathematics Department and College of Arts and Sciences Travel Grant, \$1200, for talks at Barcelona Analysis Conference and Seminari Geometria at the Centre de Recerca Matemàtica, Barcelona, Spain.
- July 6, 2018 Centre des Recherches Mathématiques, Travel Grant as an invited speaker at *A Celebration of Analysis, Geometry and Physics - June 10–14, 2019*, CAD 850, Montréal, Canada.
- Aug 15, 2018 Universidade de Brasilia Travel Grant as an invited speaker at *Seminario de Geometria*, Brasilia, Brazil.
- Feb 13, 2018 National Science Foundation and American Mathematical Society Travel Grant Program for ICM 2018 award, \$3,300 to support my travel and participation in the International Congress of Mathematicians (ICM 2018), August 1-9, 2018, in Rio de Janeiro, Brazil.
- Sept 13, 2017 NEIU Research/Creative Activities Travel Fund \$1,300, for a talk at the special session *Geometry of Differential Equations, Real and Complex* of the *Mathematical Congress of the Americas* July 24-28, 2017 in Montreal, Canada.
- June 2017 ChicagoCHEC Faculty Summer Stipend, \$1,500, for mentoring NEIU graduate student Stephanie Webb on the research project *Geometrization of Tumor Modeling and MRI*.
- April 4, 2017 Geometry and Algebra of PDEs Conference Grant - local expenses (full lodging) and conference fees (NOK 2200 approximately \$265) - for my invited talk hosted in UiT Arctic University of Norway, Tromsø, Norway, June 6–10, 2017.
- 2010 – 2012 CRM-ISM Postdoctoral Fellowship, 40,000 CAD per academic year, hosted at McGill University, Montréal, QC, Canada
- 2006 – 2009 Allocation de Recherche, 14,500 € per academic year, Ministère de l'Enseignement Supérieur et de la Recherche; Université Paris Diderot-Paris VII, France

Recent Presentations and Invited Talks

- Jan 9, 2025 Society of Historical Archaeology 2025 Conference on Historical and Underwater Archaeology, Poster Presentation.

- Oct 17, 2023 The 22nd Mathematical and Statistical Modeling of Complex Systems Workshop, Warsaw School of Economics (SGH), Poland.
- Jun 22, 2023 Chicago CHEC Fellows Program, Northwestern University, Chicago, IL, USA.
- Nov 4, 2022 Applied Mathematics Seminar, Northeastern Illinois University, Chicago, IL, USA.
- Sep 30, 2022 Statistics and Data Science Seminar, Northwestern University, Evanston, IL, USA.
- Sep 21, 2022 Statistics and Data Science Seminar, University of Illinois at Chicago, Chicago, IL, USA.
- July 13, 2022 The 42th International Symposium on Forecasting, Oxford, England.
- May 26, 2022 Machine Learning Seminar, University of Warsaw, Poland.
- May 19, 2022 The 19th Mathematical and Statistical Modeling of Complex Systems Workshop, Warsaw School of Economics (SGH), Poland.
- Jan 17, 2020 Joint Mathematical Meetings, AMS Special Session on Geometry of Differential Equations, Denver, Colorado.
- Jun 27, 2019 Seminari Geometria, Centre de Recerca Matemàtica, Universitat Autònoma de Barcelona, Spain.
- Jun 26, 2019 Barcelona Analysis Conference 2019, Poster Presentation, Universitat de Barcelona, Spain.
- Jun 14, 2019 A Celebration of Analysis, Geometry and Physics, Centre des Recherches Mathématiques, Montréal, Québec, Canada.
- Aug 7, 2018 Short Communications, International Congress of Mathematicians 2018, Rio de Janeiro, Brazil.
- Aug 14, 2018 Seminario de Geometria, Universidade de Brasilia, Brasilia, Brazil.
- Jun 3-10, 2018 Symmetry and Perturbation Theory 2018 Conference, Pula, Italy.
- Nov 17, 2017 NEIU 8th Faculty Research and Creative Activities Symposium, Chicago, USA.
- July 25, 2017 Special session "Geometry of Differential Equations, Real and Complex" of the Mathematical Congress of the Americas 2017 conference, Montreal, QC, Canada.
- June 12, 2017 Séminaire de Géométrie et Dynamiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.
- June 5, 2017 Geometry and Algebra of PDEs 2017, UiT the Arctic University of Norway - Tromso, Norway.
- June 2, 2017 Séminaire de Géométrie et Physique Mathématiques, Institut de Mathématique de Jussieu-Paris Rive Gauche, Université Paris Diderot, Paris, France.

Service

Committee Memberships at Northeastern Illinois University

- 2026 – Present Faculty Excellence Awards Committee, appointed member.
- 2025 – Present Mathematics Department Personnel Committee, Chair.
- 2025 – Present Advisory Council for Faculty Awards, elected member.
- 2024 – Present Audrey Reynolds Distinguished Teaching Award Committee.
- 2016 – Present Mathematics Department Graduate Program Committee.
- 2016 – Present Mathematics Department Undergraduate Program Committee.
- 2024 – 2025 The Bernard Brommel Distinguished Research Professor Award Committee.
- 2025 College of Arts and Sciences Dean Search and Screen Committee.
- 2024 NEIU Student Center for Science Engagement STEM Advisor Search Committee.
- 2024 ARCOS Grant External Partnership Committee.
- 2016 – 2023 Mathematics Instructor Department Personnel Committee.
- 2021 – 2022 The Bernard Brommel Distinguished Research Professor Award Committee, Chair.
- 2019 – 2021 The NEIU Enrollment Forecasting Group.
- 2017 – 2020 Mathematics Department Service Course Committee.
- 2018 – 2019 Student Center for Science Engagement Executive Board, elected member.
- 2018 – 2019 NEIU Computer Science Department Search Committee.
- 2018 – 2019 Graduate College Advisory Committee, Vice Chair, elected member.
- 2017 – 2018 Graduate College Advisory Committee, Secretary, elected member.

Academic

- 2016 – Present Organizer of the Applied Math Seminar, Northeastern Illinois University.
- 2016 – Present Co-organizer of 9th to 26th bi-annual Mathematical and Statistical Modeling of Complex Systems Workshops, Northeastern Illinois University.
- 2016 – Present Summer research proposal reviewer for the NEIU Student Center for Science Engagement.
- 2024 – 2025 Administrative Core Co-Investigator of the *Chicago Cancer and Health Equity Collaborative* grant.
- 2020 – 2025 NEIU Center of Health, member.
- 2018-2025 Research and Education Co-Lead of the *Chicago Cancer and Health Equity Collaborative* grant.
- 2025 Panel moderator for the Polish-American Scientific and Academic Cooperation.
- 2024 NSF Grant Reviewer and Panelist.
- 2024 Reviewer for Scientific Reports (1 article).
- April 13, 2018 Co-organizer of the 20th Chicago Symposium Series, Northeastern Illinois University.
- 2017 Review panelist for the Chicago CHEC Incubator and Catalyst Grants Program, Cycle 3.
- 2016 Reviewer for Stochastic Modeling and Applications Journal (1 article).
- 2012 Reviewer for Journal of Geometry and Physics (2 articles).

Outreach

- 2024 – Present Climbing route-setter and high course ropes course staff, NEIU Campus Recreation.
- 2016 – Present Organizer of the 1st, 2nd and 3rd Family Math Night @ NEIU, Northeastern Illinois University.
- 2017 – 2020 Co-Organizer of *Women in Sciences Conference I, II and III*, Northeastern Illinois University.

References

- Professor, Dept. **Lidia Filus**, *Mathematics Department, Northeastern Illinois University, USA.*
Chair Email: l-filus@neiu.edu Teaching, Research and Service
- Professor **Nancy Wrinkle**, *Mathematics Department, Northeastern Illinois University, USA .*
Email: n-wrinkle@neiu.edu Teaching, Research and Service
- Professor **Christina Ciecierski**, *Economics Department, Northeastern Illinois University, USA .*
Email: c-ciecierski@neiu.edu Teaching, Research and Service