George F. Seelinger

Mathematics Department
Illinois State University
Normal, IL 61790-4520
(309) 438-8781
gfseeli@ilstu.edu
http://www.math.ilstu.edu/gfseeli/

EDUCATIONAL BACKGROUND:

The University of Texas at Austin	1991	Ph.D.
Massachusetts Institute of Technology	1985	B.S.

PROFESSIONAL EXPERIENCE:

Illinois State University, Normal, IL	Professor and Department Chair	7/10-Present
Illinois State University, Normal, IL	Associate Professor and Department Chair	8/02-6/10
Northern Illinois University, DeKalb, IL	Associate Professor	8/99-7/02
Illinois State University, Normal, IL	Visiting Assistant Professor	8/99-5/00
Northern Illinois University, DeKalb, IL	Assistant Professor	8/93-5/99
Northern Illinois University, DeKalb, IL	Visiting Assistant Professor	1/93-5/93
Illinois Wesleyan University	Visiting Assistant Professor	9/92-12/92
Northern Illinois University	Visiting Assistant Professor	8/91-5/92
University of Texas	Lecturer	6/91-7/91

ARTICLES:

1. (with P. Sissokho, L. Spence, and C. Vanden Eynden) Partitions of finite vector spaces over $GF(2)$ into subspaces of dimensions 2 and s. *Finite Fields and Their Applications* **18** (2012), no. 6, 1114 – 1132.

2. (with P. Sissokho, L. Spence, and C. Vanden Eynden) Partitions of $V(n, q)$ into 2- and s-dimensional subspaces. *Journal of Combinatorial Designs* **20** (2012), no. 11, 467 – 482.

3. (with S. El-Zanati, P. Sissokho, L. Spence, and C. Vanden Eynden) On λ-partitions of finite vector spaces and duality. *Discrete Mathematics* **311** (2011), no. 4, 307 – 318.

4. (with S. El-Zanati, O. Heden, P. Sissokho, L. Spence, and C. Vanden Eynden) On the partitions of the 8-dimensional vector space over $GF(2)$. *Journal of Combinatorial Designs* **18** (2010), no. 6, 462 – 474.

5. (with S. El-Zanati, H. Jordon, P. Sissokho, and L. Spence) The maximum size of a partial 3-spread in a finite vector space over $GF(2)$. *Designs, Codes and Cryptography* **54** (2010), no. 2, 101–107.

6. (with S.I. El-Zanati, P.A. Sissokho, L.E. Spence, and C. Vanden Eynden) On partitions of finite vector spaces of low dimension over $GF(2)$. *Discrete Mathematics* **309** (2009), 4727-4735.

7. (with A.D. Blinco, S.I. El-Zanati, P.A. Sissokho, L.E. Spence, and C. Vanden Eynden) On vector space partitions and uniformly resolvable designs. *Designs, Codes and Cryptography* **15** (2008), no. 6, 69–77.

8. (with S.I. El-Zanati, P.A. Sissokho, L.E. Spence, and C. Vanden Eynden) Partitions of finite vector spaces into subspaces. *Journal of Combinatorial Designs* **16** (2008), no. 4, 329–341.

9. Embedding weak 2-cocycle crossed products into matrix rings. *Communications in Algebra* **29** (2001), 1939-1952.

10. Fibers of orthogonal and symplectic matrix invariants. *Communications in Algebra* **28** (2000), 237-248.

11. Brauer–Severi schemes of finitely generated algebras. *Israel Journal of Mathematics* **111** (1999), 321-337.

12. (with L. LeBruyn) Fibers of generic Brauer–Severi schemes. *Journal of Algebra* **214** (1999), 222-234.

13. A description of the Brauer–Severi scheme of trace rings of generic matrices. *Journal of Algebra* **184** (1996), 852-880.

14. Equivariant matrix valued functions, in "Algebraic Groups and Their Generalizations," *Proceedings of Symposia in Pure Mathematics* **56**, American Mathematical Society, Providence, 1994.

15. The étale local structure of orthogonal and symplectic matrix invariants. *Communications in Algebra* **21** (1993), no. 10, 3733-3761.

16. Generalized matrix valued invariants, *Journal of Algebra*, **161** (1993), 199-215.

PRESENTATIONS AT PROFESSIONAL MEETINGS:

1. "Some birational properties of Brauer-Severi schemes," Brauer Group Conference, Colorado State University, Pingree Park, Colorado, July 7, 2002.

2. "Brauer-Severi schemes of finitely generated algebras," The XXIVth Ohio State - Denison Mathematics Conference, Denison Univerity, Granville, Ohio, May 24, 1998.

3. "A completion of the space of matrix invariants," Special Session Speaker, Linear Algebraic Groups and Their Representations, UCLA, Los Angeles, California, March 27, 1992.

4. "The varieties of orthogonal and symplectic matrix invariants," Special Session Speaker, AMS Regional Meeting, Springfield, Missouri, March 21, 1992.

5. "Generalized matrix invariants," 1991 AMS Summer Research Institute, State College, Pennsylvania, July 10, 1991.

COLLOQUIUM TALKS:

1. Brauer-Severi schemes and representations, Universitaire Instelling Antwerpen, Antwerp, Belgium, May 2002.
2. Finite-dimensional division algebras, Illinois State University, Normal IL, March 2002.
3. The geometry of weak 2-cocycles, Indiana University, Bloomington IN, Febraury 2002.
4. The geometry of matrix invariants, Illinois State University, Normal IL, September 1999.
5. The trace ring and other matrix invariants, Northern Illinois University, DeKalb IL, April 1993.

WORKS IN PROGRESS:

1. (Joint with P. Sissokho, L. Spence, and C. Vanden Eynden)
Decomposing Grassmannians of Finite Fields. Let F be a finite field and let L be a finite field extension of F of degree n. Then the Grassmanian consisting of r-dimensional F-vector subspaces of L can also be considered a λ-partition in the sense of [3]. We are studying ways of decomposing this Grassmannian into sub-λ-partitions.
2. (Joint with P. Sissokho, L. Spence, and C. Vanden Eynden)
Irreducible k-Level Matrices. We say an $m \times n$ matrix is a k matrix if all its entries are integers between 0 and k. We say this matrix is level if the sum of all the entries in each column are equal. Finally, we call a k-level matrix irreducible if no proper subset of rows of the matrix forms a k-level matrix. In this work, we are studying the question, what is the largest number of rows an irreducible level k-matrix can have?

SELECTED ADMINISTRATIVE ACCOMPLISHMENTS

Negotiated support for the housing of the editorial team for the *Journal for Research in Mathematics Education.*

Supported the Department's certification as a Center of Actuarial Excellence from the Society of Actuaries.

Implementing an online registration override request system.

Implemented a Statistics Sequence in the Mathematics Major at ISU.

Implemented the introduction of Undergraduate Research Courses in mathematics at ISU.

Supporting the development of a capstone course for our Mathematics Teacher Education majors.

Supported the development of the Biomathematics sequence in the Masters Program at ISU.

Implemented Actuarial Science and Applied Statistics sequences in the Masters Program at ISU.

Helped develop the General Education Course MAT 113, Elements of Mathematical Reasoning at ISU.

Secured funding for a support position for ISU's Mathematics Teacher Education position which graduates between 45 and 60 secondary mathematics teachers each year.

Led Department in creating a strategic plan.

Revised Departmental committee structure to increase efficiency and participation.

Revised Department Council Bylaws.

Implemented an online database for faculty productivity.

Revision of ISU Math Department website.

Increased Departmental reimbursements of travel.

Restarted a Departmental Scholarship ceremony.

Instituted Departmental teaching and research awards.

Raised over $1.4 million to endow scholarships for students.

Negotiated cooperative agreements with Izmir University of Economics in Izmir, Turkey and with the Missouri University of Science and Technology, Rolla MO establishing exchange programs in Biomathematics at the Masters level.

UNIVERSITY SERVICE:

Service at ISU:

1. Department Chair, Fall 2002–Present.
2. Member of the IAI Mathematics General Education Panel, 2011-present.
3. Secretary of the Psychology Department Chair Search, 2010-2011.
4. Member of the Director for the Center for Mathematics, Science, and Technology Search Committee, 2008–2009.
5. Secretary, History Department Chair Search Committee, 2004–2005.
6. Member of the College of Arts and Sciences Diversity Implementation Committee, Fall 2004.
7. Member of the College of Arts and Sciences Council of Chairs, Fall 2002–Present.
8. Member of the University Chairs Council, Fall 2002–Present.
9. Advising Math Majors, Fall 2002-Present.

Service at NIU:

1. Departmental Honors Adviser, Fall 1998-Spring 1999, Fall 2000-Spring 2002.

2. University Committee on Undergraduate Curriculum, Fall 2001-Spring 2002.
3. Undergraduate Studies Committee, Fall 2000-Spring 2002.
4. Graduate Studies Committee, Fall 1997-Spring 1999.
5. Departmental Advisory Committee, Fall 1994.
6. Departmental Library Committee, Fall 1996-Spring 1997.
7. Math 155 Textbook Selection Committee, Chair, Spring 1996.
8. Math 240 Textbook Selection Committee, Chair, Spring 1999.
9. Math 155 Textbook Selection Committee, Spring 2001.
10. Math 240 Textbook Selection Committee, Spring 1996, Fall 2001.
11. Math 110 Course Coordinator, Fall 1995, Spring 1999.
12. Math 240 Course Coordinator, Fall 1995, Spring 1999, Fall 2001.
13. Math 155 Course Coordinator, Spring 1997, Spring 2001.
14. Math 229 Course Coordinator, Fall 1997.
15. Math 230 Course Coordinator, Spring 1998.
16. Math 232 Course Coordinator, Fall 1998.

PROFESSIONALLY ORIENTED PUBLIC SERVICE ACTIVITIES:

1. Reviewer for Mathematics Department Promotion and Tenure documents for Chicago State University.
2. Local organizer for the 2012 meeting of the Illinois Section of the Mathematical Association of America.
3. Reviewer for two chapters of a calculus text for MacMillan.
4. Reviewer for *Mathematical Reviews.*
5. Referee of grant proposal in the Mathematical Sciences for the National Science Foundation.
6. Referee for *Pacific Journal of Mathematics* and *Designs, Codes, and Cryptography.*
7. (with B. Kinzer) "Thomas Carlyle's essay 'On Proportion,' " *Carlyle Studies Annual*, **24** (2008), 67–73.

DIRECTION OF THESES AND DISSERTATIONS OR EQUIVALENTS:

1. Directed the Ph.D. dissertation of Dr. Jill Shahverdian (NIU) entitled "The Geometry of Weak 2-Cocycles." (2003).

2. Directing M.S. Thesis of Ms. Mobashera Kapasi on rooted lower subtractive orders and cylic weak crossed products. (2010).

3. Directed undergraduate honors thesis of Mr. Alejandro Aguado entitled "Cantor Sets, Antoine's Necklace and p-Adic Numbers." (2006).

4. Directed Masters Project of Ms. Cheryl Eames (2009).

GRANTS:

1. "Brauer-Severi schemes of finitely generated algebras," Young Investigator's Grant, National Security Agency, 4/10/96-4/9/97.

2. "Algebraic Transformation Groups, Invariant Theory, and Applications," United States Civilian Research and Development Foundation for the Independent States of the Former Soviet Union, 12/1/96-11/30/98. PIs: David J. Saltman and Vladimir Popov.

3. "Maximal subfields of division algebras," Summer Grant for Research and Artistry, Northern Illinois University, 7/16/01-8/15/01.

TEACHING EXPERIENCE AT ISU:

MAT 121 Applied Calculus

MAT 146 Calculus II

MAT 147 Calculus III

MAT 175 Elementary Linear Algebra

MAT 236 Elementary Abstract Algebra

MAT 287 Introduction to Topology (Independent Study)

MAT 287 A Brief Introduction to Invariant Theory (Independent Study)

MAT 336 Advanced Abstract Algebra

MAT 400 Abstract Algebra (Graduate Independent Study)

MAT 407 Abstract Algebra I

MAT 490 Research in Mathematics

TEACHING EXPERIENCE AT NIU:

MATH 101 Core Competency in Math

MATH 110 College Algebra

MATH 155 Trigonometry and Elementary Functions

MATH 210 Finite Mathematics

MATH 211 Calculus for Business and Social Science

MATH 229 Calculus I

MATH 229-H Calculus I, Honors

MATH 230 Calculus II

MATH 230-H Calculus II, Honors

MATH 232 Calculus III

MATH 240 Linear Algebra and Applications

MATH 360 Model Building in Applied Mathematics

MATH 420 Algebra I

MATH 421 Algebra II

MATH 423 Linear and Multilinear Algebra

MATH 520 Algebraic Structures I (Graduate Course)

MATH 521 Algebraic Structures II (Graduate Course)

MATH 620 Commutative Algebra (Ph.D. Seminar)

MATH 620 Algebraic Geometry I (Ph.D. Reading Course)

MATH 690A Azumaya Algebras (Ph.D. Reading Course)

MATH 690A Division Algebras (Ph.D. Reading Course)

MEMBERSHIPS:

1. American Mathematical Society