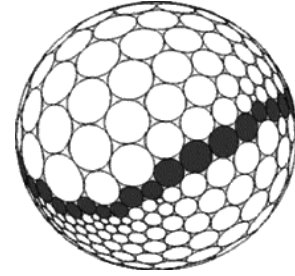


# Nicholas Willis

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## Education

- Ph.D. Mathematics, Texas Tech University May 2005
- M.S Mathematics, Texas Tech University May 2003
- B.S. Mathematics, George Fox University May 2000

## Positions

- Professor of Mathematics April 2015-present  
George Fox University, Newberg OR
- Associate Professor of Mathematics July 2009-April 2015  
George Fox University, Newberg OR
- Assistant Professor of Mathematics August 2005-June 2009  
Whitworth University, Spokane WA
- Graduate Part Time Instructor May 2000-May 2005  
Texas Tech University, Lubbock TX

## Peer Reviewed Journal Articles

- “*Singular Points of High Multiplicity for Septic Curves*”, in preparation, to be submitted June 2014
- “*The Birthday Problem, Roulette, and the Lottery*”, in preparation, to be submitted June 2014
- “*Singular Points of Real Reducible Sextic Curves*”, ISRN Geometry, Volume 2012 (2012), Article ID 680247
- “*Two Integration of Faith and Mathematics Projects for Freshman Mathematics Majors*”, Journal of the ACMS, Volume 2012-2013 (2012)
- “*Singular Points of Real Sextic Curves I*”, Acta Applicandae Mathematicae, Volume 110, Number 2, p. 805-862, DOI: 10.1007/s10440-009-9477-6 (2010)
- “*Singular Points of Real Quartic and Quintic Curves*”, Tbilisi Mathematical Journal, Volume 2, 2009, p. 95-134.

## Conference Talks

- *Building Community -- The Good, the Bad and the Ugly.*  
January 2014  
Joint National Meetings of the MAA and AMS held in Baltimore, MD
- *Getting Freshmen Interested in the Infinite*  
May 2013  
ACMS National Meeting held at Bethel University, MN
- *"Who is Prepared for Calculus I?"*  
April 2013  
MAA Sectional Meeting held at Willamette University
- *"Quilting in Geometry Class"*  
April 2012  
MAA Sectional Meeting held at University of Portland
- *"Two Integration of Faith and Mathematics Projects for Freshman Mathematics Majors"*  
June 2011  
ACMS National Meeting held at Westmont College
- *"Using Classroom Presentations to Promote Student Learning"*  
April 2009  
MAA Sectional Meeting Held at Central Washington University
- *"The Newton-Puiseux Algorithm"*  
July 2008  
Invited Talk to a Graduate Algebraic Geometry Class at Texas Tech University
- *"Teaching Topology to Undergraduates During a One Month Term"*  
June 2008  
MAA Sectional Meeting held at Carrol College
- *"Singular Points of Reducible Sextic Curves"*  
June 2008  
MAA Sectional Meeting held at Carrol College
- *"Singular Points of Real Septic Curves"*  
June 2008  
MAA Sectional Meeting held at Carrol College  
Presented by Annie Didier and Kevin Sonnanburg
- *"The Newton Polygon and the Newton-Puiseux Algorithm"*  
April 2008  
Spokane City-wide Monthly Colloquium

- “*Singular Points of Real Sextic Curves*”  
April 2007  
MAA Sectional Meeting held at Linfield College
- “*How to Classify Singular Points*”  
April 2007  
Spokane City-wide Monthly Colloquium
- “*Singular Points of Real Sextic Curves*”  
April 2005  
AMS Regional Meeting held at Texas Tech University
- “*Singular Points of Real Quintic Curves*”  
April 2005  
AMS Regional Meeting held at Texas Tech University  
\*Presented by David Weinberg

## Other Talks

- “*Classification of Singular Points*”  
March 2009  
Faculty Scholarship Forum Whitworth University
- “*The Projective Plane*”  
Fall 2006  
Whitworth Math Club
- “*Singular Points of Fourth, Fifth, and Sixth Degree*” (A seven part series of lectures)  
Fall 2004  
TTU Algebraic Geometry Seminar
- “*Classification of Algebraic Curves of Degree two, three, and four using the Newton Peiseux Algorithm*”  
Spring 2003  
Graduate Research Symposium TTU
- “*Future research using the Newton Peiseux Algorithm on curves of degree 6*”  
Fall 2003  
Qualifying examination for Ph.D. TTU
- “*Things you should know to be a graduate student in mathematics*”  
November 2003  
George Fox University
- “*How to use the Newton Peiseux Algorithm*”  
Spring 2002  
TTU Algebraic Geometry Seminar

## Advisor for Student Research Papers and Conference Talks

- “*Integer Solutions to Box Optimization Problems*”, Lorna Fullmer, Presentation given at PNW Regional MAA conference 2015
- “*The Intermediate Value Theorem – Obvious or Not?*”, Edward Hernandez-Corchado, Presentation given at PNW Regional MAA conference 2015
- “*Fun with Cubes and Hexagonal Pyramids*”, Esther Hunt and Ben Delaney, Presentation given at MathFest 2014
- “*The Spider and the Fly*”, Zihao Wang and Hailey Meekins, Presentation given at Regional MAA conference at Willamette University 2013
- “*Winning at Rock, Paper, Scissors*”, Tyler Koglin and Jake Larson, Presentation given at Regional MAA conference at Willamette University 2013
- “*Singular Point Triples*”, Jessica Sonk, Richter’s Scholar paper 2011
- “*Pastries and Rocket Science*”, Kevin Sonnanburg, Presented at SIRC 2009
- “*How to Compute a Puiseux Expansion*”, Nicholas J. [Willis](#), Annie K. [Didier](#), Kevin M. [Sonnanburg](#), published on the Math ArXiv at <http://front.math.ucdavis.edu/>.
- “*A Mathematical Model of Population Growth in the Siberian Wallflower*”, Laura Robison and Kate Carpenter, Presented paper in a poster session at MAA conference 2009 and gave an oral presentation at SIRC 2009
- “*Output Constrained Permutations with Classes of Indistinguishable Objects*”, Duong Ngo 2006.
- “*Using Markov Chains to Calculate the Probability of Penetration through a Barrier of Finite Thickness by Guest Particles with a Finite or Infinite Lifespan*”, Brian Bauman and William Sehorn, Presented paper at SIRC 2007 and MAA 2007
- “*Singular Points of Real Septic Curves*”, Kevin Sonnanburg, Marisa Billington, Annie Didier, and Danielle Chiavetta, Presented paper at SIRC 2008 and MAA conference 2008

## Advisor for Student Posters at Conferences

- “*Chutes and Ladders*”, Allison Coleman and Mary Fugle, Presentation given at PNW Regional MAA conference 2015
- “*Knights, Knaves, Normals, Neutrals, and Nonsense: An Examination of Paradoxes on Tripledonia*”, Andrew Spivey and Jacob Lohr, Presentation given at PNW Regional MAA conference 2015
- “*Polyomino Dissections, the Damaged Patchwork Quilt*”, Megan Arnoldy (Presented poster at PNW MAA conference 2012)
- “*The St. Petersburg Paradox*”, Daniel Carlson (Presented poster at PNW MAA conference 2012)
- “*Folding Polyominoes from One Level to Two*”, Jakob Daum (Presented poster at PNW MAA conference 2012)
- “*The Secrets of the KenKen*”, Ana Goldys (Presented poster at PNW MAA conference 2012)
- “*Hexaflexagons*”, Sally Gordon (Presented poster at PNW MAA conference 2012)
- “*Who does the Housework?*”, Moriah Kimmer (Presented poster at PNW MAA conference 2012)
- “*Math Tricks*”, Mitch Main (Presented poster at PNW MAA conference 2012)
- “*Computation of Determinants Using Condensation*”, Kenton Miller (Presented poster at PNW MAA conference 2012)

- “Squares, Cubes and Cube Roots”, Isaac Paulus (Presented poster at PNW MAA conference 2012)
- “Cups and Downs”, Brianna Phelps (Presented poster at PNW MAA conference 2012)
- “The Center of Package Transportation in the United States. Where is it?”, Sam Rohde (Presented poster at PNW MAA conference 2012)
- “A Midsummer Knot’s Dream”, Christina Rubesh (Presented poster at PNW MAA conference 2012)
- “CORDIC: How Hand Calculators Calculate”, Erika Stutts (Presented poster at PNW MAA conference 2012)
- “The Rascal Triangle”, Dmitrey Timofeyev (Presented poster at PNW MAA conference 2012)
- “Cycles in Fibonacci Numbers”, Michael Vandeberg (Presented poster at PNW MAA conference 2012)
- “Puzzling Polyominoes”, Luke Bryan (Presented poster at PNW MAA conference 2010)
- “Maximizing the Probability of a Big Sweepstakes Win”, Robert Hall (Presented poster at PNW MAA conference 2010)
- “Wrapping Spheres with Flat Paper”, Vinh Ho (**First place poster** at PNW MAA conference 2010)
- “Dinner Tables and Concentric Circles: A Harmony of Mathematics and Music”, Austin J. Huelsbeck (**Second place poster** at PNW MAA conference 2010)
- “Circles, Angles, and Trigonometry in Complex Space”, Stephen H. Kenyon (**Third place poster** at PNW MAA conference 2010)
- “The Number Pad Game”, Amanda Paulson (Presented poster at PNW MAA conference 2010)
- “Winning at Rock-Paper-Scissors”, Jessica Plummer (Presented poster at PNW MAA conference 2010)
- “Partial Fractions in Number Theory and Calculus”, Jessica A. Sonk (Presented poster at PNW MAA conference 2010)
- “Straw Movements, Cantor Sets and Cyclical Limits”, Jacob T. Sturdy (Presented poster at PNW MAA conference 2010)

## Technical Mathematical Publications

The following Technical Reports are published online at

[http://www.whitworth.edu/academic/departments/mathcomputerscience/faculty/willisnicholas/maple\\_files.htm](http://www.whitworth.edu/academic/departments/mathcomputerscience/faculty/willisnicholas/maple_files.htm)

and

[http://www.math.ttu.edu/~weinberg/maple\\_files.htm](http://www.math.ttu.edu/~weinberg/maple_files.htm)

- 4<sup>th</sup> Degree, Multiplicity 2, (2,2)
- 4<sup>th</sup> Degree, Multiplicity 3, (2,1,1)
- 5<sup>th</sup> Degree, Multiplicity 2, (2,2)
- 5<sup>th</sup> Degree, Multiplicity 3, (2,1,1)
- 5<sup>th</sup> Degree, Multiplicity 3, (2,2,1)
- 5<sup>th</sup> Degree, Multiplicity 3, (3,1,1)
- 5<sup>th</sup> Degree, Multiplicity 4, (2,1,1,1)
- 5<sup>th</sup> Degree, Multiplicity 4, (3/2,1,1)
- 6<sup>th</sup> Degree, Multiplicity 2, (3,3)
- 6<sup>th</sup> Degree, Multiplicity 3, (2,2,2)

- 6<sup>th</sup> Degree, Multiplicity 3, (2,2,1)
- 6<sup>th</sup> Degree, Multiplicity 4, (2,1,1,1)
- 6<sup>th</sup> Degree, Multiplicity 4, (3/2,1,1)
- 6<sup>th</sup> Degree, Multiplicity 4, (2,1,1,1)
- 6<sup>th</sup> Degree, Multiplicity 4, (3/2,3/2)
- 6<sup>th</sup> Degree, Multiplicity 4, (2,2,1,1)
- 6<sup>th</sup> Degree, Multiplicity 5, (2,1,1,1,1)
- 6<sup>th</sup> Degree, Multiplicity 5, (3/2,1,1,1)
- 6<sup>th</sup> Degree, Multiplicity 5, (2,1,1,1,1)
- 6<sup>th</sup> Degree, Multiplicity 5, (4/3,1,1)

## **Awards and Scholarships**

- Faculty Achievement Award for Undergraduate Teaching (Undergraduate Teacher of the Year), George Fox University, 2013-2014
- Holman Summer Research Grant  
Summer 2014
- Holman Summer Research Grant  
Summer 2012
- West Coast Region Bible Quizzing Coach of the Year  
April 2011
- Inducted into the Free Methodist Church National Bible Quizzing Hall of Fame  
July 2009
- Summer 2008 Science, Technology & Math Faculty Research Fellowship  
Summer 2008
- White Graduate Fellowship in Mathematics  
August 2002-May 2004
- Outstanding Mathematics Student of 2000 George Fox University  
May 2000

## **Conferences Attended**

- PNW Regional Meeting of the MAA  
April 2015
- National Meeting of the ACMS  
May 2013
- PNW Regional Meeting of the MAA  
April 2013
- Joint Meetings of the MAA and AMS  
January 2013

- PNW Regional Meeting of the MAA  
April 2012
- National Meeting of the ACMS  
June 2011
- PNW Regional Meeting of the MAA  
April 2010
- PNW Regional Meeting of the MAA  
April 2009
- PNW Regional Meeting of the MAA  
June 2008
- Council on Undergraduate Research Conference  
March 2008
- Regional Meeting of the MAA  
April 2007
- The Vocation of the Christian Professor: Faith, Learning, and Scholarship at Whitworth  
May 2006
- Regional Meeting of the AMS  
April 2005

## Teaching Experience

### George Fox University

- **Calculus I (Math 201)**  
Fall '09, Fall '10, Fall '11, Fall '12, Spring '13, Fall '14
- **Linear Algebra (Math 320)**  
Fall '09
- **Calculus II (Math 202)**  
Spring '10, Spring '12, Fall '13, Spring '14, May '14, Spring '15
- **Calculus III (Math 301)**  
Fall '11
- **Introduction to Proofs (Math 290)**  
Spring '10, Spring '11, Spring '12, Spring '13, Spring '14, Spring '15
- **Algebraic Structures (Math 410)**  
Spring '10, Spring '12, Spring '14
- **Discrete Mathematics (Math 260)**  
Fall '10, Fall '11, Fall '12, Fall '13
- **Differential Equations with Linear Algebra (Math 310)**  
Spring '11
- **Real Analysis (Math 420)**  
Spring '11, Spring '13, Fall '14
- **Real Analysis II (Math 485)**  
Summer '13
- **Statistical Procedures (Math 240)**  
May '12, Fall '12, Spring '13, May '14
- **Topology (GEED 485)**  
Fall '13
- **First Year Seminar (GEED 130)**  
Fall '10, Fall '11, Fall '12, Fall '13

- **Senior Seminar (GEED 490)**  
Spring '15
- **Juniors Abroad (GEED 365)**  
Spring '11, Spring '13, Spring '15

### Whitworth University

- **Freshman Seminar (GE 125)**  
Fall '06
- **Calculus I (MA 171)**  
Fall '05, Spring '06, Fall '06, Fall '07, Fall '08
- **Calculus II (MA 172)**  
Spring '07, Spring '08
- **Elementary Probability and Statistics (MA 256)**  
Spring 2006, Fall 2006, January 2007
- **Calculus III (MA 273)**  
Fall '07
- **Discrete Math (MA 316)**  
Fall '06, Fall '07
- **Modern Geometry (MA 365)**  
Spring '06, Spring '07, Spring '08, Spring '09
- **Topology (MA 396)**  
January '08
- **Algebraic Structures (MA 410)**  
Fall '05
- **Advanced Calculus (MA 440)**  
Fall '08
- **Advanced Calculus II (MA 441)**  
Spring '09

### Texas Tech University

- **Algebra I**  
Fall '00
  - **Algebra II**  
Summer '00
  - **Business Analysis**  
Spring '01, Fall '02, Fall '03
  - **Business Calculus**  
Spring '02, Summer '02, Spring '03
  - **Calculus I**  
Fall '03, Spring '05
  - **Calculus II**  
Spring '04
  - **Calculus III**  
Summer '03
-



## **Positions/offices Held**

- Oregon Conference Director of Free Methodist Bible Quizzing  
Fall 2010-Present
- Advisor of the Whitworth Math Club  
Fall 2006-Spring 2009
- SIAM Member TTU Chapter  
May 2000-May 2005
- SIAM Officer (Social Events Coordinator) TTU  
September 2000-May 2001
- Member of TTU Graduate Student Teacher Mentoring Program  
August 2003-May 2005

## **Mathematical interests**

- Algebraic Geometry
- Singularity Theory
- Probability Theory
- Knot Theory

## **Service to University Community**

- Faculty Senator  
Fall 2013-present
- Curriculum Committee  
Fall 2010-present
- Served on the Campus Pastor Search Committee  
Spring 2014
- Faculty Salary Task Force  
Fall 2010-Spring 2013
- Spiritual Life Advisory Committee  
Fall 2011-Spring 2012
- Served on a Business Dept. Search Committee  
Fall 2011-Spring 2012

- Manager of the GFU Ruins Church League Softball Team  
Summer 2012, Summer 2014
- Genesis advisor  
Summer 2010, 2011, 2012, 2014
- Special Project on Classroom Use for the Provost  
Summer 2011 and 2012
- Lead a Juniors Abroad Trip  
May 2011, May 2013
- Gave the Benediction at GFU Undergraduate Commencement  
Spring 2011
- Served on a Mathematics Position Search Committee  
Fall 2010-Spring 2011
- Advisor for GFU Math Club  
Fall 2010-present
- Advisor for GFU Board Game Club  
Fall 2010-Fall 2011
- Gave Devotions at GFU faculty retreat  
Fall 2010
- Speaker at George Fox Auxiliary Club  
Fall 2009
- Organized Math Student Graduate School Night  
Fall 2009
- Teaching Learning and Curriculum Committee  
Fall 2008 – Spring 2009
- SIRC 2009 planning committee  
Fall 2008 – Spring 2009  
(Spokane Intercollegiate Research Conference)
- ACT 6 faculty mentor  
Fall 2008 – Spring 2009
- Organized Math Student Graduate School Night  
Fall 2005
- Judge at the 2006 Ethics Bowl  
Spring 2006

- Called students for Freshman Summer Registration  
Summer '07 and Summer '08
- Member of the Hixon Union Building Remodeling Committee  
Fall 2007-Spring 2008
- Member of the Hixon Union Building Dining Expansion Committee  
Spring 2008-present
- Member of the Math/CS Visiting Professor Search Committee  
Spring 2008
- Freshman Advisor and taught First Year Seminar  
Fall '06 and Fall '08
- Worked on Undergraduate Research with students at Whitworth  
Spring 06-present
- Started a Whitworth Math Club  
Fall 2006
- Advisor for the Math Club  
Fall 2006 - Spring 2009
- Member of the task force sent to CUR to develop an undergraduate research plan  
Spring 2008  
(Council on Undergraduate Research)
- Class tested Lyle Cochran's new Calculus Text  
Spring 2008
- Lead Devotions at Faculty Assembly  
Fall 2007
- Coordinate Math and CS Departmental Scholarships  
Spring 2007, Spring 2008

### **Service to Church Community**

- Oregon Conference Director of Free Methodist Bible Quizzing  
Fall 2010-present
- Director of the Newberg Bible Quizzing Program  
Fall 2009-present  
Regional Champions 2010, 2011, 2014, third place at Nationals 2012
- Lead a small group for couples with young families  
Fall 2013-present

- Taught two small groups for young married couples  
Fall 2006 - present
- Director of the Timberview Christian Fellowship Bible Quiz Program  
Spring 2007 – present  
Regional Champions 2008 and 2009
- Interim Junior High Youth Pastor  
March 2007-June 2007
- Volunteer Junior High Youth Leader  
Spring 2007 - present
- Timberview Christian Fellowship worship team  
Fall 2005 - present
- Member of the Timberview Christian Fellowship College Leadership Team  
Fall 2007 - Spring 2008

### **Service to Discipline**

- Judge for student presentations at 2015 PNW MAA conference  
April 2015
- Head judge for student posters/presentations at 2010 PNW MAA conference  
April 2010
- Moderated a student session at the 2010 PNW Regional MAA conference  
April 2010
- Judge for best undergraduate paper at 2009 PNW MAA conference  
April 2009
- Moderated a special session at the 2008 PNW Regional MAA conference on Teaching  
Summer 2008

### **Current Professional Memberships**

- The Mathematical Association of America (MAA)
- The Association of Christians in the Mathematical Sciences (ACMS)

### **Advising Load**

- First Year advisor in 2010 , 2011, 2012 and 2013.
- Currently have 21 students