Curriculum Vitae
George R. Exner

ADDRESS	(home)	124 E. Pine Wooster, Ohio 44691
	(office)	Department of Mathematics Bucknell University Lewisburg, PA 17837
TELEPHONE	(home)	(330) 264-8264
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EDUCATION

M.S. (Operations Research)
Case Western Reserve University, 1998

Ph.D. (Mathematics)
University of Michigan, Ann Arbor, 1983
Thesis area: Hilbert space operators
Minor area: Numerical analysis

B.A. (Mathematics), distinction, *summa cum laude*
Carleton College, 1977

EMPLOYMENT

Fall 1988 - present	Department of Mathematics, Bucknell University Associate Professor status, tenure granted 1992 Full Professor status, granted 2006
Spring 1995	Taught the course "A transition to advanced mathematics," College of Wooster, while on leave from Bucknell
Fall 1986 - Spring 1988	Department of Mathematics, Oberlin College Visiting Assistant Professor
Fall 1983 - Spring 1986	Department of Mathematics, College of Wooster Assistant Professor
1977-1983	The University of Michigan Teaching Assistant (Mathematics)
1977	Carleton College (co-taught, as undergraduate, a Mathematics/Philosophy seminar in Problems of Space and Time)

COURSES TAUGHT

Computer Programming, Data Structures; Algebra and

Trigonometry; Differential Equations; Linear Algebra I, II; Statistics(a version for economics/life science, another for MBA's); all Calculus courses, traditional and reform; "Bridge" course; Analysis I, II; First year seminars; Problem Solving; Operations Research; Set Theory; Independent Study/Senior Thesis (game theory, set theory, analysis, algebra); Discrete Mathematics (including combinatorics and probability); Mathematics From A Humanist Perspective, Introduction to Mathematical Modeling

BOOKS

An Accompaniment to Higher Mathematics
Springer-Verlag, 1996; reprinted, 1997, 1999
Inside Calculus
Springer-Verlag, January, 2000

COMPUTER EXPERIENCE

Mac; Windows 98, Windows NT; Basic, Pascal, C, C++; SIMAN; TEX, LATEX; MiniTab, Statistix; *Mathematica*; Html; WeBWorK

RESEARCH ARTICLES

1. Some new elements in the class $\mathbb{A}_{\aleph_0}$
   J. Operator Theory, 16 (1986), 203-212.

2. A characterization of the normal operators in $\mathbb{A}_n$ (with P. Sullivan)
   J. Operator Theory, 19 (1988), 81-94.

3. Sur la réflexivité des contractions sur l'espace hilbertien
   (with B. Chevreau, C. Pearcy)
   C.R. Acad.Sci. Paris, t.305, Serie I, (1987), 117-120.

4. Structure theory and reflexivity of contraction operators
   (with B. Chevreau, C. Pearcy)
   Bulletin of the A.M.S., 19 v.1 (1988), 299-301.

5. On the structure of contraction operators, III
   (with B. Chevreau, C. Pearcy)
   Michigan Math. J., 36 (1989), 29-62.

6. Dual operator algebras and a hereditary property of
   minimal isometric dilations (with I. Jung)
   Michigan Math. J., 39 (1992), 263-270.

7. Flat convex hulls in the predual of an operator algebra
   J. Operator Theory, 29 (1993), 345-362.

8. Compressions of contractions in the classes $\mathbb{A}_n$ (with I. Jung)
Acta Sci. Math. (Szeged), 59 (1995), 555-573.

9. $C_{\cdot 0}$ and C_{11} contractions with finite defects
in the classes $\mathbb{A}_{n,m}$ (with I. Jung)
Acta Sci. Math. (Szeged), 59 (1995), 545-553.

10. $C_{\cdot 0}$ contractions: dual operator algebras, Jordan Models,
and multiplicity (with Y. Jo, I. Jung)
J. Operator Theory, 33 (1995), 381-394.

11. Boundary sets for a contraction (with B. Chevreau, C. Pearcy)
J. Operator Theory, 34 (1995), 347-380.

12. Dual operator algebras and contractions with finite defect indices
(with I. Jung)
J. Operator Theory, 36 (1996), 107-119.

13. Some multiplicities for contractions with Hilbert-Schmidt defect
(with I. Jung)
Operator Theory:Advances and Applications, (1998), 113-138.

14. Representations of $H^\infty(\mathbb{D}^N)$ (with Y. Jo, I. Jung)
J. Operator Theory, (2001), 233-249.

15. Criteria for positively quadratically hyponormal weighted shifts
(with J. Bae, I. Jung)
Proc. Amer. Math. Soc. 130, (2002), No. 11, 3287-3294.

16. Dilations for polynomially bounded operators (with I. Jung, Y. Jo)
Journal of the Korean Mathematical Society 42, (2005), 893-912.

17. Weakly n-hyponormal weighted shifts and their examples (with I. Jung
and S. Park) Integral Equations Operator Theory
online version published, October 2005,
paper version 54, (2006), 215-233.

18. On k-hyperexpansive operators (with I. Jung, C. Li)
Journal of Math. Anal. and Applications
online version published, November 2005,
paper version 323, (2006), 569-582.

19. On n-contractive and n-hypercontractive operators
Integral Equations Operator Theory,
online version published, May 2006,
paper version 56, (2006) 451-468.

20. Aluthge transforms and n-contractivity of weighted shifts
Journal of Operator Theory
61:2(2009), 419-438.

21. Some quadratically hyponormal weighted shifts
(with I. Jung and D. Park)
Integral Equations Operator Theory
60:(2008), 13-36.

22. On n-contractive and n-hypercontractive operators, II
(with I. Jung and S. Park)
Integral Equations Operator Theory
online version published, May 2008,
paper version 60, (2008) 451-467.

23. Quadratically hyponormal recursively generated weighted shifts
(with Y. Dong, I. Jung and C. Li)
Operator Theory: Advances and Applications, 187, (2008) 141-155.

24. Block matrix operators and weak hyponormalities
(with I. Jung and M. Lee)
Integral Equations Operator Theory
online version published, November 2009,
paper version 65, (2009) 345-362.

25. On semi-weakly n-hyponormal weighted shifts
(with Y. Do, I. Jung, C. Li)
Integral Equations Operator Theory
online version published, March, 2012,
paper version 73, (2012) 93-106.

26. Gaps of operators via rank-one perturbations
(with I. Jung, E. Lee, M. Lee)
Journal of Math. Anal. and Applications
online version published, November, 2010,
paper version 376(2), (2011) 576-587.

27. k-hyponormality and n-contractivity for Agler-type shifts
(with G. Adams)
Journal of Operator Theory
in press.

28. Quadratically hyponormal weighted shifts with recursive tail
(with I. Jung, M. Lee, S. Park)
Journal of Math. Anal. and Applications

online version published, August, 2013,
paper version 408(1), (2013) 298-305.

29. Backward 3-step extensions of recursively generated weighted shifts
(with I. Jung, M. Lee, S. Park)
Bull. of the Australian Math. Soc.
in press.

30. Backward extensions of recursively generated weighted
shifts and quadratic hyponormality
(with I. Jung, M. Lee, S. Park)
Integral Equations Operator theory
in press.

IN PREPARATION

A. Some multiplicities for a contraction (with B. Chevreau)

B. Shift- and backward shift-like parts of a Hilbert space operator
(with B. Chevreau)

C. Some restrictions of backwards weighted shifts

D. Partially normal composition operators relevant to weighted directed
trees (with I. Jung, E. Lee, M. R. Lee)

E. Berger measure for some transformations of weighted shifts
(with R. Curto)

F. Some weighted shifts associated to composition operators
(with I. Chalendar)

G. A condition intermediate to Bram-Halmos and Agler-Embry

RESEARCH PRESENTATIONS

Operators in the classes $\mathbb{A}_n$ and related operators
Michigan-Indiana Miniconference on Operator Theory,
Ann Arbor, Michigan, August, 1983.

Perturbations of operators in $\mathbb{A}_{\aleph_0}$
NSF-CBMS Regional Meeting, Tempe, Arizona, May, 1984.

Normal operators in $\mathbb{A}_{\aleph_0}$
Michigan-Indiana Miniconference on Operator Theory,
Bloomington, Indiana, August, 1985.

A characterization of the normal operators in the classes $\mathbb{A}_n$
Michigan-Indiana Miniconference on Operator Theory,
Ann Arbor, Michigan, August, 1986.

The properties $E^r_{\theta\gamma}$ and $\mathbb{A}_{1,\aleph_0}$
University of Bordeaux, France, January, 1987.

On the reflexivity of contraction operators
Michigan-Indiana Miniconference on Operator Theory,
Ann Arbor, Michigan, August, 1987.

Analytic invariant subspaces and the Class $\mathbb{A}$
XIIth International Conference on Operator Theory,
Timisoara, Romania, June, 1988.

Some remarks on a result of Halanay
Operator Theory Seminar, University of Bordeaux I,
Bordeaux, France, June, 1988.

Dual algebras generated by a weighted shift
AMS-MAA Joint Meetings,
San Francisco, California, January, 1991.

Boundary sets and dual operator algebras
University of Edinburgh, Scotland, July, 1992.

$C_{\cdot 0}$ and C_{11} contractions with finite defects and multiplicity
AMS-MAA Joint Meetings,
San Antonio, Texas, January, 1993.

Boundary sets and the structure of a contraction
87th Functional Analysis Conference (in Honor of Bela Sz.- Nagy),
Szeged, Hungary, August, 1993.

Some boundary sets for a contraction
Kyungpook National University, Korea, September, 1994.

Simultaneous equations in the predual of an operator algebra
Po'Hang Research Institute, Korea, September, 1994

Some multiplicities for an operator
Regional Meeting, Korean Mathematical Society (Invited Address),
Keimyang University, Korea, September, 1994.

A history of dual algebras and multiplicity
Analysis seminar, University of Bordeaux I
Bordeaux, France, May, 1995.

Some recent results on multiplicity for a contraction
Groupe de travaille, University of Bordeaux I,
Bordeaux, France, May, 1995.

Some very recent results on multiplicities for a contraction
University of Bordeaux, France, May, 1995

Student self enrichment of concept image
AMS-MAA Joint Meetings,
San Diego, California, January, 1996.

Dilations and polynomially bounded operators
Groupe de travaille, University of Bordeaux I,
Bordeaux, France, May, 1997.

Boundary multiplicity and filling a hole in the essential spectrum
AMS-MAA Joint Meetings,
San Antonio, Texas, January, 1999.

Pairs of commuting contractions
Special Session, AMS-MAA Joint Meetings,
Washington, DC, January, 2000.

k-hyponormality and weak k-hyponormality
of weighted shifts,
AMS-MAA Joint Meetings,
New Orleans, LA, January, 2001.

n-hypercontractive operators
Kyungpook National University Analysis Seminar,
Daegu, Korea, October, 2003.

Some distinction examples for n-hypercontractivity
Korean Mathematical Society Meeting,
Daegu, Korea, October, 2003.

n-hyponormal operators and weakly n-hyponormal operators
2003 International Conference on Operator
Theory and its Applications,,
Daegu, Korea, October, 2003.

A criterion for weak k-hyponormality

AMS-MAA Joint Meetings,
Phoenix, AZ, January, 2004.

The classes of k-hyponormal and
weakly k-hyponormal operators
Claremont Colleges Mathematics Colloquium,
Claremont, CA, March, 2004.

Fostering student reading of Mathematics:
Begin in calculus, don't stop
Claremont Colleges Teaching Resource Center,
Claremont, CA, March, 2004.

Strong and weak k-hyponormality for shifts
Analysis Seminar, University of Bordeaux I
Bordeaux, France, May, 2004.

n-hypercontractivity and k-hyponormality
Groupe de Travaille, University of Bordeaux I
Bordeaux, France, May, 2004.

Weak 2-hyponormality for a weighted shift with Bergman tail
AMS-MAA Joint Meetings,
Atlanta, GA, January, 2005.

n-contractive and n-hypercontractive operators
8-th KOTAC International Conference 2005:
Operator Theory and its Applications
Daegu, Korea, June, 2005.

Some n-contractive and k-hyponormal operators
Analysis Seminar, Ewha Womens University
Seoul, Korea, June, 2005.

Back step extensions of subnormal weighted shifts
AMS-MAA Joint Meetings,
San Antonio, TX, January, 2006.

Aluthge transforms and roots of weighted shifts
Analysis group, Kyungpook National University,
Daegu, Korea, June, 2006.

Completely monotone functions and roots of shifts
Analysis group, Kanagawa University,
Yokohama, Japan, June, 2006.

Subnormality of transformations of Bergman-like weighted shifts
Seventeenth International Workshop
on Operator Theory and Applications,
Seoul, Korea, August, 2006.

Transformations of weighted shifts
Analysis group, Kyungpook National University,
Daegu, Korea, August, 2006.

Weighted shifts whose pth root shifts are subnormal
AMS-MAA Joint Meetings,
New Orleans, LA, January, 2007.

Using WeBWorK to foster reading
AMS-MAA Joint Meetings,
New Orleans, LA, January, 2007.

QH and PQH for backstep extensions of Stampfli shifts
International Conference, Operator Theory and Its Applications,
Daegu, Korea, May, 2007.

WeBWorK to stimulate reading: computational vs. conceptual problems
AMS-MAA Joint Meetings,
San Diego, CA, January, 2008.

Block matrix operators and p-hyponormality
AMS-MAA Joint Meetings,
San Diego, CA, January, 2008.

k-hyponormality and n-contractivity for Agler-type shifts
8-th KOTAC International Conference 2008:
Operator Theory and its Applications
Seoul, Korea, June, 2008.

Results and problems in weak hyponormalities
Analysis group, Kyungpook National University,
Daegu, Korea, June, 2008.

n-contractivity and k-hyponormality of some Bergman-like Weighted Shifts
AMS-MAA Joint Meetings,
Washington, DC, January, 2009.

Convex combinations of shifts and weaker than subnormal classes
9-th KOTAC International Conference 2009:
Operator Theory and its Applications
Daegu, Korea, June, 2009.

Weak subnormalities
International Workshop on Combinatorial
and Matrix Analysis Theory
Daegu, Korea, December, 2009.

Whither n-contractivity and n-hypercontractivity?
Special Session: Operator Theory and Operator Algebras
Joint Meetings, KMS-AMS
Seoul, Korea, December, 2009.

Weak subnormalities of backwards weighted shifts
International Conference on Operator Theory and Its Applications
Kyungpook, Korea, August, 2010.

Backwards weighted shifts and n-contractivity
AMS-MAA Joint Meetings,
New Orleans, LA, January, 2011.

n-contractivity and k-hyponormality
University of Iowa Analysis Seminar,
Iowa City, IA, October, 2011.

n-contractivity and k-hyponormality: some measure questions
University of Iowa Analysis Seminar,
Iowa City, IA, October, 2011.

Some relationships between n-contractivity and k-hyponormality
Iowa State University Analysis Seminar,
Ames, IA, October, 2011.

n-contractivity and k-hyponormality: an introduction
Indian Institute of Technology Analysis Seminar,
Mumbai, India, November, 2011.

n-contractivity and k-hyponormality: some measures
Indian Institute of Technology Analysis Seminar,
Mumbai, India, November, 2011.

Some relationships between n-contractivity and k-hyponormality
University of Lyon I Analysis Seminar,
Lyon, France, February, 2012.

Some relationships between n-contractivity and k-hyponormality
University of Bordeaux Analysis Seminar,
Bordeaux, France, March, 2012.

Some relationships between n-contractivity and k-hyponormality
University of Lille Analysis Seminar,
Lille, France, March, 2012.

The shift is subnormal! So what's the Berger measure?
Analysis group, Kyungpook National University,
Daegu, Korea, May, 2012.

Finding some Berger measures
AMS-MAA Joint Meetings,
San Diego, CA, January, 2013.

Composition operators and weighted shifts
Operator Theory and its Applications Miniconference
Kyungpook National University,
Daegu, Korea, July, 2013.

Composition operators and weighted shifts
Analysis Group, Ewha Womans University
Seoul, Korea, July, 2013.

A weak subnormality condition bridging Agler-Embry and Bram-Halmos
International Workshop on Operator Theory and Its Applications
Bangalore, India, December, 2013.

A range for quadratic hyponormality
AMS-MAA Joint Meetings,
Baltimore, MD, January, 2014.

PANEL/WORKSHOP PARTICIPATION

The "Bridge" Course (co-organizer)
AMS-MAA Joint Meetings,
New Orleans, LA, January, 2007.

AMS-MAA-MER Special Session on Mathematics and Education Reform
Transitions to higher mathematics,
AMS-MAA Joint Meetings,
San Diego, CA, January, 2008.

Special Workshop: Learning to Prove – Strategies to
Improve Students' Proof Writing Skills (presenter)
MATHFEST (MAA summer meeting),
San Jose, CA, August, 2007.

UNDERGRADUATE COLLOQUIA

Oberlin, Kenyon, Denison, Franklin & Marshall, Bryn Mawr, Hamilton, Villanova, Ursinus, Wooster Wabash

Keynote speaker at Syracuse University Mathematics Conference, April, 1988

GRANTS

NSF support for travel to CBMS Regional Meeting, May, 1983, and CBMS Regional Meeting, July, 1988.

TGRC-KOSEF (Korean) grant for support and travel, 1994

French Ministry of Culture grant, 1995

University of Bordeaux Travel and Study Grant, 1997

Internal grants at Wooster, Oberlin, and Bucknell

TEACHING DEVELOPMENT

MAA minicourses in Teaching of Problem Solving, Writing in Mathematics, Computer Laboratories in the Teaching of Calculus, Use of Calculators in the Teaching of Calculus, Mathematics of Financial Derivatives, Interdisciplinary Lively Application Projects, Java applets for Mathematics Instruction, Beginning Research in the Scholarship of Teaching and Learning, Proof-Based Course as Mathematics Gateway, A Game Theory Path to Quantitative Literacy, The Ubiquitous Catalan Numbers, Teaching and Assessing Writing and Presentations, Public and Private-Key Cryptography,

MAA Summer course on Data Structures, Denison University, June, 1985

PROFESSIONAL ACTIVITIES

Co-founded and administered Ohio Small Colleges Speakers Circuit

Founded Pennsylvania Small Colleges Speakers Circuit

Served on examining committees for theses, two students at Bordeaux

External Reviewer for tenure (State University) and promotion (Liberal Arts College)

Have refereed for the Journal of Operator Theory, the Journal of Functional Analysis, Archiv de Mathematik, Arabian Journal of Science and Engineering, Korean Journal of Mathematics, Journal of Mathematical Analysis and Applications, International Journal of Mathematics and Mathematical Sciences, Banach Journal of Mathematical Analysis, and the Indiana Mathematics Journal

Reviewer for Math Reviews

Chaired Operator Theory Session, AMS-MAA Joint Winter Meetings

January, 1999.
Chaired Operator Theory Session, AMS-MAA Joint Winter Meetings
January, 2009.
Editorial Board, Korean Journal of Mathematics (2000-2001)
Joined, by invitation, Mathematical Association of America Classroom
Tools Editorial Board, October, 2004.
Judge of Undergraduate Poster Session, AMS-MAA Joint Winter Meetings
January, 2003, 2004, 2006, 2007.
Joined, by invitation, Mathematical Association of America Textbook
Editorial Board, October, 2007.
Founded email list and Wiki for those interested in
the"Bridge" course, Spring, 2007.
Co-organized Special Session in Operator Theory, Joint Korean Mathematical
Society-American Mathematical Society Meetings,
Winter, 2009.

UNIVERSITY SERVICE

University

Wooster: Cultural Events Committee, Committee to evaluate
the President;
Bucknell: University Honors Council, Financial Advisory Board,
Committee on Student Activities, Committee on Greek Life
Committee on Instruction (member and chair),
Community Judicial Board, Sexual Assault Hearing Board,
Committee on Athletics, Composition Council,
Committee on Academic Freedom and Tenure (chair or co-chair, three years)
Arts and Sciences Curriculum Committee, Presidential Search
Advisory Committee, Committee on Admissions and Financial Aid,
Committee on Faculty and Academic Personnel

Departmental

Bucknell: Pi Mu Epsilon and MAA Student Chapter advisers
Served on Hiring Committees, have served on, and chaired,
the Curriculum Committee, the Student Resources
Committee, the Speakers Committee, and the Assessment Committee;
served on Mathematics Education Committee, Departmental Review Committee,
Honors Committee, External Review Major
Sub-Committee