

Bruce M. Landman

Curriculum Vitae

Department of Mathematics
State University of West Georgia
Carrollton, Georgia 30118
E-mail: landman@westga.edu
Department Telephone: (770)836-6489

Education

Ph.D. Mathematics, Virginia Tech, 1983

M.A. Mathematics, State University of New York at Binghamton, 1975

B.A. Mathematics, Queens College of the City University of New York, 1973

Employment

Professor and Chair, Department of Mathematics, State University of West Georgia, 2001-present

Professor of Mathematics, University of North Carolina at Greensboro, 2000-2001

Associate Professor of Mathematics, University of North Carolina at Greensboro, 1992-2000

Assistant Professor of Mathematics, University of North Carolina at Greensboro, 1988-1992

Assistant Professor of Mathematics, Hofstra University, 1984-1988

Visiting Assistant Professor of Mathematics, Virginia Tech, 1983-1984

Instructor of Mathematics, Virginia Tech, 1978-1983

Research Articles

1. J.W. Layman and B. Landman, Note on the local growth of iterated polynomials, *Aequationes Math.* **27** (1984), 150-156.
2. B. Landman, Generalized van der Waerden numbers, *Graphs and Combinatorics* **2** (1986), 351-356.
3. B. Landman and R.N. Greenwell, Values and bounds for Ramsey numbers associated with polynomial iteration, *Discrete Math.* **68** (1988), 77-83.
4. R.N. Greenwell and B. Landman, On the existence of a reasonable upper bound for the van der Waerden numbers, *J. Comb. Theory (A)* **50** (1989), 82-86.
5. B. Landman and R.N. Greenwell, Some new values and bounds for van der Waerden-like numbers, *Graphs and Combinatorics* **6** (1990), 287-291.

6. B. Landman, F. Portier, T.P. Vaughan, Concavity properties of numbers of solutions of Diophantine equations, *J. Comb. Math. Comb. Comp.* **8** (1990), 39-49.
7. B. Landman and R.N. Greenwell, Accurate bounds for new van der Waerden type numbers, *J. Comb. Math. Comb. Comp.* **8** (1990), 103-106.
8. B. Landman and R.N. Greenwell, Multiplicative partitions of bipartite numbers, *Fibonacci Quart.* **29** (1991), 264-267.
9. T.P. Vaughan, B. Landman, F. Portier, Concavity properties of numbers satisfying the binomial recurrence, *J. Comb. Math. Comb. Comp.* **12** (1992), 23-32.
10. B. Landman, E.A. Brown, F. Portier, Partitions of bipartite numbers into at most j parts, *Graphs and Combinatorics* **8** (1992), 65-73.
11. B. Landman, Ramsey functions related to the van der Waerden numbers, *Discrete Math.* **102** (1992), 265-278.
12. B. Landman, An upper bound for van der Waerden-like numbers using k colors, *Graphs and Combinatorics* **9** (1993), 177-184.
13. B. Landman, Ramsey functions associated with second-order recurrences, *J. Comb. Math. Comb. Comp.* **15** (1994), 119-128.
14. B. Landman and A.F. Long, Ramsey functions for sequences with adjacent differences in a specified congruence class, *Congressus Numer.* **103** (1994), 3-20.
15. T.C. Brown and B. Landman, The Ramsey property for collections of sequences not containing all arithmetic progressions, *Graphs and Combinatorics* **12** (1996), 149-161.
16. T.C. Brown, B. Landman, M. Mishna, Monochromatic homothetic copies of $\{1, 1+s, 1+s+t\}$, *Canadian Math. Bull.* **40** (1997), 149-157.
17. B. Landman and B. Wysocka, Collections of sequences having the Ramsey property only for few colors, *Bull. Australian Math. Soc.* **55** (1997), 19-28.
18. B. Landman, Avoiding arithmetic progressions (mod m) and arithmetic progressions, *Utilitas Math.* **52** (1997), 173-182.
19. B. Landman, Ramsey functions for quasi-progressions, *Graphs and Combinatorics* **14** (1998), 131-142.
20. B. Landman, Monochromatic sequences whose gaps belong to $\{d, 2d, \dots, md\}$, *Bull. Australian Math. Soc.* **58** (1998), 93-101.
21. B. Landman, On avoiding arithmetic progressions whose common differences belong to a given small set, *J. Comb. Math. Comb. Comp.* **30** (1999), 221-229.

22. T.C. Brown, R.L. Graham, B. Landman, On the set of common differences in van der Waerden's theorem on arithmetic progressions, *Canadian Math. Bull.* **42** (1999), 25-36.
23. T.C. Brown and B. Landman, Monochromatic arithmetic progressions with large differences, *Bull. Australian Math. Soc.* **60** (1999), 21-35.
24. B. Landman, On some generalizations of the van der Waerden number $w(3)$, *Discrete Math.* **207** (1999), 137-147.
25. J.K. Kim and B. Landman, On the number of multiplicative partitions of a multi-partite number, *J. Comb. Math. Comb. Comp.*, **37** (2001), 159-171.
26. B. Landman and A. Robertson, Generalized van der Waerden triples, *Discrete Mathematics*, **256** (2002), 279-290.
27. B. Landman, and A. Robertson, Avoiding monochromatic sequences with special gaps, submitted.

Colloquia and Papers Presented

1. "Generalized van der Waerden numbers," James Madison University, invited colloquium speaker, 1984.
2. "Some generalizations of the van der Waerden numbers," Mary Washington College, invited colloquium speaker, 1984.
3. "Generalized van der Waerden numbers," American Mathematical Society Meeting, Charlotte, North Carolina. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **7**, 1986.
4. "Values and bounds for Ramsey numbers associated with polynomial iteration," (with R.N. Greenwell) American Mathematical Society Meeting, San Antonio Texas. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **8**, 1987.
5. "Ramsey functions similar to the van der Waerden numbers," Georgia State University, invited colloquium speaker, 1987.
6. "On the existence of a reasonable upper bound for the van der Waerden numbers," (with R.N. Greenwell) American Mathematical Society Meeting, Atlanta, Georgia. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **9**, 1988.
7. "Upper bounds on some van der Waerden-like numbers," University of North Carolina at Charlotte, invited colloquium speaker, 1988.
8. "Concavity properties of numbers satisfying the binomial recurrence," (with F. Portier and T.P. Vaughan) Southeastern Regional Meeting on Numbers, University of North Carolina at Greensboro; co-organizer of conference, 1989.

9. "Ramsey numbers related to the van der Waerden numbers," American Mathematical Society Meeting, Louisville, Kentucky. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **11**, 1990.
10. "Accurate bounds for new van der Waerden numbers," (with R.N. Greenwell) American Mathematical Society Meeting, Louisville, Kentucky. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **11**, 1990.
11. "A bound for multiplicative partitions of bi-partite numbers," (with R.N. Greenwell) Mathematical Association Southeastern Regional Meeting, Davidson, North Carolina, 1990.
12. "Combinatorics - a guessing game," Virginia Wesleyan College, invited colloquium speaker, 1991.
13. "Some functions related to the van der Waerden numbers," Twenty Third Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, Florida, 1992.
14. "What is a van der Waerden number?," Student Chapter of the Mathematical Association of American, University of North Carolina at Greensboro, invited speaker, 1993.
15. "Ramsey functions for sequences with differences in a specified congruence class," (with A.F. Long) Twenty Fifth Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Boca Raton, Florida, 1994.
16. "The Ramsey property for collections of sequences not containing all arithmetic progressions," (with T.C. Brown) Special Session (Ramsey Theory) of the American Mathematical Society Annual Summer Meeting, Burlington, Vermont, Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **16**; organizer and chair of Special Session, 1995.
17. "Ramsey properties for certain families of integers sequences," Southeastern Regional Meeting on Numbers, Winston-Salem, North Carolina, invited talk, 1996.
18. "Ramsey theory on the set of positive integers," Graph Theory Seminar, University of North Carolina at Greensboro, two lectures, 1996.
19. "Avoiding arithmetic progressions (mod m) and arithmetic progressions," Regional Conference on Combinatorics and Graph Theory, University of North Carolina at Greensboro; organizer of conference, 1996.
20. "Restricting the set of common differences in van der Waerden's theorem on arithmetic progressions," Tenth Annual Cumberland Conference, Atlanta, Georgia, invited talk, 1997.

21. "Ramsey properties for some collections of arithmetic progressions," Second Regional Conference on Combinatorics and Graph Theory, University of North Carolina at Greensboro; organizer of conference, 1997.
22. "Monochromatic quasi-progressions and monochromatic sequences whose gaps belong to $\{d, 2d, \dots, md\}$," Southeastern Regional Meeting on Numbers, University of North Carolina at Greensboro, 1998.
23. "Some van der Waerden-like functions," Eleventh Annual Cumberland Conference, Johnson City, Tennessee, invited talk, 1998.
24. "On some generalizations of the van der Waerden numbers," Special Session (Combinatorics and Graph Theory) of the American Mathematical Society Meeting, Winston-Salem, North Carolina. Abstract in *Abstracts of Papers Presented to the American Mathematical Society* **19**; organizer and chair of Special Session, 1998.
25. "Number theory: it's a guessing game," Guilford College, Greensboro, North Carolina, invited colloquium speaker, 1998.
26. "Generalized van der Waerden triples" (with A. Robertson), Third Regional Conference on Combinatorics and Graph Theory, University of North Carolina at Greensboro; organizer of conference, 1999.
27. "Multiplicative partitions and the joy of guesswork," Eastern Kentucky University, Richmond, Kentucky, invited colloquium speaker, 2000.
28. "Avoiding monochromatic sequences with special gaps," Fourth Regional Conference on Combinatorics and Graph Theory, University of North Carolina at Greensboro; organizer of conference, 2000.
29. "Some problems in combinatorial theory," Illinois State University, Normal, Illinois, invited colloquium speaker, 2001.
30. "Some results in Ramsey theory," East Carolina University, Greenville, North Carolina, invited colloquium speaker, 2001.
31. "Ramsey theory for certain types of integer sequences," Seventeenth Clemson Mini-conference on Combinatorial Optimization, invited talk, October, 2002.
32. "Ramsey functions for sequences of integers with restricted gaps," Sixteenth Cumberland Conference, invited talk, May, 2003.

Book

Ramsey Theory on the Integers (with Aaron Robertson), American Mathematical Society, publisher, to appear approximately December, 2003. The book, part of the Society's series *Student Mathematical Library*, is aimed at graduate students and advanced undergraduate

students. Besides being the first textbook in this area, it also serves as a source of a wide array of open problems suitable for research work by undergraduate students, graduate students, and research mathematicians.

Other Scholarly Accomplishments, Awards, Activities

- Graduate Faculty Research Award, 2003, one of two awards given in College of Arts and Sciences
- Merit Awards for Research from College of Arts and Sciences, 1992, 1998, 1999.
- “Quadratic Polynomial Iteration,” Problem 1203, *Mathematics Magazine* **57**, 298 (1984); **58**, 301-302 (1985) (with B. Klein and J.W. Layman).
- Contributor to *Calculus, Sixth Edition* by Howard Anton, Wiley, 1999.
- Contributor to article “Reductions and convergence rates of average time” by J. Berliner and J. Wang, in *Lecture Notes in Computer Science*, Springer-Verlag, Berlin, 1996.
- Research has been cited in the following articles and books:
 1. *Unsolved Problems in Number Theory, Second Edition* by Richard Guy, Springer-Verlag, New York, 1994
 2. “A note on multiplicative partitions of bipartite numbers,” by S.G. Hahn and J.K. Kim, *Fibonacci Quar.* **33**, 283-288, 1995 (a Landman conjecture is cited and proved).
 3. “Semi-progressions,” by P. Ding and A.R. Freedman, *J. Comb. Theory (Series A)* **76**, 99-107, 1996.
 4. “Partitions of bipartite numbers,” by J.K. Kim and S.G. Hahn, *Graphs and Combinatorics* **13**, 73-78, 1997 (a Landman conjecture is cited and proved).
 5. “On highly factorable numbers,” by J.K. Kim, *J. Number Theory* **72**, 76-91, 1998.
 6. “A van der Waerden variant,” by K. Compton, *Electronic J. Comb.* **6**(1), 1999.
 7. *Elementary, Topological, and Experimental Approaches to the Family of Large Sets* by V. Jungic, Ph.D. Thesis, Simon Fraser University, Burnaby, Canada, 1999.
 8. “On monochromatic arithmetic progressions having odd step,” by V. Jungic, *Experiment. Math.* **9**(3), 467-471, 2000.
 9. “Monochromatic structures in colorings of the positive integers and the finite subsets of the positive integers,” by T.C. Brown, *Proc. Midwest Conf. Comb. Crypt. Comp.*, to appear.
 10. “On some Rado numbers for generalized arithmetic progressions,” by D.J. Grynkiewicz, to appear.

Research Grants Applied for or in Preparation

1. Research Council of the University of North Carolina at Greensboro, Summer Excellence Research Award, 1989, \$4000.
2. Research Council of the University of North Carolina at Greensboro, Summer Excellence Research Award, 1991, \$4000.
3. Equipment Grant (with F. Sadri, J. Wang, S. Lea, K. Sivalingam), University of North Carolina at Greensboro, 1996, \$12,000.
4. NSF RUI Grant, 1992, "Sufficient Conditions for Upper Bounds on the van der Waerden Numbers," (PI) \$54,000, not funded.
5. NSF RUI Grant, 1995, "Some Problems in Ramsey Theory," (PI), \$59,000, not funded.
6. NSF RUI Grant, 2000, "Ramsey Problems on the Integers," (PI), \$70,000, not funded.
7. PT3 Grant (Preparing Tomorrow's Teachers to Use Technology), "Problem Solving for Teachers," \$3000, pending.
8. NSF CCLI Grant, "Teachers as Problem Solvers," (PI), to be submitted 2003.
9. NSF REU Grant, "Problems in Combinatorial Number Theory," (PI), to be submitted 2003.

Administrative and Leadership Experience

- Chair, Department of Mathematics, State University of West Georgia, 2001-present. Duties include responsibility for all Department personnel, budgetary, and instructional matters, and for providing leadership in curriculum and research programs.
- Managing Editor and Founder of the International Research Journal *INTEGERS*, 1998-present. Duties as Managing Editor include: coordinating the refereeing of articles; conducting all correspondence with authors and referees; leading the Editorial Board and staff (about 25 persons) in policy-making and governance of the journal; being the public spokesperson for the journal (advertising, announcements, correspondence with international community, correspondence with publishers, Mathematical Reviews, etc.); managing the files on submitted articles; ensuring that papers are processed in a timely fashion; managing subscriptions; supervising support staff; overseeing all budgetary and technical aspects of the journal.
- Director of Undergraduate Studies, 1995-2001. Major accomplishments included:
 1. Establishment of Applied Mathematics track in B.S. degree
 2. Author of Department's multi-track system for the B.S. degree, in effect since 1997

3. Responsible for restructuring of calculus sequence from nine hours to twelve hours; author of syllabi used in new sequence
 4. Played major role in having technology introduced into the calculus and pre-calculus courses
- Chair, Search Committee for Crider Endowed Chair in Mathematics, 2002-2003.
 - University System of Georgia Academic Advisory Committee on Mathematical Subjects, 2001-present. The purpose of the committee is to advise the Georgia Board of Regents on matters that concern the mathematics curriculum.
 - Executive Committee of the College of Arts and Sciences, 2002-present. This is the official policy-making body of the Faculty of the College. Duties include considering for approval all curricular proposals of the College, and making recommendations concerning personnel and budgetary policies.
 - Budget and Planning Committee, College of Arts and Sciences, 2000-2001. Duties include advising the Dean of the College on all matters involving the planning and allotment of resources within the College; maintaining contact with other university bodies concerned with budget and planning matters.
 - Chair, Personnel Committee, Department of Mathematical Sciences, 1992-1993, 1994-1995, 1997-1998. Duties included: conducting annual reviews of all tenured, tenure-track, and non-tenure-track teaching personnel in the areas of teaching, research, and service (there were approximately 35 teaching personnel); give rankings to the Head for the purpose of determining pay raises and merit awards; make recommendations concerning tenure, promotion, and post-tenure review decisions.
 - Chair, Search Committee for Applied Mathematics Position, 1998-1999.

Leadership Workshops

- American Council on Education workshop “Chairing the Academic Department,” San Antonio, Texas, November 7-10, 2001.
- Mathematical Association of America PREP workshop “Leading the Academic Department,” Reston, Virginia, June 19-22, 2003.

Courses Taught

Undergraduate Courses:

- Algebra and Trigonometry
- Pre-calculus
- Elementary Statistics (freshman level)

- Finite Mathematics (freshman level)
- Mathematics as a Liberal Art
- Elementary Set Theory, Logic, and Probability (freshman level)
- Business Calculus
- Calculus I,II,III,IV
- Honors Calculus
- Introduction to Proofs and Mathematical Structures (sophomore level)
- Discrete Mathematics I (sophomore level)
- Discrete Mathematics II (junior level)
- Matrix Theory (junior level)
- Linear Algebra with Applications (junior level)
- Elementary Differential Equations (junior level)
- Applied Finite Mathematics (junior level)
- Advanced Calculus (junior level)
- Modern Algebra (junior level)
- Theory of Numbers (senior level)
- Set Theory (senior level)
- Theory of Groups (senior level)
- Combinatorial Analysis (senior level)
- Introductory Graph Theory (senior level)

Graduate Courses:

- Applied Combinatorics
- Graph Theory
- Number Theory
- Abstract Algebra
- Set Theory

Advising

- External Examiner for Ph.D. Thesis of V. Jungic, Department of Mathematics and Statistics, Simon Fraser University, British Columbia, Canada, 1999.
- Chair, Master's Thesis Committee: Kathryn Benjamin, Hofstra University, 1988-1989; Mark Pierce, UNC-Greensboro, 1999.
- Member, Master's Thesis Committee: S. Chen, UNC-Greensboro, 1989; K. Griffin, UNC-Greensboro, 1992; F.D. Gaddis, UNC-Greensboro, 1995; B. Jobe, UNC-Greensboro, 1995; T. Howell, UNC-Greensboro, 1998; S.W. Adkins, UNC-Greensboro, 1999.
- Undergraduate Honors Thesis Advisor, A.F. Inman, UNC-Greensboro, 1992-1993.
- Advisor for all Honors students in the Department of Mathematical Sciences, 1997-2000.
- Mentor for several students in the North Carolina Teaching Fellows program, 2000-2001.
- Established a pre-registration advising meeting held each semester at UNC-Greensboro for all Mathematical Sciences majors. Organizer and leader of the meeting, 1993-1996.

Other Instruction and Curricular Activities

- Complete revamping of B.S. and B.A. programs, including establishment of tracks in Applied Computational Mathematics and Applied Discrete Mathematics, and a research experience requirement for seniors, State University of West Georgia (2001-2002); changes took effect Fall, 2002
- Taught four 1-week workshops for area high school teachers in Calculus I and Calculus II as part of a UNC-Greensboro program whereby high school students earn college credit (1997-1998)
- Developed new courses at the graduate level in Combinatorics and Graph Theory at UNC-Greensboro
- Developed new courses in Combinatorics and Graph Theory at the State University of West Georgia
- Largely responsible for the Applied Mathematics Track for the M.A. degree at UNC-Greensboro; co-author of the multi-track system for this degree, in effect since 1997
- Helped develop multi-track system for pre-calculus sequence
- Developed Business Calculus course
- Author of numerous Master's comprehensive exams in the areas of Combinatorics, Number Theory, Graph Theory, and Algebra (1990-present).

Conference Organizing

- Organizer and host of INTEGERS Conference 2003, Carrollton, Georgia, October 31-November 2, 2003.
- Organizer and host of Regional Conferences in Combinatorics and Graph Theory, Greensboro, North Carolina, each of the years 1996, 1997, 1999, 2000.
- Organizer of the Special Session in Combinatorics and Graph Theory for the American Mathematical Society Southeastern Regional Meeting, Winston-Salem, North Carolina, October 9-10, 1998.
- Organizer of the Special Session in Ramsey Theory for the American Mathematical Society Annual Summer Meeting, Burlington, Vermont, August 7-8, 1995.
- Co-organizer of the Southeastern Regional Meeting on Numbers for each of the years 1989, 1990, 1991.

Other Professional Service

- Reviewer for *Mathematical Reviews*; have reviewed over thirty articles, 1995-present.
- Referee for the following journals: *Discrete Mathematics*, *European Journal of Combinatorics*, *Graphs and Combinatorics*, *American Mathematical Monthly*, *Advances in Applied Mathematics*, *Canadian Mathematical Bulletin*, *Fibonacci Quarterly*, *Electronic Journal of Combinatorics*, *Proceedings of the Midwest Conference on Combinatorics, Cryptography, and Computing*, *Journal of the Elisha Mitchell Scientific Society*
- Reader for the Advanced Placement Mathematics Exam of the Educational Testing Service, Clemson, South Carolina, 1991.
- Member of the following organizations: *Institute of Combinatorics and Its Applications* (Fellow), *The American Mathematical Society*, *The Mathematical Association of America*, *The Fibonacci Association*.

Other University Service

2003-2004: Member, University Ad Hoc Committee on Mathematics Placement Exam; Member, College of Arts and Sciences Subcommittee on Family Leave

2000-2001: Chair, Department Library Committee; Department Honors Liaison

1999-2000: Chair, University Student Excellent Awards Committee; Member, University Honors Council; Chair, Department Committee on the Calculus Sequence; Department Honors Liaison; Member, Department Library Committee; Assessment Liaison to the College of Arts and Sciences

1998-1999: Technology Liaison to the College; Member, University Honors Council; Member, University Student Excellence Awards Committee; Assessment Liaison to the College;

Department Honors Liaison; Member, Department Committee on Technology in the Classroom; Member, Department Committee on the Calculus Sequence; Member, Department Library Committee.

1997-1998: Member, University Honors Council; Member, University Honors Curriculum Committee; Member, University Honors Council Ad hoc Tutorials Committee; Assessment Liaison to the College; Technology Liaison to the College; Chair, Department Assessment Committee; Department Honors Liaison; Member, Department Library Committee.

1996-1997: Member, College Promotion and Tenure Committee; Assessment Liaison to the College; Technology Liaison to the College; Chair, Department Assessment Committee; Member, (ad hoc) Committee to Review the Personnel Committee; Member, Department Personnel Committee; Member, Department Library Committee.

1995-1996: Member, College Promotion and Tenure Committee; Member, Department Library Committee.

1994-1995: Chair, Search Committee for Temporary Position in Mathematics; Member, Department Undergraduate Studies Committee; Member, Department Graduate Committee.

1993-1994: Member, Department Personnel Committee; Member, Search Committee for Temporary Position in Mathematics; Member, Department Undergraduate Studies Committee; Member, Department Graduate Committee.

1992-1993: Member, Search Committee for tenure-track Computer Science position; Member, Department Scholarship Committee; Member, Department (ad hoc) Committee on the Ph.D.; Member, Department telephone campaign to recruit high school seniors.

1991-1992: Member, Department Personnel Committee; Member, Department Scholarship Committee.

1990-1991: Member, Department Personnel Committee; Member, Department Scholarship Committee; assisted with the administration of the Mathematics Placement Examination; Advisor for Pi Mu Epsilon.

1989-1990: Member, Search Committee for tenure-track Mathematics position; Member, Department Scholarship Committee.

1988-1989: Member, Department Scholarship Committee.