CURRICULUM VITAE

September 2017

NAME: James Mc Laughlin

ADDRESS: Math. Dept., UNA 179, West Chester University,
West Chester, PA 19383

TELEPHONE: (610) 430-4417 (work)

E-MAIL: jmclaughlin2@wcupa.edu

WEB PAGE: http://math.wcupa.edu/~ mclaughlin/

PRESENT RANK: Associate Professor

DEPARTMENT: Mathematics, West Chester University, West Chester, PA 19383.

EDUCATION:

University of Illinois at Urbana-Champaign, IL (UIUC)	2002	PhD
University College, Dublin, Ireland	1996	MSc
Queen's University, Belfast, N.Ireland	1982	PGCE
University of Ulster, N.Ireland	1979	BSc

WORK EXPERIENCE:

West Chester University, PA.	Associate Professor	2010 –
West Chester University, PA.	Assistant Professor	2005 – 2010
Trinity College, Hartford, CT.	Visiting Assistant Professor	2002 – 2005
UIUC	Teaching Assistant	1996 – 2002
University College, Dublin, Ireland	Teaching Assistant	1994 – 1996
Various high schools, Dublin, Ireland	Mathematics Teacher	1992 – 1994

TEACHING:

A. Courses Taught:

Fall 2002 - MAT 132: Calculus II
- MAT 231: Calculus III
Spring 2003 - MAT 253: Number Theory
- MAT 325: Special Topics in Continued Fractions (seminar)
Fall 2003 - MAT 107: Elements of Statistics
- MAT 131: Calculus I
Spring 2004 - MAT 132: Calculus II
- MAT 325: Special Topics in Continued Fractions (seminar)
Fall 2004 - MAT 125: Functions and Limits
- MAT 107: Elements of Statistics
- MAT 205: Abstraction and Argument
Spring 2005 - MAT 253: Number Theory
- MAT 325: Special Topics in Continued Fractions (seminar)
Fall 2005 - MAT 121: Statistics
- MAT 151: Introduction to Discrete Mathematics
- MAT 411: Algebra I
Spring 2006 - MAT 105: College Algebra and Trigonometry
- MAT 151: Introduction to Discrete Mathematics
- MAT 414: Number Theory
Summer 2006 - MAT 108: Brief Calculus
- MAT 121: Statistics
Fall 2006 - MAT 121: Statistics
- MAT 151: Discrete Mathematics
- MAT 411: Algebra I
Spring 2007 - MAT 105: College Algebra and Trigonometry
- MAT 121: Statistics
- MAT 151: Introduction to Discrete Mathematics
Summer 2007 - MAT 107: College Algebra
- MAT 108: Brief Calculus
Fall 2007 - MAT 107: College Algebra
- MAT 411: Algebra I
Spring 2008 - MAT 105: College Algebra and Trigonometry
- MAT 414: Number Theory
- MAT 405: Q-Series
Summer 2008 - MAT 108: Brief Calculus
Fall 2008 - MAT 105: College Algebra and Trigonometry

- MAT 107: College Algebra
- MAT 411: Algebra I

Spring 2009 - MAT 105: College Algebra and Trigonometry
- MAT 151: Introduction to Discrete Mathematics
- MAT 405: Cryptography
- MAT 595: Cryptography

Summer 2009 - MAT 107: College Algebra
- MAT 110: Precalculus

Fall 2009 - MAT 105: College Algebra and Trigonometry
- MAT 110: Precalculus
- MAT 161: Calculus I

Spring 2010 - MAT 103: Introduction to Mathematics
- MAT 107: College Algebra
- MAT 161: Calculus I

Summer 2010 - MAT 161: Calculus I
- MAT 414: Theory of Numbers

Fall 2010 - MAT 107: College Algebra
- MAT 151: Introduction to Discrete Mathematics
- MAT 161: Calculus I

Spring 2011 - MAT 161: Calculus I
- MAT 162: Calculus II
- MAT 405: Special Topics (Cryptography)

Summer 2011 - MAT 161: Calculus I
- MAT 411: Algebra I

Fall 2011 - MAT 110: Precalculus
- MAT 162: Calculus II
- MAT 200: Nature of MAT

Spring 2012 - MAT 161: Calculus I
- MAT 405: Special Topics (Integer Partitions)
- MAT 595: Topics in MAT (Graduate Integer Partitions)

Summer 2012 - MAT 411: Algebra I
- MAT 414: Theory of Numbers
- Thesis I

Fall 2012 - MAT 107: College Algebra
- MAT 311: Linear Algebra
- MAT 413: Computer Algebra
- MAT 595: Topics in MAT (Graduate Computer Algebra)
- Thesis II

Spring 2013 - MAT 104: Introduction to Applied Mathematics
- MAT 414: Number Theory
- MAT 405: Cryptography

Summer 2013 - MAT 108: Brief Calculus
- MAT 311: Linear Algebra

Fall 2013 - MAT 110: Precalculus
- MAT 161: Calculus I
- MAT 411: Algebra I

Spring 2014 - MAT 162: Calculus II
- MAT 261: Calculus III
- MAT 514: Graduate Number Theory

Summer 2014 - MAT 107: College Algebra
- MAT 311: Linear Algebra

Fall 2014 on Sabbatical

Spring 2015 - MAT 108: Brief Calculus
- MAT 325: Computational Mathematics
- MAT 415: Cryptography

Summer 2015 - MAT 311: Linear Algebra
- MAT 411: Abstract Algebra

Fall 2015 - MAT 107: College Algebra
- MAT 411: Algebra I
- MAT 515: Graduate Algebra I

Spring 2016 - MAT 108: Brief Calculus
- MAT 411: Abstract Algebra
- MAT 516: Graduate Algebra II

Summer 2016 - MAT 311: Linear Algebra
- MAT 411: Algebra I

Fall 2016 - MAT 131: Precalculus
- MAT 411: Algebra I
- MAT 413: Computer Algebra

Spring 2017 - MAT 311: Linear Algebra
- MAT 412: Algebra II
- MAT 405: Cryptography

Summer 2017 - MAT 143: Brief Calculus
- MAT 311: Linear Algebra

Fall 2017 - MAT 151: Discrete Mathematics
- MAT 411: Algebra I
- MAT 515: Graduate Algebra I

B. Undergraduate Research - Summer 2004, with Saiying He
- Fall 2007 - Summer 2009, with Eric Werley

B. Graduate Research - Supervised a Masters Thesis
(Ricky Sparks A Collection of Basic Hypergeometric Identities, completed May 2013

RESEARCH:

A. Published Papers:

[1] *Polynomial Continued Fractions* (With D. Bowman) - Acta Arith. **103** (2002), no. 4, 329–342.

[2] *On the Divergence of the Rogers-Ramanujan Continued Fraction on the Unit Circle* (With D. Bowman) - The Transactions of the American Mathematical Society **356** (2004), no. 8, 3325–3347.

[3] *Polynomial Solutions to Pell's Equation and Fundamental Units in Real Quadratic Fields* - J. London Math. Soc. (2) **67** (2003), no. 1, 16–28.

[4] *Multi-variable Polynomial Solutions to Pell's Equation and Fundamental Units in Real Quadratic Fields* - Pacific J. Math. **210** (2003), no. 2, 335–349.

[5] *On The Divergence in the General Sense of q-Continued Fractions on the Unit Circle* (With D. Bowman) - Communications in the Analytic Theory of Continued Fractions **11** (2003), 25–49.

[6] *A Theorem on Divergence in the General Sense for Continued Fractions* (With D. Bowman) - The Journal of Computational and Applied Mathematics **172**, no. 2, pp 363–373.

[7] *Combinatorial Identities Deriving from the n-th Power of a* 2×2 *Matrix* - Integers **4** (2004), A19, 14 pp. (electronic).

[8] *Real Numbers with Polynomial Continued Fraction Expansions* (with Nancy Wyshinski) - Acta Arith. **116** (2005), no. 1, 63–79.

[9] *A Convergence Theorem for Continued Fractions of the Form* $K_{n=1}^{\infty} a_n/1$ (with Nancy Wyshinski) - The Journal of Computational and Applied Mathematics, Volume **179** , Issues 1–2, 1 July 2005, Pages 255-262, containing the proceedings from the Conference on Orthogonal Functions and Related Topics, Roros, Norway, August 2003

[10] *Ramanujan and the Regular Continued Fraction Expansion of Real Numbers* (with Nancy Wyshinski) - The Mathematical Proceedings of the Cambridge Philosophical Society, Volume **138** - Issue 03 - May 2005, pp 367 - 381.

[11] *Powers of a matrix and combinatorial identities* (with B. Sury) - INTEGERS: The Electronic Journal of Combinatorial Number Theory **5** (2005), A13, 9 pp.

[12] *The Convergence and Divergence of q-Continued Fractions outside the Unit Circle* (With D. Bowman) - The Rocky Mountain Journal of Mathematics **36** (2006), no. 3, 799–809.

[13] *The Convergence behavior of q-Continued Fractions on the Unit Circle* (With D. Bowman) - The Ramanujan Journal **12** (2006), no. 2, 185–195.

[14] *Further Combinatorial Identities Deriving from the n-th Power of a* 2×2 *Matrix* (with Nancy Wyshinski) - Discrete Applied Mathematics **154** (2006), no. 8, 1301–1308.

[15] *Continued Fractions with Multiple Limits* (With D. Bowman) - Advances In Mathematics Volume **210** (2007), no. 2, 578-606.

[16] *A q-continued fraction* (with Doug Bowman and Nancy Wyshinski) - International Journal of Number Theory Volume **2** (2006), no. 4, 523-547.

[17] *Continued Fractions and Generalizations with Many Limits: A Survey.* (with Doug Bowman) - In the Proceedings of the Conference on Diophantine Analysis and Related Fields, Keio University, Yokohama, JAPAN, 7-10 March, 2006 , published as Seminar on Mathematical Sciences, **35**, Keio University, Department of Mathematics, Yokohama (2006), 19-38.

[18] *Some remarks on the number of points on elliptic curves over finite prime field.* (with Saiying He) - Bull. Austral. Math. Soc. **75** (2007), no. 1, 135–149.

[19] *Some more Long Continued Fractions, I* (with Peter Zimmer) - Acta Arith. **127** (2007), no. 4, 365–389.

[20] *Ramanujan and Extensions and Contractions of Continued Fractions* (with Nancy Wyshinski) - The Ramanujan Journal, **14** (2007), no. 3, 389–404.

[21] *Symmetry and specializability in the continued fraction expansions of some infinite products* - The Journal of Number Theory, **127** (2007), no. 2, 184–219.

[22] *Some Observations on Khovanskii's Matrix Methods for extracting Roots of Polynomials* (with B. Sury) - INTEGERS: The Electronic Journal of Combinatorial Number Theory **7** (2007), A48, 12 pp.

[23] *Rogers-Ramanujan-Slater Type Identities* (with Andrew Sills and Peter Zimmer) - Electronic Journal of Combinatorics **15** (2008) #DS15, 59 pp.

[24] *Ramanujan-Slater Type Identities Related to the Moduli 18 and 24* (with Andrew Sills) - The Journal of Mathematical Analysis and Applications **344/2** (2008) 765-777.

[25] *Some identities between basic hypergeometric series deriving from a new Bailey-type transformation* (with Peter Zimmer) - The Journal of Mathematical Analysis and Applications , **345/2** (2008) 670-677.

[26] *Some more identities of the Rogers-Ramanujan type* (with D. Bowman and A. Sills) - The Ramanujan Journal Volume **18**, Issue 3 (2009), Page 307-325

[27] *Some new Families of Tasoevian- and Hurwitzian Continued Fractions* - Acta Arith. **135** (2008), no. 3, 247–268.

[28] *Some Implications of the WP-Bailey Tree* (with P. Zimmer) - Advances in Applied Mathematics Volume **43**, Issue 2, August 2009, pp 162-175 .

[29] *Rogers-Ramanujan Computer Searches* (with A. Sills and P. Zimmer) - Journal of Symbolic Computation Volume **44**, Issue 8, August 2009, pp 1068-1078

[30] *Lifting Bailey Pairs to WP-Bailey Pairs* (with A. Sills and P. Zimmer) - Discrete Mathematics **309** (2009), pp. 5077-5091.

[31] *Combinatorics of Ramanujan-Slater Type Identities* (with Andrew Sills) - Combinatorial Number Theory, Proceedings of the 'Integers Conference 2007', Carrollton, Georgia, USA, October 24-27, 2007, 125139, Walter de Gruyter, Berlin, 2009.

[32] *An Identity Motivated by an Amazing Identity of Ramanujan* - The Fibonacci Quarterly 48 (2010), no. 1, 34-38.

[33] *General WP-Bailey Chains* (with Peter Zimmer) - The Ramanujan Journal 22 (2010), no. 1, 11-31.

[34] *Some new Transformations for Bailey pairs and WP-Bailey Pairs* - Central European Journal of Mathematics 8 (2010), no. 3, 474-487.

[35] *Continued Fraction Proofs of m-versions of Some Identities of Rogers - Ramanujan-Slater Type* (with Doug Bowman and Nancy Wyshinski) - The Ramanujan Journal 25, Number 2, 203–227.

[36] *Some Applications of a Bailey-type Transformation* (with Peter Zimmer) - The International Mathematical Forum Vol. 5, 2010, no. 61–64, 3007–3022.

[37] *A New Summation Formula for WP-Bailey Pairs* - Applicable Analysis and Discrete Mathematics (AADM) 5 (2011), 67–79.

[38] *Some implications of Chu's ${}_{10}\psi_{10}$ extension of Bailey's ${}_6\psi_6$ summation formula* (with Andrew Sills and Peter Zimmer) - Online Journal of Analytic Combinatorics (OJAC) Issue 5, 2010.

[39] *Hybrid Proofs of the q-Binomial Theorem and other identities* (with Dennis Eichhorn and Andrew Sills) - Electronic Journal of Combinatorics Volume 18(1), 2011, P60.

[40] *Polynomial Generalizations of two-variable Ramanujan type identities* (with Andrew Sills) - Electronic Journal of Combinatorics Volume 18(2), 2011, P15.

[41] *A Hardy-Ramanujan-Rademacher-type formula for (r, s)-regular partitions* (with Scott Parsell) - The Ramanujan Journal June 2012, Volume 28, Issue 2, pp 253–271.

[42] *On a pair of identities from Ramanujan's lost notebook* (with Andrew Sills) - Annals of Combinatorics Volume 16, Number 3 (2012), 591–607.

[43] *A Reciprocity Relation for WP-Bailey Pairs* (with Peter Zimmer) - The Ramanujan Journal Volume 28, Number 2 (2012), 155–173.

[44] *Further results on vanishing coefficients in infinite product expansions* - J. Aust. Math. Soc. 98 (2015), no. 1, 69-77.

[45] *General multi-sum transformations and some implications* - The Ramanujan Journal April 2016, Volume 39, Issue 3, pp 545–565.

[46] *Refinements of Some Partition Inequalities* - INTEGERS: The Electronic Journal of Combinatorial Number Theory 16 (2016), A66, 11 pp.

[47] *Applications of the Heine and Bauer-Muir transformations to Rogers - Ramanujan type continued fractions* (with Jongsil Lee and Jaebum Sohn) - The Journal of Mathematical Analysis and Applications Volume 447, Issue 2, 15 March 2017, Pages 1126–1141.

[48] *Mock Theta Function Identities Deriving from Bilateral Basic Hypergeometric Series* - to appear in the refereed conference proceedings (to be published by Springer) of the 2016 Gainesville International Number Theory Conference in honour of Krishna Alladi.

B. Book:
"Topics and Methods in q-Series" - published by World Scientific Publishing, September 2017.

C. Conference Talks:

1. " Some Polynomial Solutions to Pell's Equation" - AMS Sectional Meeting at Urbana, March 18 - 21, 1999.
2. "On the Divergence of the Rogers-Ramanujan Continued Fraction on the Unit Circle" - Illinois Number Theory Conference, May 18 - 20, 2001.
3. "On the Divergence of the Rogers-Ramanujan Continued Fraction on the Unit Circle, II" - 2001 West Coast Number Theory Conference, December 16th - 20, 2001.
4. "Continued Fractions with Multiple Limits" - Conference on Orthogonal Functions and Related Topics, Roros, Norway, August 12 - 16 2003.
5. "Ramanujan and the Regular Continued Fraction Expansion of Real Numbers" - Illinois Number Theory Conference, May 21 - 22, 2004.
6. "Symmetry and Specializability in the Continued Fraction Expansions of some Infinite Products" - AMS Session on Number Theory, II, Atlanta, January 5, 2005.
7. "A q-Continued Fraction" - AMS Session on Continued Fractions, San Antonio, January 14, 2006.
8. "Some Variations of the Bailey Transform" - Illinois Number Theory Fest, May 16 - 20, 2007.
9. "Lifting Bailey pairs to WP-Bailey pairs" - Conference on Partitions, q-Series and Modular Forms University of Florida, Mar 12-16, 2008.
10. "Some new Families of Tasoevian- and Hurwitzian Continued Fractions" - AMS Special Session on Continued Fractions, Washington, January 7 - 8, 2009.
11. "General WP-Bailey Chains" - AMS Special Session on q-series and Partitions, University of Illinois at Urbana-Champaign, March 27 - 29, 2009.
12. "Continued Fraction Proofs of m-versions of Some Identities of Rogers - Ramanujan-Slater Type". - JMM, New Orleans, January 9th, 2011.
13. "Further Results on Vanishing Coefficients in Infinite Product Expansions" - Tucson, October 27th, 2012.
14. "Certain General Double-Sum Identities and Variations of WP-Bailey Chains" - JMM, San Diego, January 11th, 2013.
15. "A General Multi-sum Transformation and Some Implications" Lubbock, Texas, April 12, 2014.
16. "Refinement of Some Partition Inequalities" - West Coast Number Theory Conference, Pacific Grove, December 18, 2015.
17. "Mock Theta Function Identities Deriving from Bilateral Basic Hypergeometric Series" - The 2016 Gainesville International Number Theory Conference, University of Florida, Gainesville, March 20th, 2016.
18. "Applications of the Heine and Bauer-Muir transformations to Rogers - Ramanujan type continued fractions" - JMM, Atlanta, January 7th, 2017 (joint work with Jongsil Lee and Jaebum Sohn).

FELLOWSHIPS AND AWARDS:

Bateman Prize in Number Theory (shared with Kevin O'Bryant) - Spring 2002
Trjitzinsky Fellowship - Spring 2002
Trjitzinsky Fellowship - Spring 2000
Simons Collaboration Grant - Summer 2011 ($35,000 spread over 5 years)
Faculty Academic Advisor Appreciation Award for excellence in academic advising in Spring 2013

MEMBERSHIPS:

The American Mathematical Society
The Mathematical Association of America

COMMITTEES:

Undergraduate Curriculum Committee (2007 - 2009)
Election Committee (2007 - 2009)
CAS Recruitment Committee (2008)
of Long Range Ad-Hoc Committee Spring 2012
Personnel Committee 2010-2011, 2011-2012, 2012-2013
Undergraduate Curriculum Committee 2010-2011, 2011-2012, 2012-2013
Ad-Hoc Committee (MAT105 MAT 110) Spring 2014
Placement Test Committee (from time with McCann) Spring 2013 Spring 2014

ADDITIONAL INFORMATION:

Organizer of a current literature seminar, beginning in Spring 2006
Web-master for the WCUPA Mathematics Department web page
Co-organizer (with Nancy Wyshinski) of a Special Session on Continued Fractions at the 2004, 2006, 2009, 2011, 2013, 2015 and 2017 Joint Meetings.
Experience in using computer algebra systems like Magma, Mathematica and PARI/GP