

# Jonathan K. Hodge, Ph.D.

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*I am a dedicated, passionate, and collaborative leader who seeks to promote excellence in higher education by supporting the success of all members of the university community.*

## Education

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<b>Ph.D., Mathematics</b> <i>Western Michigan University</i> Dissertation: <i>Separable Preference Orders</i>	<b>2002</b>
<b>M.A., Negotiation, Conflict Resolution, &amp; Peacebuilding</b> <i>California State University–Dominguez Hills</i> Thesis: <i>The “Love Wins” Controversy: A Case Study in Religiosity and Social Identity</i>	<b>2012</b>
<b>M.A., Mathematics</b> <i>Western Michigan University</i>	<b>2000</b>
<b>B.S., Mathematics</b> <i>Calvin College</i>	<b>1998</b>

## Positions Held

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### Administration.....

<b>Director, School of Communications</b> <i>Grand Valley State University</i>	<b>2017–Present</b> <i>Allendale, MI</i>
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I was appointed to serve as Director of the School of Communications during a reorganization in which three of the School’s programs (and the associated faculty) were relocated to other units. In its new configuration, the School is home to 24 full-time faculty, 1,100 undergraduate majors, and 50 graduate students. The School offers undergraduate programs in Advertising/Public Relations, Communication Studies, Health Communication, and Multimedia Journalism, as well as a Master’s program in Communication. As Director, my responsibilities are similar to those associated with my previous position as Chair of the Department of Mathematics. (See the position description below for specific examples.) Responsibilities unique to the School of Communications include:

- Managing a \$100,000+ annual discretionary budget
- Supervising five full-time clerical and technical support staff
- Prioritizing and approving equipment purchases
- Directing and working collaboratively with five program coordinators; delegating tasks as appropriate

In addition to these responsibilities, I was also charged with streamlining and facilitating improvements in the School’s policies and procedures, including those related to scheduling, staffing, personnel, faculty mentoring, professional development, advising, budget and resource allocation, program coordination, and governance.

<b>Co-director, GVSU Summer Mathematics REU</b> <i>Grand Valley State University</i>	<b>2009–Present</b> <i>Allendale, MI</i>
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I am the co-director (with Dr. Will Dickinson) of an externally funded Research Experience for Undergraduates (REU) program that has provided summer research opportunities to 64 students over eight years. As co-director, my responsibilities include preparing and submitting grant proposals, advertising and marketing the program, recruiting students, maintaining the program’s web site ([www.gvsu.edu/mathreu](http://www.gvsu.edu/mathreu)), mentoring students, and providing organizational and administrative leadership for each summer’s program. I have been PI or co-PI on over \$750,000 of NSF and NSA grant funding to support the program, with additional funding from GVSU. My recruiting efforts have emphasized outreach to women and underrepresented minorities. I also implemented a gender-neutral housing option in order to create a more inclusive and welcoming environment for transgender participants.

**Chair, Department of Mathematics***Grand Valley State University***2013–2016***Allendale, MI*

The Department of Mathematics is one of the largest departments at GVSU, with over 70 faculty and staff (including 35 tenure-track faculty) and an annual full-time faculty payroll of approximately \$3.25 million. The department offers between 150 and 190 sections of mathematics courses each semester, for an average of over 14,500 student credit hours. Responsibilities of the chair include:

- Managing an \$80,000+ annual discretionary budget
- Supervising three full-time clerical staff
- Interviewing and hiring adjunct and visiting faculty
- Mentoring pre-tenure faculty
- Planning and leading department meetings
- Communicating information to faculty and staff
- Leading assessment and strategic planning efforts
- Conducting annual merit evaluations and recommending salary adjustments for full-time faculty
- Scheduling, staffing, and enrollment management
- Working collaboratively with two assistant chairs
- Facilitating personnel reviews for full-time faculty
- Resolving conflict among students, faculty, and staff
- Advocating for resources to support department goals and initiatives
- Collaborating with other units to support the university's mission
- Overseeing tenure-track searches and interviewing candidates
- Appointing committees and task forces; delegating tasks as appropriate
- Investigating and resolving professional conduct matters
- Chairing the department's assessment, advisory, and diversity advisory committees

In addition to these responsibilities, I also: (1) improved department efficiency by limiting mandatory department meetings; (2) initiated an annual lecture series featuring mathematicians from underrepresented groups; (3) successfully advocated for the creation of a screencasting studio and a dedicated study space for math majors; (4) implemented a variety of initiatives related to student success and advising; (5) reallocated department funds to strategic priorities by significantly reducing printing costs; and (6) led efforts to revise the department's merit evaluation processes.

**Assistant Chair, Department of Mathematics***Grand Valley State University***2009–2013***Allendale, MI*

As assistant chair, I was responsible for chairing the department's Personnel Committee, which helped facilitate 19 contract renewal, tenure, and promotion reviews. In addition, I chaired a task force that led to significant revisions to our department's personnel process. I also assisted the chair with annual merit evaluations, scheduling, staffing, and other administrative matters.

**Faculty**.....**Professor of Mathematics***Grand Valley State University***2015–Present***Allendale, MI***Associate Professor of Mathematics***Grand Valley State University***2008–2015***Allendale, MI***Visiting Associate Professor of Mathematics (sabbatical)***Hope College***2008–2009***Holland, MI***Assistant Professor of Mathematics***Grand Valley State University***2002–2008***Allendale, MI*

As a faculty member, I have taught courses throughout the undergraduate mathematics curriculum, using learner-centered instructional strategies such as inquiry-based learning (IBL), flipped classrooms, and standards-based grading. I have co-authored two textbooks and was a keynote speaker at a national conference on inquiry-based learning (citations included in subsequent sections). I have mentored 26 students in undergraduate research projects (see [gvsu.edu/s/02U](http://gvsu.edu/s/02U) for more details) and served on two doctoral committees (one as co-chair). My primary research area is interdisciplinary and lies within the intersection of mathematics and social science. I have also conducted

research in social psychology as part of my Master's degree in negotiation, conflict resolution, and peacebuilding. My scholarship informs my teaching, and I have developed and taught courses in both mathematical voting theory and conflict resolution. A complete list of courses taught is included below.

- Excursions in Mathematics
- College Algebra
- Trigonometry
- Probability & Statistics
- Survey of Calculus
- Calculus 1 & 2
- Differential Equations
- Communicating in Mathematics / Mathematical Proofs
- Linear Algebra
- Abstract Algebra
- Euclidean Geometry
- Discrete Mathematics
- Advanced Calculus (Real Analysis)
- The Mathematics of Voting and Elections
- Theory and Practice of Conflict Resolution
- Dialogue, Integration, & Action

## Additional Leadership Experience & Committee Service

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### Faculty governance.....

I currently serve on GVSU's University Academic Senate (UAS) and have previously served on the Executive Committee of the Senate (ECS). UAS is the faculty governance body at GVSU, consisting of around 50 elected representatives from across the university. ECS is a subgroup of UAS (around 16 faculty) that meets several times a month, sets the agenda for monthly UAS meetings, and brings recommendations to the entire Senate.

### Conflict resolution.....

In addition to my Master's degree in conflict resolution, I am a state-approved mediator and have attended more than 100 hours of seminars and workshops related to dialogue, mediation, and conflict resolution processes. I have mediated dozens of disputes, both at GVSU and for Michigan civil courts. I have also conducted workshops on conflict resolution for GVSU employees and for private businesses and organizations within the legal and health fields. While my strong preference is to help resolve conflict informally through mediation or similar processes, I also have significant experience with formal processes. For example, I chaired a faculty grievance committee for a faculty member who was denied tenure, and I have regularly worked with GVSU's Student Conduct office to address violations of the Student Code.

My conflict resolution work was the subject of a feature article by Dottie Barnes entitled "Math Professor Helps Others Tackle the Elephant in the Room," which appeared in the Spring 2012 issue of *Grand Valley Magazine* (GVSU's alumni magazine). The article can be downloaded at [gvsu.edu/s/02W](http://gvsu.edu/s/02W).

### Establishment of an ombuds office.....

In 2012, I worked with GVSU's Vice President for Inclusion and Equity to research and write a 28-page white paper (available at [gvsu.edu/s/02X](http://gvsu.edu/s/02X)) on the feasibility of establishing an ombuds office at GVSU. (An ombuds office is a confidential, neutral, and independent resource for resolving conflicts involving students, faculty, and/or staff.) My work involved: (1) attending a 20-hour training seminar from the International Ombudsman Association; (2) interviewing key constituents at GVSU; (3) researching best practices and practices at peer institutions; (4) investigating legal issues relevant to ombuds offices; and (5) making recommendations for the establishment of an ombuds office at GVSU.

In 2013, I continued this work on an ECS-appointed task force that ultimately recommended the creation of both student and faculty ombuds offices. This proposal was supported by the Senate, and GVSU's student ombuds office opened in Fall 2015. The student ombuds is now a full-time, permanent position, and conversations continue regarding implementation of a faculty ombuds office.

## Committees and other service activities.....

*This section includes a list of my major committee assignments and other service activities. For completeness, committees noted in previous sections are included here as well.*

### **Department Chairs Seminar Facilitator** **2016–Present** *Council of Colleges of Arts and Sciences (CCAS)*

I have served as an invited facilitator for four national CCAS Seminars for Department Chairs. As a facilitator, my role is to collaborate with the seminar directors and other facilitators to lead breakout sessions on problem solving, conflict resolution, faculty recruitment and retention, and the chair/dean relationship. I also lead discussions of case studies on a variety of issues relevant to both new and experienced chairs.

### **University Academic Senate (UAS) & Executive Committee of the Senate (ECS)** **2015–Present** *GVSU Faculty Governance* *(ECS 2016–2017)*

UAS is the main faculty governance body at GVSU, and ECS is a subset of UAS that meets more frequently and serves as a steering committee for the larger body. I have served on UAS since 2015 and was recently elected to serve a second term, which runs through 2020. I served on ECS for three semesters in 2016–2017.

### **Department Chair Election Task Force (chair)** **2016** *GVSU Department of Modern Languages and Literatures*

I was appointed by the Dean to chair a task force charged with facilitating a process to recommend the next department chair for the Department of Modern Languages and Literatures. With input from the other task force members, I solicited nominations, developed a survey for candidates based on questions posed by department members, facilitated a departmental discussion and vote, and wrote a recommendation report.

### **Diversity Advisory Committee (chair)** **2013–2016** *GVSU Mathematics Department*

As department chair, I convened this group several times a year to discuss issues and initiatives related to diversity, inclusion, and equity within the Mathematics Department.

### **Department Assessment Committee** **2012–2016** *GVSU Mathematics Department* *(chair 2013–2016)*

This committee oversees and facilitates all department assessment activities, including accreditation and strategic planning.

### **Department Advisory Committee** **2007–2008, 2009–2016** *GVSU Mathematics Department* *(chair 2013–2016)*

The Advisory Committee advises the chair on a variety of issues and plays an important oversight role in the annual merit evaluation process. I served on the Advisory Committee for a year prior to my tenure decision and then for four years as assistant chair. I chaired the committee for three years as part of my responsibilities as department chair.

### **Ombuds Task Force** **2013** *GVSU ECS-appointed committee*

The Ombuds Task Force recommended the creation of both student and faculty ombuds offices. These recommendations were supported by the Senate, and a student ombuds office was established in Fall 2015.

### **Mathematics Magazine Editor Search Committee** **2013** *Mathematical Association of America*

*Mathematics Magazine* is one of the three major journals of the Mathematical Association of America. I served on a national committee to recruit, interview, and select the magazine's Editor.

### **Faculty Grievance Committee (chair)** **2012** *GVSU university committee*

This committee conducted an extensive investigation of a grievance filed by a faculty member who had been denied tenure. We conducted several hours of interviews, considered materials provided by the candidate, and drafted a 9-page report that recommended upholding the original decision to deny tenure. This recommendation was supported by the Provost.

- Workload / Fairness / Merit Evaluation Task Force** 2012–2013  
*GVSU Mathematics Department*  
 This committee examined our department's workload and evaluation policies. I subsequently led efforts to revise these policies to promote equity and transparency.
- Framework for Scholarship Task Force** 2012  
*GVSU Mathematics Department*  
 This task force developed an amendment to our department's evaluation standards to more clearly articulate expectations for research and scholarly activity.
- Personnel Policy Task Force (chair)** 2011  
*GVSU Mathematics Department*  
 This task force proposed significant changes to the department's personnel processes, which were subsequently approved and have been in use since 2012. The changes improve transparency and allow more opportunities for the inclusion of dissenting or minority points of view.
- Department Personnel Committee (chair)** 2009–2013  
*GVSU Mathematics Department*  
 The Personnel Committee conducts class visits for candidates under review and assists with all aspects of the personnel process, including development of the agenda for each candidate's department discussion meeting. As part of my duties as assistant chair, I chaired the Personnel Committee for four years. During this time, I helped facilitate the personnel process for 19 different contract renewal, tenure, and promotion decisions.
- Student Colloquium Coordinator** 2008–2009  
*Hope College Mathematics Department*  
 While on sabbatical at Hope College, I organized and recruited speakers for the Mathematics Department's student colloquium series. Hope's Mathematics Department emphasizes co-curricular learning, and attending colloquia is a requirement in nearly every course offered for mathematics majors.
- Textbook Selection Policy Task Force (chair)** 2007  
*GVSU Mathematics Department*  
 This task force updated the department's textbook selection policy to provide uniformity when necessary and flexibility when possible.
- Department Search Committee** 2003–2004, 2005–2006  
*GVSU Mathematics Department*  
 This committee facilitated searches that led to the hiring of five tenure-track faculty members in the two years that I was a member.
- Department Curriculum Committee** 2003–2006  
*GVSU Mathematics Department* (chair in 2004–2005)  
 The Curriculum Committee oversees and facilitates all department proposals and initiatives related to curriculum, including new courses, course changes, and changes to the major.
- College Curriculum Committee** 2004–2005  
*College of Liberal Arts and Sciences, Science & Mathematics Cluster*  
 This committee reviewed more than 100 curriculum proposals submitted by departments within the Science & Mathematics Cluster of the College of Liberal Arts and Sciences.

## External Grants

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**Principal Investigator (\$50,198).** *National Security Agency* Grant to support a Research Experience for Undergraduates (REU) program at GVSU, 2018. Co-PI: Will Dickinson.

**Co-Principal Investigator (\$236,942).** *National Science Foundation* Grant No. DMS-1659113 to support a Research Experience for Undergraduates (REU) program at GVSU, 2017–2019. PI: Will Dickinson.

**Principal Investigator (\$80,968).** *National Security Agency* Grant No. H98230-16-1-0030 to support a Research Experience for Undergraduates (REU) program at GVSU, 2016. Co-PI: Will Dickinson.

**Co-Principal Investigator (\$230,169).** *National Science Foundation* Grant No. DMS-1262342 to support a Research Experience for Undergraduates (REU) program at GVSU, 2013–2015. PI: Will Dickinson.

**Co-Principal Investigator (\$228,314).** *National Science Foundation* Grant No. DMS-1003993 to support a Research Experience for Undergraduates (REU) program at GVSU, 2010–2012. PI: Will Dickinson.

**Principal Investigator (\$7,500).** *Educational Advancement Foundation* grant to support the development of a discovery-based textbook on the mathematics of voting and elections, 2004.

## Publications

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### Textbooks.....

Jonathan K. Hodge, Steven Schlicker, and Ted Sundstrom. *Abstract Algebra: An Inquiry Based Approach*. CRC Press, Boca Raton, FL, 2013.

Jonathan K. Hodge and Richard E. Klima. *The Mathematics of Voting and Elections: A Hands-On Approach*. American Mathematical Society, Providence, 2005.

- This book was subsequently translated into Russian by N.A. Shikova and published by the Moscow Center for Continuous Mathematical Education in 2007.

### Peer-reviewed papers (\* Indicates undergraduate student co-author) .....

Jonathan K. Hodge, Faye Sprague-Williams\*, and Jamie Woelk\*. Rank disequilibrium in multiple-criteria evaluation schemes. *Involve, a Journal of Mathematics*, 10(1):165–180, 2017. doi:10.2140/involve.2017.10.165.

Clark Bowman\*, Jonathan K. Hodge, and Ada Yu\*. The potential of iterative voting to solve the separability problem in referendum elections. *Theory and Decision*, 77(1):111–124, 2014. doi:10.1007/s11238-013-9383-2.

Lindsey Brown\*, Hoang Ha\*, and Jonathan K. Hodge. Single-peaked preferences over multidimensional binary alternatives. *Discrete Applied Mathematics*, 166:14–25, 2014. doi:10.1016/j.dam.2013.11.006.

Kyle Golenbiewski\*, Jonathan K. Hodge, and Lisa Moats\*. Cost-conscious voters in referendum elections. *Involve, a Journal of Mathematics*, 4(2):139–155, 2011. doi:10.2140/involve.2011.4.139.

Jonathan K. Hodge. The mathematics of referendum elections and separable preferences. 84(4):268–277, 2011. doi:10.4169/math.mag.84.4.268.

Jonathan K. Hodge, Emily Marshall\*, and Geoff Patterson\*. Gerrymandering and convexity. *The College Mathematics Journal*, 41(4):312–324, 2010. doi:10.4169/074683410x510317.

Jonathan K. Hodge, Mark Krines\*, and Jennifer Lahr\*. Preseparable extensions of multidimensional preferences. *Order*, 26(2):125–147, 2009. doi:10.1007/s11083-009-9112-1.

Jonathan K. Hodge and Micah TerHaar\*. Classifying interdependence in multidimensional binary preferences. *Mathematical Social Sciences*, 55(2):190–204, 2008. doi:10.1016/j.mathsocsci.2007.07.005.

Jonathan K. Hodge and Peter Schwallier\*. How does separability affect the desirability of referendum election outcomes? *Theory and Decision*, 61(3):251–276, 2006. doi:10.1007/s11238-006-9001-7.

Jonathan K. Hodge. Permutations of separable preference orders. *Discrete Applied Mathematics*, 154(10):1478–1499, 2006. doi:10.1016/j.dam.2005.10.015.



Jonathan K. Hodge. The top ten things I have learned about discovery-based teaching. *PRIMUS*, 16(2):154–161, 2006. doi:10.1080/10511970608984143.

W. James Bradley, Jonathan K. Hodge, and D. Marc Kilgour. Separable discrete preferences. *Mathematical Social Sciences*, 49(3):335–353, 2005. doi:10.1016/j.mathsocsci.2004.08.006.

#### Invited book reviews.....

Jonathan K. Hodge. Review of “Numbers Rule: The Vexing Mathematics of Democracy, from Plato to Present” by George Szpiro. *Notices of the American Mathematical Society* 58(1): 59-61, 2011.

Jonathan K. Hodge. Review of “Mathematics and Democracy: Designing Better Voting and Fair-Division Procedures” by Steven J. Brams. *The Mathematical Intelligencer* 31(3): 62-63, 2009.

## Selected Presentations

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#### Invited keynote address.....

*Inquiry, Authority, and Democracy*. Banquet talk at the 15th annual Legacy of R.L. Moore Conference, Austin, TX, June 2012. Video available at [gvsu.edu/s/02T](http://gvsu.edu/s/02T).

- This talk was the focus of a subsequent article by Katharine Merow entitled “The Many Faces of the IBL Instructor,” which appeared in the August/September 2012 issue of *MAA Focus*. The article can be downloaded at [gvsu.edu/s/02V](http://gvsu.edu/s/02V).

#### Other invited presentations and panel sessions (since 2008).....

*The Separability Problem in Referendum Elections: Some Recent Developments*.

- Alma College, Alma, MI, November 2017
- Albion College, Albion, MI, March 2012
- Calvin College, Grand Rapids, MI, March 2012.
- Joint Mathematics Meetings (Special Session on the Mathematics of Decisions, Elections, and Games), Boston, MA, January 2012

*Making a Living and a Life: The Irrevocable Gift of Opportunity*. Western Michigan University, Kalamazoo, MI, October 2016.

*Mid-Career Faculty: Charting the Next Half of Your Career*. Invited panelist, Joint Mathematics Meetings, Seattle, WA, January 2016.

*Rank Disequilibrium in Multiple-Criteria Evaluation Schemes*. Hope College, Holland, MI, November 2014; Calvin College, Grand Rapids, MI, September 2016.

*Summer Programs in Mathematics*. Invited panelist, Field of Dreams Conference, Phoenix, AZ, November 2011, 2012, 2013, 2014; Birmingham, AL, November 2015.

*Teaching Mathematics in an American University*. Polytechnic University, Arusha, Tanzania, May 2015.

*Supervising Undergraduate Research*. Invited panelist, Michigan Project NExT Symposium, Saginaw Valley State University, University Center, MI, May 2012.

*A Hands-On Workshop on Inquiry-Based Learning in Mathematics.* Center for Excellence in Science and Mathematics Education, Grand Valley State University, Allendale, MI, August 2009.

*Three Things I Have Learned About Inquiry-Based Learning.* Part of panel session on intensive individual experiences in the math major, MathFest, Portland, OR, August 2009.

*The Scholar's Life: Pursuing Scholarship Amidst the Demands of Teaching and Service.* Invited panelist, Grand Valley State University, Allendale, MI, April 2009.

*Trouble in Democracy: A Mathematical Look at Voting and Elections.*

- Calvin College, Grand Rapids, MI, February 2009.
- Aquinas College, Grand Rapids, MI, October 2008.
- Hillsdale College, Hillsdale, MI, April 2008.

*Recent Work on the Separability Problem in Referendum Elections.* Western Michigan University, Kalamazoo, MI, October 2008.

*Math Matters: Numerate Approaches to Everyday Issues.* Invited panelist, MathFest, Madison, WI, August 2008.

*Trouble in Direct Democracy: The Separability Problem in Referendum Elections.* Hillsdale College, Hillsdale, MI, April 2008

## Awards & Honors

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### **Alumni Achievement Award** **2016**

*Western Michigan University*

The Alumni Achievement Award is the highest award bestowed by WMU departments and programs to their alumni. Each department selects one recipient per year. I was nominated and selected as the 2016 recipient by the Department of Mathematics for "outstanding accomplishments and positive impact on [my] community and profession."

### **George Pólya Award** **2011**

*Mathematical Association of America (MAA)*

The George Pólya Award is a national prize for expository excellence awarded annually to one or two papers published in the *College Mathematics Journal*. I received this award, along with two undergraduate student co-authors, for a paper we wrote based on an REU project that investigated gerrymandering from a mathematical perspective.

### **R.L. Moore Project NExT Fellow** **2003–2004**

*Mathematical Association of America*

Project NExT is a national professional development program, focused on teaching, for new faculty in mathematics. Participants are selected competitively and participate in special workshops and seminars at three different national conferences over the course of a year. My fellowship was sponsored by the Legacy of R.L. Moore Project, a leading proponent of inquiry-based learning in mathematics.

### **All-University Graduate Research and Creative Scholars Award** **2002**

*Western Michigan University*

### **Yousef Alavi Outstanding Doctoral Student Award** **2002**

*Western Michigan University*

### **Charles H. Butler Teaching Excellence Award** **2001**

*Western Michigan University*



## Awards won by undergraduate researchers.....

Six of the undergraduate research groups I have mentored (12 students total) have won national awards for their presentations at MathFest (the summer meetings of the MAA). These awards include four Outstanding Presentation awards from the MAA and two awards for Excellence in Undergraduate Research from the Society for Industrial and Applied Mathematics (SIAM).

## Professional Affiliations & Memberships

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- American Mathematical Society
- Mathematical Association of America
- National Alliance for Doctoral Studies in Mathematics
- Pi Mu Epsilon