

CONTACT
INFORMATION

Department of Mathematics
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PROFESSIONAL
EXPERIENCE

- Professor of Mathematics, **Oregon Institute of Technology, OR**, June 2023 - Present.
- Associate Professor of Mathematics, **Oregon Institute of Technology, OR**, June 2018 - June 2023.
- Assistant Professor of Mathematics (tenure-track), **Oregon Institute of Technology, OR**, September 2013 - June 2018.
- Visiting Assistant Professor of Mathematics, **University of Toledo, OH**, August 2010 - May 2013.
- Graduate Teaching Assistant, **University of Kentucky, KY**, August 2004 - July 2010.

RESEARCH
INTERESTS

Algebraic Number Theory, Analytic Number Theory, p -adic analysis, Quadratic Forms.

EDUCATION

University of Kentucky, Lexington, KY, USA

Ph.D., Mathematics, August 2010

- Thesis Topic: Diagonal Forms and the rationality of the Poincaré series.
- Advisor: Professor David Leep
- Area of Study: Number Theory

M.A., Mathematics, May 2006

- Master's Topic: Some calculations over \mathbb{Q}_p^* .

Chennai Mathematical Institute, Chennai, INDIA

B.S., Mathematical Sciences, May 2004

- With Honors in Mathematics
- Algebra specialization (emphasis on algebra and number theory)
- Minor in Computer Science (programming and algorithms track)

PUBLICATIONS

- D. Deb, *The 21 Card Trick and its Generalization*, arxiv:1809.04072.
- D. Deb, *On the Diophantine equation $p^x + p^y = z^{2n}$* , arxiv:1709.01814.
- D. Deb, *On the Diophantine equation $p^x + q^y = z^2$* , In preparation.
- D. Deb and D. Leep, *The Poincaré Series of a Diagonal Polynomial*, Preprint.
- D. Deb and D. Leep, *Powers of elements in Complete Discrete Valuation Rings*, Preprint.
- D. Deb, *Diagonal forms and the rationality of the Poincaré series*, Ph.D. Thesis, 2010.

AWARDS AND
HONORS

- Nominated for Faculty Teaching Excellence Award in 2020, 2021, 2022 and 2023, OIT.
- **Edgar Enochs Scholarship in Algebra**. Given to an outstanding doctoral student in Algebra by the Dept. of Mathematics, University of Kentucky, 2008.
- **Graduate Research Fellowship**, Dept. of Mathematics, University of Kentucky, Summer, 2009
- **Department Teaching Assistantship**, Dept. of Mathematics, University of Kentucky, Fall 2004 - Spring 2010.
- **Full Undergraduate Scholarship**, Chennai Mathematical Institute, INDIA, Fall 2001 - Spring 2004.
- Selected to participate in the *Indian National Mathematics Olympiad*, 2000.
- Appeared for the final stages of selection for the prestigious *KVPY* (Young Scientist Encouragement Award) scholarship, 2002, given by the Department of Science and Technology, Government of India.
- Visiting Student, School of Mathematics, Tata Institute of Fundamental Research, Mumbai, INDIA, Summer 2003. Worked for 2 months with Prof. Dipendra Prasad in areas related to Algebraic number theory.
- Visiting Student, **Harish Chandra Research Institute**, Allahabad, INDIA, Summer 2002. Was among the top 5 students at the end of the summer camp.

TEACHING
EXPERIENCE

Oregon Institute of Technology, Klamath Falls, OR, USA

- **Intermediate Algebra** - Winter 2014, Summer 2019 - 20.
- **College Algebra** - Fall 2013-15, 2020, 2022, Spring 2015, 2017, Summer 2015, 2019 - 20, Winter 2016, 2024.
- **Trigonometry** - Spring 2014, 2021.
- **Differential Calculus** - Fall 2013, 2016, 2021, 2023, Spring 2014-16, 2022, Summer 2016.
- **Integral Calculus** - Fall 2013-18, Winter 2014-15, 2018, 2021, 2022, 2023, Spring 2017-18, Summer 2015, 2019 - 20.
- **Sequences and Series** - Fall 2022, Spring 2023.
- **Vector Calculus I** - Winter 2017-19, 2022, Fall 2018-20, Spring 2019, 2024.
- **Vector Calculus II** - Winter 2020.
- **Applied Differential Equations I** - Fall 2021, Winter 2014, 2017, 2019, 2021, 2023, Spring 2014, 2017, 2021, 2023, Summer 2016-17.
- **Applied Differential Equations II** - Spring 2016.
- **Discrete Mathematics** - Spring 2015, 2016, 2018-20, Summer 2017, 2019-20.
- **Linear Algebra I** - Fall 2014, 2017-19, Winter 2015-20, 2024, Spring 2020, 2021, 2023, 2024, Summer 2015-16.
- **Linear Algebra II** - Spring 2018-20, 2022.
- **Mathematical Structures: Introduction to Proofs** - Fall 2019, 2020, 2022.
- **Introduction to Real Analysis** - Winter 2015, 2020, 2021.
- **Number Theory** - Fall 2019, Winter 2024.
- **Fundamentals of Abstract Algebra** - Spring 2014.
- **Statistics Methods I** - Winter 2016, Fall 2016-17, Summer 2017.
- **Applied Partial Differential Equations I** - Fall 2015.
- **Numerical Methods I** - Fall 2021.
- **Numerical Methods II** - Winter 2022.
- **Numerical Methods III** - Spring 2022.

University of Toledo, Toledo, OH, USA

- **College Algebra** - Fall 2011, 12.

- **College Algebra and Trigonometry** - Fall 2012.
- **Calculus I** - Fall 2011, Fall 2010, 2013.
- **Elementary Multivariable Calculus** - Fall 2012, Spring 2013.
- **Honors Calculus II** - Spring 2013.
- **Elementary Differential Equations** - Spring 2012.
- **Calculus for Life Sciences with Applications I** - Spring 2012, Fall 2010.
- **Numerical Methods and Linear Algebra** - Summer 2011.
- **Calculus for Life Sciences with Applications II** - Spring 2011.
- **Calculus for Business with Applications II** - Spring 2011.

University of Kentucky, Lexington, KY, USA

Primary Instructor: Duties included designing syllabi, writing and grading homework and exams, lecturing and leading class discussions, and holding office hours.

- **Remedial College Algebra** - Spring 2006-07.
- **College Algebra** - Fall 2005 and Fall 2009.
- **Introduction to Contemporary Mathematics** - Fall 2007.
- **Calculus II** - Summer 2005.
- **Calculus III(Multivariable Calculus)** - Summer 2007.
- **Calculus IV(Ordinary Differential Equations)** - Summer 2010.
- **Calculus for Life Sciences** - Spring 2008-09.
- **Business Calculus** Fall 2006 and Summer 2008.

Recitation Leader: Duties included leading recitation sections, grading quizzes and exams, and holding office hours.

- **Calculus II** - Fall 2004 and Fall 2008.
- **Calculus III(Multivariable Calculus)** - Spring 2005 and Spring 2010.

PRESENTATIONS AND TALKS

- *“The Mathematics of Procedural Generation”*, 2024 Oregon Mathematical Association of Two Year Colleges Conference, April 19, 2024.
- *“PreText: Write Once, Read Anywhere”*, 2023 Oregon Mathematical Association of Two Year Colleges Conference, April 28, 2023.
- *“The Geometry of Numbers”*, Cal Poly Humboldt Mathematics Colloquium, March 30, 2023.
- *“So, what can Gradescope do for you?”*, 2023 Annual Meeting of the Pacific Northwest section of the MAA, George Fox University, March 17-18, 2023.
- *“Linear Algebra and Google’s Page Rank algorithm”*, 2023 Annual Meeting of the Pacific Northwest section of the MAA, George Fox University, March 17-18, 2023.
- *“Permutation Groups, the 15-Puzzle and Its Variations”*, 2022 MATHFEST, August 3-6, Philadelphia, PA 2022.
- *“So, what can Gradescope do for you?”*, 2021 Oregon Mathematical Association of Two Year Colleges Conference, April 2022.
- *“Integrating code into your Linear Algebra class – Teaching data science and engineering majors at an engineering focused undergraduate university”*, 2022 Joint Mathematics Meetings, April, 6-9, 2022.
- *“The 21 Card Trick and Its Complete Generalization”*, 2021 Annual Meeting of the Pacific Northwest section of the MAA, Western Washington University, April, 1-2, 2021.
- *“The Geometry of Numbers”*, Oregon Tech Mathematics Colloquium, December 2, 2021.
- *“The 21 Card Trick and Its Complete Generalization”*, 2021 MATHFEST, August 2-7, 2021.

- “*The Geometry of Numbers*”, 2021 Annual Meeting of the Pacific Northwest section of the MAA, June 26, 2021.
- “*The Theory of Fair Division and Some Interesting Cases*”, 2021 Oregon Mathematical Association of Two Year Colleges Conference, April 2021.
- “*Visualizing p-adic numbers*”, 2019 Annual Meeting of the Pacific Northwest section of the MAA, University of Portland , OR, April 2019.
- “*The 21 Card Trick and Its Generalization*”, OIT Mathematics Colloquium, October 18 2018.
- “*Elliptic Curve Cryptography: The Math Behind Bitcoin*”, 2018 Oregon Mathematical Association of Two Year Colleges Conference, Lincoln City, OR, April 2018.
- “*The Geometry of Numbers*”, 2018 Annual Meeting of the Pacific Northwest section of the MAA, Seattle University , WA, April 2018.
- “*Linear Algebra and Google’s PageRank algorithm*”, 2017 Annual Meeting of the Pacific Northwest section of the MAA, Gonzaga University , OR, April 2017.
- “*Linear Algebra and Google’s PageRank algorithm*”, 2017 Oregon Mathematical Association of Two Year Colleges Conference, Lincoln City, OR, April 2017.
- “*Math through Pictures*”, OIT Math Contest, OIT, April, 2016.
- “*Can we use machine learning to predict exam scores of students?*”, 2016 Oregon Mathematical Association of Two Year Colleges Conference, Lincoln City, OR, April 2016.
- “*Visualizing p-adic numbers*”, 2016 Annual Meeting of the Pacific Northwest section of the MAA, Oregon State University , OR, April 2016.
- “*Fun Applications of Abstract Algebra: The 15 Puzzle*”, AMS Joint Mathematics Meeting, Seattle , WA, January 2016.
- “*Ways to make Linear Algebra interesting in the classroom: A look at various applications of Linear Algebra.*”, 2015 Oregon Mathematical Association of Two Year Colleges Conference, Lincoln City, OR, April 2015.
- “*Fun Applications of Abstract Algebra: The 15 Puzzle*”, 2014 Annual Meeting of the Pacific Northwest section of the MAA, Missoula , MT, June 2014.
- “*Math is Everywhere: A Talk for High School Students*”, OIT Math Contest, OIT, April, 2014.
- “*Thinking locally to solve globally*”, Algebra Seminar, University of Toledo, Toledo OH, March, 2013.
- “*Thinking locally to solve globally*”, Department Colloquium, Eastern Michigan University, Ypsilanti MI, February, 2013.
- “*Poincaré series of Diagonal polynomials*”, Young Researchers Meet, Brown University, Providence RI, May 2010.
- “*Poincaré Series of Diagonal polynomials*”, AMS Joint Mathematics Meeting, San Francisco CA, January 2010.
- “*Diagonal forms and rationality of the Poincaré series.*”, Ph.D. defense talk, Spring 2010.
- “*Poincaré Series of Diagonal Forms*”, Algebra Geometry Seminar, Spring 2008.
- “*Number of Solutions of of certain forms over \mathbb{Q}_p* ”, Qualifying Talk, Spring 2007.
- “*Some calculations over \mathbb{Q}_p^** ”, Master’s Talk, Spring 2006.
- “*The Kruskal-Katona Theorem, A Bound on the Geometric Genus*”, University of Kentucky, Fall 2005.
- “*The Syzygy Problem*”, University of Kentucky, Fall 2004.

CONFERENCES
AND WORKSHOPS

Past Conferences and Workshops

- **2024 Oregon Mathematical Association of Two Year Colleges Conference**, April, 2024.
- **2024 AMS Joint Mathematics Meeting**, San Francisco, January 4 - 7, 2024.

- **2023** **Whiskeytown Lake Mathematics Congress**, October, 2023.
- **2023** **Oregon Mathematical Association of Two Year Colleges Conference**, April, 2023.
- **Cal Poly Humboldt Mathematics Colloquium**, Cal Poly Humboldt, Arcata, CA, March 30, 2023.
- **2022** **Annual Meeting of the Pacific Northwest section of the MAA**, George Fox University, Newberg, OR, March 17-18, 2023.
- **2022** **Whiskeytown Lake Mathematics Congress**, October 2, 2022.
- **2022** **MATHFEST**, Philadelphia, PA, August 3-6, 2022.
- **2022** **AMS Joint Mathematics Meeting**, April 6 - 9, 2022.
- **2022** **Oregon Mathematical Association of Two Year Colleges Conference**, April, 2022.
- **2022** **Annual Meeting of the Pacific Northwest section of the MAA**, Western Washington University, Bellingham, WA, April 1-2, 2022.
- **2021** **Whiskeytown Lake Mathematics Congress**, October 1-3, 2021.
- **2021** **MATHFEST**, August 2-7, 2021.
- **2021** **Annual Meeting of the Pacific Northwest section of the MAA**, June 26, 2021.
- **2021** **Oregon Mathematical Association of Two Year Colleges Conference**, April 23, 2021.
- **2021** **AMS Joint Mathematics Meeting**, January 6 - 9, 2021.
- **2020** **ASA Joint Statistical Meeting**, August 2 - 6, 2020.
- **Chicago Number Theory Day**, June 20, 2020.
- **2019** **State of Jefferson Mathematics Congress**, Whiskeytown, CA, October 4 - October 6, 2019.
- **2019** **State of Jefferson Mathematics Congress**, Whiskeytown, CA, October 4 - October 6, 2019. **2019** **Annual Meeting of the Pacific Northwest section of the MAA**, University of Portland, OR, April 12 - 13, 2019.
- **2019** **Oregon Mathematical Association of Two Year Colleges Conference**, Lincoln City, OR, April 25 - 27, 2019.
- **2018** **Annual Meeting of the Pacific Northwest section of the MAA**, Seattle University, WA, April 20 - 22, 2018.
- **2018** **Oregon Mathematical Association of Two Year Colleges Conference**, Lincoln City, OR, April 26 - 28, 2018.
- **2017** **Annual Meeting of the Pacific Northwest section of the MAA**, Gonzaga University, WA, June 16 - 18, 2017.
- **2017** **Oregon Mathematical Association of Two Year Colleges Conference**, Lincoln City, OR, April 27 - 29, 2017.
- **2016** **State of Jefferson Mathematics Congress**, Whiskeytown, CA, September 30 - October 2, 2016.
- **2016** **Annual Meeting of the Pacific Northwest section of the MAA**, Oregon State University, OR, April 1 - 2, 2016.
- **2016** **Oregon Mathematical Association of Two Year Colleges Conference**, Glenden Beach, OR, April 21 - 23, 2016.
- **Oregon Math Network Meeting**, Salem, OR, June 25 - 26, 2015.
- **2016** **AMS Joint Mathematics Meeting**, Seattle WA, January 6 - 9, 2016.
- **2015** **Oregon Mathematical Association of Two Year Colleges Conference**, Lincoln City, OR, April 23 - 25, 2015.
- **Joint Board Articulation Commission (JBAC) Math Pathways Convening**, Portland, OR, February 4, 2015.
- **Workshop IV on Open Problem Library for WeBWork**, Arizona State University, Tempe, AZ, December 15 - 18, 2014.
- **2014** **Annual Meeting of the Pacific Northwest section of the MAA**, Missoula, MT, June 26 - 28, 2014.

- **2014 Oregon Mathematical Association of Two Year Colleges Conference**, Lincoln City, OR, April 24 - 26, 2014.
- **Workshop II on Open Problem Library for WeBWork**, Arizona State University, Tempe, AZ, December 14 - 17, 2013.
- **2013 AMS Joint Mathematics Meeting**, San Diego CA, January 9 - 12, 2013.
- **2010 AMS Spring Southeastern Sectional Meeting**, University of Kentucky, Lexington KY, March 27 - 28, 2010.
- **Young Researchers Meet**, Brown University, Providence RI, May 15 - 16, 2010.
- **2010 AMS Joint Mathematics Meeting**, San Francisco CA, January 13 - 16, 2010.
- **Canadian Number Theory Association X Meeting**, University of Waterloo, Ontario CANADA, July 13 - 18, 2008.
- **Illinois Number Theory Fest**, University of Illinois at Urbana-Champaign, Urbana IL, May 16 - 20, 2007.
- **Joint AMS-INDIA Meeting**, Bangalore INDIA, December 17-20, 2003.
- **Winter School on Arithmetic and Computational Algebraic Geometry**, Harish-Chandra Research Institute, Allahabad INDIA, December 23, 2002 - January 11, 2003.

OTHER
SCHOLARLY AND
INSTITUTIONAL
ACTIVITIES

- **Program Director, Applied Mathematics and Data Science Programs**
- **Chair, Graduate Council, OIT.**
- **Senator, OIT Faculty Senate.**
- **Member, Diverse Perspectives in General Education committee, OIT.**
- **Member, Fiscal Operations Advisory Council, OIT.**
- **Member, Student Hearing Commission, OIT.**
- **Member, Online Learning Advisory Council, OIT.**
- **Member, Student Awards Commission, OIT.**
- **Member, Mathematics Major Committee, OIT.**
- **Paper Reviewer, Midstates Conference for Undergraduate Research in Computer Science and Mathematics.**
- **Supervised several graduate students as teaching assistants and graders.**
- **Written numerous recommendation letters for several undergraduate students.**
- **Reading courses offered to several talented undergraduate students.**

TECHNICAL SKILLS Programming: Python, GameMaker Studio, C, C++, MATLAB, UNIX shell scripting.

Applications: \TeX , MATLAB, Microsoft Office, and other common productivity packages for Windows, OS X and Linux platforms.

Operating Systems: Microsoft Windows, Mac OS, Linux and other UNIX variants.

PROFESSIONAL
MEMBERSHIPS

Mathematical Association of America, Member, 2013-present.
American Mathematical Society, Member, 2004-2010.

REFERENCES

Prof. David Leep
Chair, Dept. of Mathematics
University of Kentucky

Prof. Paul Hewitt
Chair, Dept. of Mathematics and Statistics
University of Toledo

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Prof. Tiernan Fogarty
Chair, Dept. of Mathematics
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Prof. Sibylle Weck-Schwarz
Dept. of Mathematics and Statistics
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