Russell W. Howell | Curriculum Vitae

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Education

- Ph.D. (Mathematics), The Ohio State University, Columbus, Ohio: 1974
  Dissertation: *Annular Functions in Potential Theory and Probability*
  Advisor: Professor Francis W. Carroll
- M.Sc. (Computer Systems Engineering), University of Edinburgh, Edinburgh, Scotland: 1986
- B.S. (Mathematics), Wheaton College, Wheaton, Illinois: 1969

Military Service

- Honorable Discharge: 1978
  Rank: Captain; Clearance: Top Secret
- HHC I Corps (ROK/US) Group, Camp Red Cloud, South Korea: 1977–1978
  G-3 Defense Analysis
- 2BN 61st ADA, Camp Mosier, South Korea: 1977
  S-5 Battalion Officer
- White Sands Missile Range, New Mexico: 1975–1977
  Operations Research/Systems Analysis
- Fort Bliss, Texas: 1974–1975
  Officer Basic/Nike-Hercules Operations and Management Training

Main Appointments (Westmont College, Santa Barbara, CA)

- Kathleen Smith Professor of Mathematics: 2013⟶
- Professor of Mathematics: 1989–2013
- Associate Professor of Mathematics: 1984–1989
- Assistant Professor of Mathematics: 1978–1984

Other Appointments

- Visiting Professor, United States Air Force Academy, Colorado Springs, CO: 2015
- Visiting Scholar, Oxford University (Wolfson College), Oxford, UK: 2006–2007
- Visiting Professor, University of Maryland, College Park, MD: 2000
- Visiting Professor, Calvin University, Grand Rapids, MI: 1999
- Visiting Scholar, University of California, Berkeley, CA: 1985

Courses Taught

- Mathematics
  - Algebra (linear, modern)
  - Analysis (real, advanced real, complex)
  - Applied Mathematics
  - Calculus (elementary, honors, multivariable, advanced)
  - Combinatorics
  - Differential Equations
  - Fundamentals of Mathematics (for education majors)
  - Mathematics in Context (for humanities students)
  - Problem Solving
  - Statistics (elementary, advanced)
- Computer Science
  - Assembly Language
  - Data Structures and Algorithms
  - Fundamentals of Computing (for education majors)
  - Introduction to Programming (first two courses, using a variety of languages)
  - Operating Systems
- Off-Campus
  - Europe Semester (Great Hymns of the Christian Faith; Perspectives on Civilization)
  - Inoculum (12-day pre-semester course for first year students)
  - Mexico Semester (preparatory [on-campus], in-country seminar, reentry [on-campus])
- Other Courses
  - Christian Perspectives on Learning
  - Mathematics and Linguistics (co-taught with a language translator)
  - Mathematics and Philosophy in Western Culture (co-taught with a philosopher)

Committees Chaired

- Academic Senate
- Christian Perspectives on Learning
- Computer
- Faculty Council
- Personnel
- Student Development

Administrative/Organizational Positions

- Department Chair, Mathematics and Computer Science: 1986–1991; 2000–2006; 2018–2022
- Organizer and contributor: Westmont's fourth interdisciplinary symposium: September 6, 2018
  Arcadia through the Eyes of Literature, Art, Music, and Mathematics
- Coordinator of faith-learning for pre-tenure faculty: 2002–2010
- Coordinator of the NBS seminar and Pascal Society lecture series: 2004–2006
- Creator and organizer for Westmont's annual high school mathematics field day: 1987–2021
- Organizer and contributor: Westmont's third interdisciplinary symposium: February 3–4, 2006
  Seventy-fifth anniversary of Gödel's incompleteness theorems
- Convener/Mentor, CCCU Disciplinary Workshops in Mathematics and Computer Science
  Westmont College: May 2003
- Creator and organizer for Westmont's theological workshops: 1999–2001
- Vice Chair of the faculty: 1996–1997
- Association of Christians in the Mathematical Sciences
  Board Member: 1989–1997; Vice President: 1991–1993; President: 1993–1995
- Phi Kappa Phi scholastic honor society
  Vice President: 1991–1993, 2017–2018; President: 1993–1995, 2018–2020
- Omicron Delta Kappa leadership honor society faculty advisor: 1983–1991
- Director of Academic Computing: 1978–1985

Publications

[1] C. Barnhart, R. Howell, I. Jessop, S. Tang. Flip a Coin, Get an Annular Function? *The American Mathematical Monthly, (To Appear).*

[2] M. Brilleslyper, M. Dorff, J. Brooks, R. Howell, B. Schaubroeck. Zeros of a One-Parameter Family of Harmonic Trinomials. *Proceedings of the American Mathematical Society, Series B* **2020**, *7*, 82–90, doi=https://doi.org/10.1090/bproc/51.

[3] *Proceedings, ACMS*, Vol. 22, 22, **May, 2020**, Journal editor and contributor.

[4] J. Bradley, R. Howell, *The Joy of Mathematics* in *Where Wisdom May be Found*, E. P. Meadors (Ed.), Pickwick, Eugene, OR, **2019**, chapter 12, pp. 146–158.

[5] R. Howell, D. Kyle. Locating trinomial zeros. *Involve: A Journal of Mathematics* **2018**, *11*, 711 – 720, doi=https://doi.org/10.2140/involve.2018.11.711.

[6] *Proceedings, ACMS*, Vol. 21, 21, **May, 2018**, Served as editor for this first installment as a refereed journal.

[7] R. W. Howell. Food for Thought: The Theological Life of Pi
The mind-boggling discoveries of computers and what we—and God?—still may never know. *Christianity Today* **March, 2018**.

[8] R. W. Howell, E. Schrohe. Unpacking Rouché's Theorem. *PRIMUS* **2017**, *27*, 801–813, Also served as guest editor for this special theme issue on complex analysis.

[9] R. W. Howell. The Matter of Mathematics. *Perspectives on Science and Christian Faith* **2015**, *67(2)*, 74–88, Lead article and guest editor for this special theme issue on mathematics.

[10] R. W. Howell. Inerrancy: A Cartesian Paux-Pas? (Review of *By Good and Necessary Consequence*). *Books and Culture* **2014**, 8–10.

[11] J. H. Mathews, R. W. Howell, *Complex Analysis for Mathematics and Engineering sixth ed.*, Jones and Bartlett, Sudbury, MA, **2012**.

[12] W. J. Bradley, R. W. Howell (Eds.), *Mathematics Through the Eyes of Faith*, HarperOne, San Francisco, CA, **2011**, Also a contributor for Chapter 8 (*Effectiveness*), Chapter 10 (*Ontology*), and Chapter 11 (*An Apology*).

[13] R. W. Howell, *Does Mathematical Beauty Pose Problems for Naturalism?* in *Taking Every Thought Captive: Forty Years of the Christian Scholar's Review*, D. W. King (Ed.), ACU Press, Abilene, TX, **2011**, chapter 22, pp. 329–339, (One of 25 articles selected from among those published in *Christian Scholar's Review* between 1970 and 2010).

[14] R. W. Howell. Making it Up, (Review of *Negative Math: How Mathematical Rules Can Be Positively Bent*). *Books and Culture* **2009**, 35–38.

[15] R. W. Howell, *Lewis's* Miracles *and Mathematical Elegance* in *C.S. Lewis as Philosopher*, D. Bagit, J. Walls, G. Habermas (Eds.), InterVarsity Press, Downers Grove, IL, **2008**, chapter 13, pp. 211–227 (chapter 13).

[16] R. W. Howell. Does Mathematical Beauty Pose Problems for Naturalism? *Christian Scholar's Review* **2006**, *XXXV*, 493–504.

[17] R. W. Howell. Does Mathematical Beauty Pose Problems for Naturalism? *Journal of the ACMS* **2006**, (Published with permission from *Christian Scholar's Review*, this article is more mathematically technical than the one appearing with the same title in *CSR*), https://acmsonline.org/does-mathematical-beauty-pose-problems-for-naturalism/.

[18] R. W. Howell. Review of *The Divine Challenge: on Matter, Mind, Math and Meaning*. Focus Online **2005**, Mathematical Association of America, http://mathdl.maa.org/mathDL/19/?pa=reviews&sa=viewBook&bookId=65560.

[19] R. W. Howell. Review of *The Divine Challenge: on Matter, Mind, Math and Meaning*. *Journal of the ACMS* **2005**, (This review, while similar to that in *Focus Online*, concentrates more on biblical and philosophical issues), http://acmsonline.org/2005-journal/.

[20] R. W. Howell, W. J. Bradley (Eds.), *Mathematics in a Postmodern Age: A Christian Perspective*, Eerdmans, Grand Rapids, MI, **2001**.

[21] R. W. Howell, W. J. Bradley, *Introduction* in [20], pp. 1–11.

[22] R. W. Howell, *Creativity and the Limits of Computer Reasoning* in [20], chapter 9, pp. 250–277.

[23] R. W. Howell, W. J. Bradley, *Conclusion* in [20], pp. 361–384.

[24] J. H. Mathews, R. W. Howell. The Tangent Parabola. *The AMATYC Review* **2001**, 25–32.

[25] R. H. Gundry, R. W. Howell. The Sense and Syntax of John 3:14-17 with Special Reference to the Use of οὕτος ... ὥστε in John 3:16. *Novum Testamentum* **1999**, 24–39.

[26] R. W. Howell, J. H. Mathews. Computing Square Roots Fast: Illustrating the Cubic Order of Convergence. *International Journal of Mathematics Education in Science and Technology* **1999**, *30*, 290–293.

[27] J. H. Mathews, R. W. Howell. The Investigation of Tangent Polynomials with a Computer Algebra System. *The AMATYC Review* **1992**, 20–27.

[28] R. W. Howell, *Using* Mathematica *to Teach Calculus* in *Proceedings of the ACMS*, ACMS, **1991**, pp. 79–89.

[29] R. W. Howell, *Simulated Annealing on NP-Complete Problems* in *Proceedings of the ACMS*, ACMS, **1989**, pp. 104–123.

[30] R. W. Howell, *Comparison of Tank and Tow Losses in Carmonette and DMB Simulations*, Tech. Rep., USA TRADOC Systems Analysis Activity, **1977**, Classified Secret.

[31] R. W. Howell, *Analysis of Line-of-Sight Data in the IUA-BONDER Model*, Tech. Rep., USA TRADOC Systems Analysis Activity, **1976**, Classified Secret.

[32] R. W. Howell. Annular Functions in Probability. *Proceedings of the American Mathematical Society* **1975**, *52*, 217–221.

Papers, Seminar Talks, Panels

- "Probabilistic Considerations Relating to a Certain Type of Function in the Unit Disk"
  (With Student Presenter Samuel Tang)
  AMS Contributed Paper Session on Complex Variables
  JMM, San Francisco, CA (January 5, 2024)

- Inaugural Brabenec Lecturer for ACMS: Invited Addresses (2023)
  - Pepperdine University, Malibu, CA (January 30)
  - Huntington University, Huntington, IN (March 14: two lectures)
  - Taylor University, Upland, IN (March 15: chapel talk)
  - Indiana Wesleyan University, Marion, IN (March 15: two lectures)
  - Dordt University, Sioux Center, IA (April 14)
  - Lee University, Cleveland, TN (April 23-24: three lectures, faculty workshop)

- Other Invited Addresses (2023)
  - Dini Cevaplar, Istanbul, Turkey (June 4, Third Internation Conference on Science and Religion)
  - Hendrix College, Conway, AK (September 20)

  - United States Air Force Academy, Colorado Springs, CO (October 31: two lectures)
  - Wheaton College, Wheaton, IL (November 3)

- "Do Annular Functions Abound in the Unit Interval?"
  AMS Special Session on Partial Differential Equations and Complex Variables
  JMM, Boston, MA (January 6, 2023)

- Organizer, "Complex Analysis: History, Pedagogy, Innovation, and Research" (Contributed Paper Session, MAA MathFest, Philadelphia, PA), August 5, 2022

- California Baptist University Distinguished Lecture Series, February 5–6, 2020
  - "RAM and Recursion"
  - "Mathematical Beauty and the Lewis-Anscombe Debate"
  - "Is Faith Required for Mathematics? Is Mathematics Required for Faith?"

- Organizer, "Innovations in Complex Analysis" (Contributed Paper Session, Joint Mathematics Meetings, Denver Colorado), January 16, 2020.

- "When the Fundamental Theorem of Algebra Goes Awry" (co-presented with Michael Brilleslyper [United States Air Force Academy], and my research student Kyle Hansen)
  Contributed Paper Session (*Revitalizing Complex Analysis*),
  Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., Baltimore, MD (January 17, 2019); Principal organizer for this session.

- Keynote Speaker: Spring Arbor University's *Focus Series* (October, 2018)
  - "Creating Order from the Chaos of status Anxiety" (Chapel Talk)
  - "Is Faith Required for Mathematics? Is Mathematics Required for Faith?"
  - "Why does Mathematics Make Order out of Chaos? Beauty, Naturalism, and the Lewis-Anscombe Debate"

- MathFest (Denver, CO, August 1, 2018)
  - "Writing with Overleaf in Mathematics Classes" (project NExT panel contribution)
  - "Flip a Coin, Get an Annular Function?" (Poster Session)

- Keynote Speaker: The Associated Colleges of the Chicago Area (March, 2018)
  - "RAM and Recursion"
  - "Complementary Partial Orders"

- "Is Faith Required for Mathematics? Is Mathematics Required for Faith?"
  Invited Lecture, Trinity Christian College (March, 2018)

- "A Web Interface for REU Projects in Complex Analysis"
  Contributed Paper Session (*Revitalizing Complex Analysis*),
  Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., San Diego, CA (January 12, 2018); Principal organizer for this session

- "The Count of Monte Disco" (given with my research student David Kyle)
  Contributed Paper Session (*Revitalizing Complex Analysis*),
  Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., Atlanta, GA (January 6, 2017); Principal organizer for this session

- "Números Complejos: Cómo Llegaron a Ser y Problemas a Resolver"
  Invited Address, Universidad Autónoma de Querétaro (November 28, 2016)

- "Optimización por Casualidad: Metódos Matemáticos"
  Invited Address, Universidad Autónoma de Querétaro (October 17, 2016)

- "Rouché's Theorem: Projects and Pedagogy
  Contributed Paper Session, Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., Seattle, WA (January 9, 2016)

- "RAM and Recursion"
  Colloquium talk to faculty and cadets, United States Air Force Academy, Colorado Springs, CO (October 9, 2015)

- "Random Complex Functions with Weird Properties"
  Colloquium Series, Colorado College, Colorado Springs, CO (May 7, 2015)

- "Revitalizing Complex Analysis"
  Contributed Paper Session, MAA Rocky Mountain Sectional Meeting, Colorado College Colorado Springs, CO (April 18, 2015)

- "Drawing Blanks: Experiments for Pre- and Post-Examination Days"
  Contributed Paper Session, MAA Rocky Mountain Sectional Meeting, Colorado College, Colorado Springs, CO (April 17, 2015)

- "Simulated Annealing on NP-Complete Problems"
  Keynote Address, Service Academy Student Mathematics Conference, United States Air Force Academy, Colorado Springs, CO (April 17, 2015). Also presented to the faculty at the United States Air Force Academy, Colorado Springs, CO (November 20, 2014)

- "How to Pack a Suitcase"
  Keynote Address, Pikes Peak Regional Undergraduate Mathematics Conference, United States Air Force Academy, Colorado Springs, CO (March 7, 2015). Also Presented to the cadets at the United States Air Force Academy, Colorado Springs, CO (November 20, 2014),

- "Revitalizing Complex Analysis: Three Philosophies"
  Contributed Paper Session, Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., San Antonio, Texas (January 10, 2015)

- "Revitalizing Complex Analysis: The Next Steps"
  Contributed Paper Session, Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., San Antonio, Texas (January, 2015)

- "George Berkeley, Mathematics, and Faith: A Pranalogical Potpourri"
  Reception speaker for the Association of Christians in the Mathematical Sciences, Baltimore, MD (January 16, 2014)

- "Revitalizing Complex Analysis"
  NSF-sponsored poster session, combined meetings of the Mathematical Association of America, American Mathematical Society, etc., Baltimore, MD (January 15, 2014)

- "Mathematical Effectiveness and the Lewis-Anscombe Debate"
  Keynote Address, Southern California Christians in Science Fall Meeting, Pepperdine University, Malibu, CA (October 11, 2014)

- "The Lewis-Anscombe Debate; Millieu, Mutations, and Mathematics" Invited Address, C.S. Lewis Symposium, Union University, Jackson, TN (November, 2013)

- "Complementary Partial Orders, or How to Pack a Suitcase"
  Invited Address, Mathematics Colloquium, Union University, Jackson, TN (November, 2013)

- "Is Faith Required for Mathematics? Is Mathematics Required for Faith?"
  Invited Address, Faith-Learning Colloquium, Union University, Jackson, TN (November, 2013)

- "Is Faith Required for Mathematics? Is Mathematics Required for Faith?"
  Installation Address: Kathleen Smith Professor of Mathematics, Westmont College, Santa Barbara, CA (October 18, 2013)

- "Grading without Numbers"
  Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., New Orleans, Louisiana (January, 2011)

- "Is Mathematics Unreasonably Effective?"
  Oxford Philosophy Seminar, Merton Street, Oxford, England (March 8, 2007)

- "Mathematical Measurements: Applications and Implications"
  St. Edwards School, Oxford, England, (January 17, 2007)

- "The Impact of Gödel: Theories of Mind and Aposteriori Thinking
  (Who is right: Penrose and Lucas, or Wittgenstein?)" Gödel Interdisciplinary Symposium, Westmont College, Santa Barbara, CA (February 3, 2006)

- "Does Mathematical Beauty Pose Problems for Naturalism?"
  Oxbridge Conference, Oxford, England (July, 2005)

- ACMS Conference, Huntington, Indiana (May, 2005)
  - "Review of The Divine Challenge"
  - "Mathematical Success and Naturalism"

- Wheaton College Science Symposium Invited Speaker (March, 2004)
  - "Philosophical Views of Mathematics and their Relation to Infinite Sets"
  - "The Subject and Object of Creativity" (Chapel Address)

- Abilene Christian University Faith-Learning Symposium Invited Speaker (March, 2003)
  - "Mathematical Implications for Statistical Inference"
  - "The Constrictions of Hilbert's Formalism"
  - "Faith-Learning Perspectives in Mathematics and Computer Science: Do They Matter?"

  - "The Practice of Christians in Academia"

- Panel organizer and participant: "Mathematics in a Postmodern Age"
  Combined meetings of the Mathematical Association of America, American Mathematical Society, etc., San Diego, CA (January, 2002)

- Panel member: colloquy for the installation of Stan Gaede as President of Westmont College (January, 2002), Panel Contribution: "Avoiding Affectation and Accommodation"
  Fess Parker's Doubletree Inn, Santa Barbara, CA

- Invited lectures: "Non-Linear Thinking: Implications for Computer Chip Design and Social Science Legitimacy"
  - Muhlenberg College, Allentown, PA (Spring, 2000)
  - Hope College, Holland, MI (Fall, 1999)
  - Calvin College, Grand Rapids, MI (Fall, 1999)
  - Westmont College, Santa Barbara, CA, Natural Science Seminar, (Spring, 1998)

- "Complementary Partial Orders and Rectangle Packing"
  Fall meeting of the American Mathematical Society and Mathematical Association of America, Claremont McKenna/Pfitzer College, Claremont, CA, (October, 1997)

- "Probabilistic Surprises: The Mundane, the Mysterious, and the Esoteric"
  Natural Science Research Seminar, Westmont College, Santa Barbara, CA, (Spring, 1992)

- "Using Mathematica to Teach Calculus"
  Eighth Biennial Conference of the Association of Christians in the Mathematical Sciences, Wheaton College, Wheaton, IL, (June, 1991)

- "Simulated Annealing on NP-Complete Problems"
  Seventh Biennial Conference of the Association of Christians in the Mathematical Sciences, Messiah College, Grantham, PA, (June, 1989)

- "Randomized Optimization, or How to Pack a Suitcase"
  Natural Science Research Seminar, Westmont College, Santa Barbara, CA, (Spring, 1988)

- "Creativity and the Limits of Computer Reasoning"
  Phi Kappa Phi Address at Westmont College, Santa Barbara, CA, (February, 1987)

- "Annular Functions and Probability"
  Summer meeting of the American Mathematical Society, Dekalb, IL, (Summer, 1974)

Professional Memberships

- The Mathematical Association of America: 1974⟶

- The Association of Christians in the Mathematical Sciences: 1977⟶
  Board Member: 1989–1997; Vice President: 1991–1993; President: 1993–1995

- The American Scientific Affiliation: 2014⟶

- Council of Christian Scholarly Societies: 1996–2002
  Executive Committee: 1998–2002; Chair: 2000–2002
- Phi Sigma Tau: 1968⟶
- Westmont Chapter, Omicron Delta Kappa: 1983–2000
- Westmont Chapter, Phi Kappa Phi: 1980⟶
  Vice President: 1991–1993; 2017–2018; President: 1993–1995; 2018–2020

Honors and Awards

- Endowed Chair, Westmont College: 2013⟶
  The Kathleen Smith Endowed Chair for Natural and Behavioral Sciences
- Teacher of the Year, Westmont College: 1984, 1999
- Army Commendation Medal (USA): 1978
- Korea Service Medal (ROK): 1978
- Grants
  - National Science Foundation: 2014–2015 (PI, #1245234, $39,225)
    To convene 14 people from academia and industry at Westmont College in June 2014. The outcomes to date have been: (1) a report recommending revisions to the curriculum in complex analysis as taught at the undergraduate level; (2) contributed paper sessions at the JMM in San Antonio, TX (2015), Seattle, WA (2016), Atlanta, GA (2017), and San Diego, CA (2018); (3) Editor of and contributor to a theme issue of *PRIMUS* dedicated to complex analysis (December, 2017).
  - The John Templeton Foundation: 2006 ($14,500)
    To develop a book connecting mathematical, philosophical, and theological ideas
  - Lilly Foundation: 2005 ($12,000)
    To fund the faith-learning program at Westmont College for one year
  - The John Templeton Foundation: 2003–2005 ($6000)
    Honorarium for participation in the John Templeton Seminars in Science and Christianity, held at Wycliffe Hall, Oxford, for four weeks in each of three consecutive summers.
  - National Science Foundation: 2003–2005 (Co-PI, #0123144, $55,000)
    To fund undergraduate fellowships in mathematics and computer science
  - Digital Equipment Corporation: 1980 ($4000)
    For the purchase of institutional computer equipment

Community Service

- Free Methodist Church, 1979⟶: various involvements, including
  - Regional Conference Delegate
  - Adult Education Teacher

  - Local Board of Administration
  - Worship Committee Chair
  - Pianist

- Creator and organizer of Westmont's annual high school mathematics field day: 1987–2021
- Participant for Cal SOAP: 2001
- External reviewer for various mathematics programs
  - Hendrix College (Conway, AK): 2023
  - Pepperdine University (Malibu, CA): 2023
  - Trinity Western University (Langley, BC): 2022
  - Biola University (La Mirada, CA): 2005, 2019
- Organizer and presenter at Westmont's third interdisciplinary symposium: February 3–4, 2006 "Celebrating the 100^{th} anniversary of Gödel's birth, and the 75^{th} anniversary of the publication of his incompleteness theorems" Invited speakers: Michael Detlefson (University of Notre Dame), Daniel Isaacson (Oxford University), Michael Stobb (Calvin University)
- Organizer and presenter at Westmont's fourth interdisciplinary symposium: September 6, 2018 "*Arcadia* through the Eyes of Literature, Art, Music, and Mathematics"

Consulting Activities

- California Thrift and Loan, Santa Barbara, CA
- Sansum Medical Foundation, Santa Barbara, CA
- ABACUS, Inc., Santa Barbara, CA
- General Research Corporation, Santa Barbara, CA