

## Oscar Levin

University of Northern Colorado  
College of Natural and Health Sciences  
(970) 351-2380

Email: [oscar.levin@unco.edu](mailto:oscar.levin@unco.edu)

Personal Website: <http://math.oscarlevin.com>

### Education

PhD, University of Connecticut, 2009.

Area of Study: Mathematics

Dissertation/Thesis Title: Computability Theory, Reverse Mathematics, and Ordered Fields

MS, University of Connecticut, 2006.

Area of Study: Mathematics

BA, University of Northern Colorado, 2004.

Area of Study: Philosophy

BS, University of Northern Colorado, 2004.

Area of Study: Mathematics

### Professional Academic Experience

Associate Professor, University of Northern Colorado. (2017 - Present).

Assistant Professor, University of Northern Colorado. (2011 - 2017).

Visiting Assistant Professor, Coastal Carolina University. (2009 - 2011).

Graduate Teaching Assistant, University of Connecticut. (2005 - 2009).

## RESEARCH, SCHOLARSHIP, AND CREATIVE WORKS

### Publications

#### Juried

Journal Article

Published

Kenigsberg, M., Levin, O. (2019). Prime Labelings of Infinite Graphs. *Involve, a Journal of Mathematics*, 12(4), 633–646. <https://msp.org/involve/2019/12-4/p06.xhtml>. DOI: 10.2140/involve.2019.12.633

Levin, O., McMillan, T. (2016). Computing Planarity in Computable Planar Graphs. *Graphs and Combinatorics*, 32(6), 2525–2539. <https://link-springer-com.unco.idm.oclc.org/article/10.1007%2Fs00373-016-1725-8>. DOI: 10.1007/s00373-016-1725-8

Levin, O. (2016). Computable Dimension of Ordered Fields. *Archive for Mathematical Logic*, 55(3-4), 519–534. <https://link-springer-com.unco.idm.oclc.org/article/10.1007%2Fs00153-016-0478-7>. DOI:

10.1007/s00153-016-0478-7

Jura, M., Levin, O., Markkanen, T. (2015). A-computable graphs. *Ann. Pure Appl. Logic*, 167(3), 235–246. <http://dx.doi.org/10.1016/j.apal.2015.11.003>. DOI: 10.1016/j.apal.2015.11.003

Jura, M., Levin, O., Markkanen, T. (2015). Finding domatic partitions in infinite graphs. *Electron. J. Combin.*, 22(3), Paper 3.39, 21. <http://www.combinatorics.org/ojs/index.php/eljc/article/view/5089>

Jura, M., Levin, O., Markkanen, T. (2014). Domatic partitions of computable graphs. *Arch. Math. Logic*, 53(1-2), 137–155. <http://dx.doi.org/10.1007/s00153-013-0359-2>. DOI: 10.1007/s00153-013-0359-2

Levin, O. (2014). Story Puzzles. *College Mathematics Journal*, 45(4), 296, 332-333.

Levin, O., Roberts, G. M. (2013). Counting knights and knaves. *College Math. J.*, 44(4), 300–306. <http://dx.doi.org/10.4169/college.math.j.44.4.300>. DOI: 10.4169/college.math.j.44.4.300

Kach, A. M., Levin, O., Solomon, R. (2010). Embeddings of computable structures. *Notre Dame J. Form. Log.*, 51(1), 55–68. <http://dx.doi.org/10.1215/00294527-2010-004>. DOI: 10.1215/00294527-2010-004

Submitted

Flood, S., Jura, M., Levin, O., Markkanen, T. The Computational Strength of Matchings in Countable Graphs.

Levin, O. Puzzles of Cardinality. *College Mathematics Journal*.

## Non-juried

Textbook

Published

Grassl, R., Levin, O. (2019). *Exploring Combinatorial Mathematics*. <http://www.openmathbooks.org/ecm/ecm.html>

Levin, O. (2018). *Discrete Mathematics: An Open Introduction, 3rd ed.* <http://discrete.openmathbooks.org/dmoi3.html>

Levin, O. (2016). *Discrete Mathematics: An Open Introduction, 2nd ed.* (2nd ed., pp. 327). <http://discrete.openmathbooks.org>

Levin, O. (2015). *Discrete Mathematics: An Open Introduction* (1st ed., pp. 296). <http://discrete.openmathbooks.org>

## Professional Presentations

Invited

Juried

Levin, O., 2019 SIU Pure Mathematics Conference, "Reverse Mathematics of Maximal

and Perfect Matchings," Southern Illinois University, Carbondale, IL. (May 15, 2019).

Levin, O., MAA Texas Section Meeting, "Counting Knights and Knaves," MAA Texas Section, Dallas, TX. (April 2018).

Levin, O., AMS Central Section Meeting, Special Session on Effective Mathematics in Discrete and Continuous Worlds, "Effective Labelings of Infinite Graphs," AMS, Minneapolis, MN. (October 29, 2016).

#### Non-juried

Levin, O., Algebraic Combinatorics Seminar, "Graph Labelings and Computability Theory," Colorado State University, Fort Collins, CO. (September 30, 2016).

Levin, O., University of Wyoming Colloquium, "Non-computability in Graphs,," University of Wyoming, Laramie, WY. (October 2013).

Levin, O., Rocky Mountain Algebraic Combinatorics Seminar, "The Computable Domatic Number of a Graph," Colorado State University, Fort Collins, Co. (September 2013).

Levin, O., Frontiers of Science Institute summer program, "To Infinity and Beyond." (June 2013).

Levin, O., UNC Math Teachers Circle, "Graph Theory Games." (April 2013).

Levin, O. (Panelist), UNC School of Math. Sci. Pi Day, "The Great Debate about Nothing: is Zero a Natural Number?," UNC School of Mathematical Sciences, Greeley, CO. (March 2013).

Levin, O., Coastal Carolina University Math Contest, "To Infinity and Beyond," Conway, SC. (2010).

Levin, O., UConn Math Club, "A Surprising Theorem," UConn Math Club. (February 2008).

Levin, O., UConn Math Club, "Preparing for graduate school in mathematics," UConn Math Club. (September 2007).

#### Not Invited

##### Juried

Levin, O., Joint Mathematics Meeting, "Coloring hypergraphs is harder than coloring graphs," AMS, Baltimore, MD. (January 17, 2019).

Levin, O., Joint Mathematics Meeting, "A discrete math course with early graph theory," MAA, Baltimore, MD. (January 16, 2019).

Levin, O., MathFest, "Knights and Knaves and Naive Set Theory," MAA, Denver, CO. (August 2018).

Levin, O., Workshop on Computability Theory and its Applications, "Measuring Complexity of Maximal Matchings of Graphs," Fields Institute, University of Waterloo. (June 2018).

Levin, O., Joint Mathematics Meeting, "Prime labelings of infinite graphs and

- computability theory," AMS, San Diego, CA. (January 2018).
- Levin, O., Joint Mathematics Meeting, "Shifts in Perspectives for Counting," MAA, San Diego, CA. (January 2018).
- Levin, O., MAA Rocky Mountain Section Meeting, "A Paradox of Finite Cardinality," MAA Rocky Mountain Section, Pueblo, CO. (April 2017).
- Levin, O., Joint Mathematics Meeting, "Graph Labelings and Computability Theory," Association for Symbolic Logic, Atlanta, GA. (January 7, 2017).
- Boelkins, M. (Author), Levin, O. (Author & Presenter), Yoshiwara, B. (Author & Presenter), Joint Mathematics Meeting, "Interactive Textbooks in MathBookXML," MAA, Atlanta, GA. (January 7, 2017).
- Levin, O., Joint Mathematics Meeting, "Tricks to Make Counting Harder for Students," MAA, Atlanta, GA. (January 7, 2017).
- Levin, O., Joint Mathematics Meeting, "'Finishing' an Open Textbook," MAA, Seattle, WA. (January 2016).
- Levin, O., McMillan, T. (Presenter), Joint Mathematics Meeting, "Embeddings of Computable Planar Graphs," AMS, Seattle, WA. (January 2016).
- Jura, M., Levin, O. (Presenter), Markkanen, T., Joint Mathematics Meeting, "Graphs between Computable and Highly Computable," AMS, Seattle, WA. (January 2016).
- Levin, O., Joint Mathematics Meeting, "Knights and Knaves in the Classroom," MAA, Seattle, WA. (January 2016).
- Levin, O. (Presenter), Seehausen, A. T., MAA Rocky Mountain Section Meeting, "Using Proofs to Introduce Logic," MAA, Colorado Springs, CO. (April 2015).
- Levin, O., Myrant, C. (Presenter), Joint Mathematics Meeting, "Coloring Around Faces to Count Daisies," MAA, San Antonio, TX. (January 2015).
- Jura, M., Levin, O. (Presenter), Markkanen, T., Joint Mathematics Meeting, "Controlling Domination in Infinite Graphs," AMS, San Antonio, TX. (January 2015).
- Levin, O., ASL North American Annual Meeting, "Finding Small Domatic Partitions in Graphs with Large Domatic Number," Association of Symbolic Logic, Boulder, CO. (May 2014).
- Jura, M. (Presenter), Levin, O., Markkanen, T., Joint Mathematics Meeting, "Domatic Partitions of A-Computable Graphs and c.e. Permitting," AMS, Baltimore, MD. (January 2014).
- Jura, M., Levin, O., Markkanen, T. (Presenter), Joint Mathematics Meeting, "Highly Computable Graphs and their Domatic Numbers," ASL, Baltimore, MD. (January 2014).
- Levin, O., Joint Mathematics Meeting, "The Complexity of Transcendence Bases in Computable Ordered Fields," AMS, Baltimore, MD. (January 2014).
- Jura, M., Levin, O., Markkanen, T. (Presenter), Joint Mathematics Meeting, "Domatic Partitions of Computable Graphs," ASL, San Diego, CA. (January 2013).

Levin, O., MAA Rocky Mountain Section Meeting, "How (Not) to Compute Domatic Partitions of Graphs," MAA, Denver, CO. (April 2012).

Levin, O., Joint Mathematics Meeting, "Counting Liars and Truth-tellers: Binomial Identities from Logic Puzzles," MAA, Boston, MA. (January 2012).

Levin, O., Joint Mathematics Meeting, "Computable Dimension of Ordered Fields," MAA. (January 2009).

Levin, O., New York Graduate Student Logic Conference, "Goodstein's Theorem and the Limits of PA," New York, NY. (2007).

Levin, O., Section Meeting, "Twin Relative Primes," MAA Rocky Mountain, Colorado Springs, CO. (April 2003).

#### Non-juried

Levin, O., UNC SMS Seminar, "Maximal Matchings and Reverse Mathematics," UNC School of Mathematical Sciences, Greeley, CO. (April 2016).

Levin, O., UNC SMS Seminar, "Knights and Knaves in the Classroom," UNC School of Mathematical Sciences, Greeley, CO. (November 2015).

Levin, O., UNC SMS Seminar, "Measuring Set Complexity for Graph Coloring," UNC School of Mathematical Sciences, Greeley, CO. (April 2015).

Levin, O. (Author & Presenter), UNC SMS Seminar, "Effective Graph Theory," UNC School of Mathematical Sciences, Greeley, CO. (October 2013).

Levin, O., UNC Math. Ed. Seminar, "Tricks to Make Counting Harder for Students." (April 2013).

Levin, O., UNC Math. Ed. Seminar, "How to Not Teach Proofs." (November 2012).

Levin, O., UConn Math Club, "Graph Theory and the Four Color Theorem," UConn Math Club, Storrs, CT. (September 2008).

Levin, O., SIGMA Seminar, "Goodstein's Theorem," University of Connecticut. (March 2007).

Levin, O., SIGMA Seminar, "Not a Proof of the Four Color Theorem," University of Connecticut. (September 2006).

Levin, O., SIGMA Seminar, "Games Mathematicians Play," University of Connecticut. (April 2006).

Levin, O., SIGMA Seminar, "Ramsey Theory," University of Connecticut. (April 2005).

## GRANTS

#### Funded

Levin, O., "Workshop on Computability Theory and its Applications," Sponsored by Provost Award for Travel, University of Northern Colorado, \$1,115.00. (April 25, 2018 - June 30, 2018).

Levin, O. (Supporting), "Northern Colorado Mathematics Collaboration to Support Teacher Quality Project," Sponsored by Colorado Department of Higher Education, State, \$161,228.00. (2013 - 2014).

Levin, O. (Principal), "Internal Faculty Reassignment Award for Research Scholarship and Creative Works," Sponsored by University of Northern Colorado, University of Northern Colorado, \$4,800.00. (2013 - 2014).

## TEACHING

### Teaching Experience

#### University of Northern Colorado

##### Courses Taught:

CS 301, Algorithms and Data Structures, 1 course. 3.00 credit hours.

MATH 102, Success in the Mathematical Sciences, 2 courses. 1.00 credit hours.

MATH 130, Supplemental Calculus, 6 courses. 1.00 credit hours.

MATH 131, Calculus I, 1 course. 4.00 credit hours.

MATH 132, Calculus II, 2 courses. 4.00 credit hours.

MATH 176, Topics in Calculus, 2 courses. 3.00 credit hours.

MATH 228, Discrete Mathematics, 11 courses. 3.00 credit hours.

MATH 321, Introduction to Abstract Algebra I, 4 courses. 3.00 credit hours.

MATH 322, Introduction to Abstract Algebra II, 3 courses. 3.00 credit hours.

MATH 341, Introduction to Modern Geometry I, 1 course. 3.00 credit hours.

MATH 422, Directed Studies, 8 courses. 3.00 credit hours.

MATH 431, Basic Analysis I, 1 course. 4.00 credit hours.

MATH 432, Basic Analysis II, 1 course. 4.00 credit hours.

MATH 464, Introduction to History of Mathematics, 1 course. 3.00 credit hours.

MATH 528, Discrete Mathematics, 1 course. 3.00 credit hours.

MATH 529, Mathematical Problem Solving, 2 courses. 3.00 credit hours.

MATH 531, Basic Analysis I, 1 course. 3.00 credit hours.

MATH 532, Basic Analysis II, 1 course. 3.00 credit hours.

MATH 534, Continuous Mathematics, 2 courses. 3.00 credit hours.

MATH 550, Applied Probability and Statistics, 3 courses. 3.00 credit hours.

MATH 622, Directed Studies, 2 courses. 3.00 credit hours.

MATH 728, Topics in Discrete Mathematics, 1 course. 3.00 credit hours.

MATH 778, Mathematical Logic, 1 course. 3.00 credit hours.

MATH 795, Special Topics, 2 courses. 3.00 credit hours.

MED 513, Professional Renewal, 3 courses. 1.00 credit hours.

NCPE 028, Mathematics Collaborative to Support Teacher Quality, 2 courses. .00 credit hours.

SCED 513, Professional Renewal, 1 course. 1.00 credit hours.

### **Directed Student Learning**

Directed Individual/Independent Study. (January 7, 2019 - May 3, 2019).  
Advised: Jennifer Zakotnik-Gutierrez, Michelle Morgan

Undergraduate Honors Thesis. (August 2017 - May 2018).  
Advised: Conner Hatton

Supervised Research. (May 2016 - May 2018).  
Advised: Taylor McMillan

Directed Individual/Independent Study. (August 21, 2017 - December 8, 2017).  
Advised: Maia Powell

Directed Individual/Independent Study. (August 22, 2016 - December 9, 2016).  
Advised: Conner Hatton, Taylor McMillan, Caleb Dahlke

Directed Individual/Independent Study. (January 2016 - May 2016).  
Advised: Taylor McMillan

Directed Individual/Independent Study. (August 2014 - December 2014).  
Advised: Taylor McMillan

Directed Individual/Independent Study. (January 2014 - May 2014).  
Advised: Jacob Herlin

Supervised Research. (June 2011 - May 2013).  
Advised: Geri Roberts

### **SERVICE**

#### **University Service**

Committee Member, President's Leadership Council. (September 2019 - Present).

Committee Member, UNC Open Educational Resources Committee. (November 2018 - Present).

Committee Member, Faculty Welfare Committee. (August 2017 - Present).

Committee Member, Faculty Senate. (August 2016 - Present).

Committee Member, Senate Executive Committee. (August 2018 - August 2019).

Committee Member, Academic Policy Committee. (August 2016 - May 2017).

Committee Member, Innovative Technology Group. (November 2015 - May 2017).

## **College Service**

Committee Member, NHS Policies and Procedures Committee. (August 2019 - Present).

## **Department Service**

Committee Member, MA-Math Teaching Emphasis Committee. (2013 - 2017).

Committee Member, Policies and Procedures Committee. (2013 - 2017).

Supervisor, Putnam Exam. (2011 - 2016).

Supervisor, Coastal Carolina, Putnam Exam. (2009 - 2010).

Member and Webmaster, University of Connecticut TA Network. (2008 - 2009).

Organizer, University of Connecticut SIGMA (Graduate) Seminar. (2007 - 2009).

Presenter and activities coordinator, University of Connecticut Mathematics Department Graduate Recruitment. (2008).

Panelist, University of Connecticut Teaching Assistant Orientation Workshop. (2008).

Co-organizer, University of Connecticut, Mathematics Teaching Philosophy Statements workshop. (2008).

Organizer, University of Connecticut Graduate Student Movie Night. (2006 - 2008).

## **Program Service**

Program Coordinator, MA-Math Teaching Emphasis. (January 2017 - December 2017).

## **School Service**

Committee Member, School Evaluation Committee. (August 2018 - Present).

Committee Member, Undergraduate Committee. (August 2018 - Present).

Faculty Advisor, Math Club. (2012 - Present).

Committee Member, UNC Math Contest committee. (2011 - Present).

Committee Chair, Undergraduate Committee. (2016 - 2017).

Committee Member, SAI Committee. (2014 - 2017).

Committee Chair, Web Committee. (2014 - 2017).

Committee Member, Search Committee for CS Position. (August 2016 - May 2017).

Committee Chair, Undergraduate Program SWOT subcommittee. (August 2015 - May 2016).

Committee Member, Search Committee for Mathematics Position. (2012 - 2013).

Committee Member, Graduate Committee. (2011 - 2013).

Committee Member, Web Committee. (2011 - 2013).

Committee Member, Undergraduate Committee. (2011 - 2012).

## **Professional Service**

Reviewer, Journal Article, MathSciNet. (March 2018 - Present).

Program Co-Chair, MAA Rocky Mountain Section. (2016 - 2018).

Reviewer, Journal Article, College Mathematics Journal. (2014 - 2018).

Reviewer, Journal Article, Annals of Pure and Applied Logic. (2016).

## **DEVELOPMENT ACTIVITIES ATTENDED**

Workshop, "Curated courses in linear algebra and beyond," University of Texas, Austin, TX. (August 8, 2018 - August 13, 2018).

Workshop, "Workshop on Computability Theory and Its Applications," Fields Institute; University of Waterloo, Waterloo, ON, Canada. (June 4, 2018 - June 8, 2018).

Workshop, "The integration of online materials and online textbooks," University of Puget Sound, Tacoma, WA. (May 22, 2017 - May 26, 2017).

Workshop, "Open Textbooks in Mathbook XML," American Institute of Mathematics, San Jose, CA. (April 25, 2016 - April 26, 2016).

Workshop, "Ximera Workshop 2," The Ohio State University. (July 2015).

Workshop, "Mathematics in the time of MOOCs," American Institute of Mathematics. (February 2014).

Conference Attendance, "Definability in Computable Structures," University of Chicago. (May 2012).

## **AWARDS AND HONORS**

### **Scholarship/Research**

Graduate School Fellowship Award, University of Connecticut. (2008).

Summer Predoctoral Fellowship, University of Connecticut. (2008).

### **Service**

Connie Strang Community Service Award, University of Connecticut Department of Mathematics. (2008).

### **Teaching**

Faculty Mentor of the Year Undergraduate Research, College of Natural and Health Sciences, UNC. (2015).

First Year Scholars Outstanding Faculty & Staff, UNC. (2014).

Mortar Board Favorite Professor, UNC Mortar Board. (2014).

Appointed to Graduate Faculty, UNC. (2012).

Outstanding Graduate Teaching Award, University of Connecticut. (2009).

Louis J. DeLuca Memorial Award, University of Connecticut Department of Mathematics. (2007).

### **PROFESSIONAL MEMBERSHIPS**

American Mathematical Society. (2014 - Present).

Association of Symbolic Logic. (2010 - Present).

Mathematical Association of America. (2002 - Present).

American Mathematical Society. (2005 - 2009).