FORM D - IV A INSTRUCTION

The faculty member is encouraged to use a range of evidence demonstrating instructional accomplishment, which can be included in portfolios or compendia of relevant materials.

1. **Undergraduate and Graduate Credit Instruction:**
Record of instructional activities for at least the past six semesters. Include only actual participation in credit courses (on- or off-campus instruction) or virtual university on-line courses. In determining the "past six semesters," the faculty member may elect to exclude any semesters during which s/he was on leave; additional semesters may be included on an additional page. Fill in or, as appropriate, attach relevant print screens from CLIFMS*.

Semester and Year	Course Number	Credits (Number or Var)	Number of Sections Taught Lec Rec Lab	Number of Students	Number of Assistants **	Notes
Fall 2012	MTH 414	3	45 Lec	15	0	
Spring 2013	MTH 234	3	45 Lec	21	1	
	MTH 490	2	15 ind. Study	1	0	Independent study
Fall 2013	MTH 327H	3	45 Lec	24	0	
Spring 2014	MTH 429H	3	45 Lec	21	0	
	MTH 490	1	15 ind. Study	1	0	Independent Study
Spring 2015	MTH 299-01	4	45 Lec	21	1	
	MTH 299-03	4	45 Lec	27	1	
	MTH 994-01	3	45 Lec	4	0	
Fall 2015	MTH 299-04	4	45 Lec	19	1	
	MTH 299-05	4	45 Lec	21	1	
Spring 2016	MTH 299-03	4	45 Lec	19	1	
	MTH 490-01	1	15	1	0	Independent Study
Fall 2016	MTH 299-04	4	45 Lec	21	1	
	MTH 890-03	1	15	1	0	Grad reading course
Spring 2017	MTH 299-03	4	45 Lec	19	1	
	MTH 890-08	1	15	2	0	Grad reading course
Fall 2017	MTH 299-04	4	45 Lec	25	1	

*Consult departmental staff who are authorized to enter data on the web-based CLIFMS (Course Load, Instruction, Funding and Modeling System) system and can search for course sections and enrollments by faculty name, per semester.

**May include graduate and undergraduate assistants, graders, and other support personnel.

FORM D - IV A INSTRUCTION

2. **Non-Credit Instruction:**

List other instructional activities including non-credit courses/certificate programs, licensure programs, conferences, seminars, workshops, etc. Include non-credit instruction that involves international, comparative, or global content delivered either to domestic or international groups, either here or abroad.

1. Spring 2013, advised the undergraduate research project of [redacted], through the MSU-Xian Jiaotong University Mathematics Exchange Program, on the topic of optimal control and Hamilton-Jacobi equations.
2. Universität Bielefeld, International Graduate College Visiting Scientist, May/June 2013 (5weeks). Gave a mini-course (10 lectures) on homogenization of elliptic equations to a diverse group of international masters and Ph.D. mathematics students.
3. Organizing an informal reading course for 3 grad students [redacted] and 1 postodc [redacted] on probability theory. Weekly 1 hour meetings, Fall 2017.

*Consult departmental staff who are authorized to enter data on the web-based CLIFMS (Course Load, Instruction, Funding and Modeling System) system and can search for course sections and enrollments by faculty name, per semester.

**May include graduate and undergraduate assistants, graders, and other support personnel.

FORM D – IV A INSTRUCTION, continued

3. **Academic Advising:**

a. Faculty member's activity in the area of academic advising. The statement may include commentary on supplementary materials such as recruitment activities, international student advising, evidence of peer recognition, and evidence of student recognition.

Undergraduate research through international exchange program:

1. [redacted] (undergraduate research), through the MSU-Xian Jiaotong University Mathematics Exchange Program

Undergraduate mentoring, independent study. Of the list of undergrads that I have mentored, all of them applied to grad school, and they have been admitted to or accepted offers at the following collection of Ph.D. programs in mathematics (except Cornell) such as: Cornell (Bio-Informatics), GA Tech, Notre Dame, Purdue, UC Santa Barbara, University of Illinois Chicago, University of Michigan, University of Minnesota, UT Austin, University of Washington, among others.

2. [redacted] (undergraduate degree planning, student presentation day development and coaching, mathematical mentoring, REU planning and letter writing, study abroad planning and letter writing, graduate school application planning / admissions / letter writing)
3. [redacted] (undergraduate degree planning, REU planning and letter writing, graduate school application planning / admissions / letter writing)
4. [redacted] (undergraduate degree planning, REU planning and letter writing, mathematical mentoring, ULA coaching and curriculum development, graduate school application planning / admissions / letter writing)
5. [redacted] (independent study, undergraduate degree planning, REU planning and letter writing, graduate school application planning / admissions / letter writing)
6. [redacted] (independent study, undergraduate degree planning, mathematical mentoring, graduate school application planning / admissions / letter writing)
7. [redacted] (undergraduate degree planning and graduate school application planning / advising / letter writing)
8. [redacted] (ULA coaching and curriculum development, graduate school application planning / admissions / letter writing)
9. [redacted] (undergraduate degree planning, mathematical mentoring, graduate school application planning / admissions / letter writing)

Graduate:

1. [redacted] (since December 2017)
2. [redacted] co-supervised with Jeffrey Schenker, since December 2017)

Graduate/Professional:

Other:

b. Candidate's undergraduate advisees (if applicable to individual under review):

	Freshman	Sophomore	Junior	Senior
Number of current undergraduate advisees				

FORM D – IV A INSTRUCTION, continued

c. Candidate's graduate/graduate-professional advisees (limit to principal advisor or committee chairpersonship status):

	Masters	Doctoral	Professional
Number of students currently enrolled or active		1	
Number of graduate committees during the reporting period			
Degrees awarded during the reporting period			
Degrees awarded during career			

4. List of Instructional Works:
List publications, presentations, papers, grants received (refer to Form D-IVE), and other works that are primarily in support of or emanating from instructional activity.

The nonlocal wiki (founding member and contributor),
https://www.ma.utexas.edu/mediawiki/index.php/Starting_page , which is an educational reference for people wanting to learn about the field of integro-differential equations.

5. Other Evidence of Instructional Activity:
Cite other evidence of instructional productivity such as works/grants in progress or under review (refer to Form D-IVE). Address instructional goals and approaches; innovative methods or curricular development; significant effects of instruction; and curatorial and patient care activities, etc. Include evidence of instructional awards and peer recognition (within and outside the university).

Partial classroom "flipping" in MTH 234 (vector calculus), MTH 327H (honors intro to analysis), MTH 429H (honors real analysis). These courses are historically entirely lecture based. I found that my students in the past have responded very positively to an increased amount of time dedicated to working on problems and examples in class. The novelty of this implementation of the partial "classroom flipping" was to do so in such advanced classes. I would say the results were positive, and there is strong evidence for this in my students' overall performance as well as extensive comments on their SIRS (included in the teaching portfolio). Understandably, this set-up was not preferred by all of the students involved, but the ones who disliked it were typically the more advanced students who wanted to progress more quickly and tackle more difficult material. In my opinion, this outcome is perfectly acceptable seeing as these advanced students will succeed in almost any classroom setting. This way, I was able to significantly increase the level of understanding and success of the bottom and middle portions of the students, which is a positive outcome. Furthermore, this technique has spread to some of the other faculty and postdocs (I can take credit for at least one of them), and it seems to be producing good results in their classes as well.

Reorganization of a crucial mathematics course, Transitions to Higher Mathematics, MTH 299. My reorganization of 299 has turned it into something more than just a mathematics course. It is now a large program of vertical integration between undergrads, grad students, postdocs, and faculty, with a goal of producing dynamic and long-lasting material whose simultaneous layered goals are (1) to train undergraduates in the elusive arts of abstract thinking, problem solving, and mathematical proof-writing, as well as (2) to serve as an intensive training program for talented graduate students to learn the essential tasks of designing high quality mathematical instructional materials and effectively running an active learning environment for this advanced material. Each semester that I have been teaching/coordinating this program, there have been approximately between 120 and 160 students enrolled, which is broken down into smaller sections of about 20-25 students each, in order to better achieve a higher quality active learning environment. In this same time period, I have mentored on instructional topics at least the following numbers of instructors and assistants: 2 faculty, 2 teaching specialists, 5 postdocs, 13 Ph.D. students, 7 undergraduates.

The reason MTH 299 exists is that the Mathematics Department had previously realized that undergrads were increasingly ill prepared for upper division mathematics courses (300-400 level courses), especially in various aspects of: problem solving; logical thinking; clear presentation of mathematical arguments (proof-writing); possessing a fear of challenging questions; an inability to succeed on questions that are not obviously direct imitations of examples given by the book/instructor; perseverance in analytical thinking; abstract reasoning. I helped identify these deficiencies, and since my redesign of MTH 299, the students are helped to overcome these issues via an introduction to mathematical logic, proof-writing, and problem solving all in the context of frequent, intense group work and challenging weekly homework sets. The importance of the " flipped" or active learning environment in this context cannot be overstated, as it is fundamental to each student gaining understanding and proficiency on their own terms, which leads to a more deeply rooted and

longer lasting mastery of the desired skills. What follows is a brief list of some of the most noteworthy design changes I have implemented by since taking over the course.

Some innovations:

1. The choice to abandon a lecture based classroom, and instead implement a "flipped" or active classroom which is overwhelmingly dedicated to students working on challenging problems in groups of 3-4 people, with a focus on the students figuring out their own solutions to questions rather than simply imitating an instructor solution from a similar situation.
2. The creation of a rich universe of examples to be used dynamically throughout the semester and across various semesters to directly target the needs of the students in the class at any given time (needs which change greatly from week to week). I both wrote much of this material and managed the homework and example writing efforts of various faculty, postdocs, and grad students involved in the program since January 2015. This can be seen as a move away from the standard model of a textbook and more towards a less structured model in which the instructor takes more control of daily/weekly progress in a more focused/targeted manner.
3. Convinced the Chair of the Mathematics Department, [redacted], to allow me to staff the various section instructors primarily with talented graduate students in the Ph.D. program in mathematics. This choice has the following benefits: tap an under-utilized resource of grad students; give our mathematics Ph.D. students a very competitive advantage of teaching experience in an increasingly crowded academic job market; reduce the annual costs of the MTH 299 program.
4. Required grad student and postdoc instructors to each write a portion of the shared homework assignments, homework solutions, and exams, while I provide guidance and feedback about the strengths and weaknesses of each draft in how the unique batch of MSU students would react to and benefit from the proposed homework questions. This is invaluable experience in content development, and has turned out to have large benefits when these trainees enter the job market. This should also be considered good program design in the sense that it requires the instructors to have a vested interest in the material, which is in contrast to other teaching assignments for graduate students and postdocs in which the material has been written ahead of time, by other people, and the instructor just shows up and implements someone else's program.
5. Implemented for the instructors and assistants: weekly training/mentoring meetings on current topics and typical student experiences; individual mentoring in effective techniques for an active classroom; classroom observation visits; training on grading assignments and interacting with students. These activities are essential to the success of the MTH 299 program, and I would suggest that one of the most common reasons for a failed classroom is the inability of the instructor to correctly read, assess, and interpret the students' sources of mistakes and roadblocks, as well as the inability to get the students to believe they should implement suggested improvements and techniques. The weekly meetings and mentoring activities allow me to use specific examples from the various instructors' individual interactions with students to promote instructor growth and improvement.
6. Changed the course schedule to 3 meetings per week, each 80 minutes, contrasted to a more typical 3 meetings with an instructor at 50 minutes each, plus an 80 minute recitation with a TA. (There are still 1-2 sections running on this second, older, model, not for instructional reasons, but logistical requirements to match some other courses.) This includes in an essential way the addition of the TA to the same classroom as the instructor for 2 of the 3 meetings per week, so that the student groups can receive more attention and guidance from the instructor and assistant.
7. Opened up the MTH 299 program to collaboration with the College of Education and PRIME at MSU as well as Mathematics Education at Western Michigan University via classroom visits, observations, and experimentation with [redacted] (faculty MSU COE), [redacted] (MSU Mathematics and PRIME), [redacted] (graduate student MSU PRIME), and [redacted] (Western Michigan University).
8. Implemented ``meta'' active instruction in which each semester's undergrads are allowed to propose changes to future classes to better serve future students, and I have worked some changes into subsequent semesters. This is a good practice as it reinforces the idea that the instructor can also be a dynamic student, in terms of learning from trials and errors. This is not an abstract philosophy, and I speak openly with my students about this as a way of showing them that all problem solving is dynamic

and evolutionary by nature. In the same way that I continually improve the classroom implementation of MTH 299 by listening to my students, the students are expected to improve their mathematical problem solving abilities by learning from their mistakes and the feedback from the instructors. This is an obvious win-win situation.

pid	Lastname	Firstname	Semester and Year	Course Number	occurrence	Number of Student Responses	Instructor Involvement	Course Demands	Student Engagement	Course Organization	Ability to explain mathematics	Prepared-ness	Overall rating
111111276	[redacted]	[redacted]	FS12	MTH 414	1	15	1.47	1.80	NA	1.67	1.53	1.67	1.33
111111276		COMP	FS12	MTH 414	1	172	2.12	2.12	NA	2.32	2.25	2.08	2.37
111111276	[redacted]	[redacted]	FS13	MTH 327H	1	21	1.19	1.95	NA	2.29	1.67	2.00	1.48
111111276		COMP	FS13	MTH 327H	1	90	1.22	1.99	NA	1.88	1.48	1.84	1.38
111111276	[redacted]	[redacted]	SS13	MTH 234	1	15	1.00	2.20	NA	1.47	1.47	1.20	1.27
111111276		COMP	SS13	MTH 234	1	8751	1.85	2.14	NA	1.90	2.02	1.72	2.04
111111276	[redacted]	[redacted]	SS14	MTH 429H	1	20	1.05	2.00	NA	2.20	1.45	1.70	1.35
111111276		COMP	SS14	MTH 429H	1	99	1.57	1.94	NA	2.08	1.81	1.86	1.69
111111276	[redacted]	[redacted]	FS15	MTH 299	1	12	1.00	2.33	NA	1.67	1.67	1.67	1.42
111111276		COMP	FS15	MTH 299	1	557	1.41	2.15	NA	1.68	1.63	1.53	1.65
111111276	[redacted]	[redacted]	FS15	MTH 299	2	20	1.20	2.05	NA	1.40	1.15	1.20	1.15
111111276		COMP	FS15	MTH 299	2	557	1.41	2.15	NA	1.68	1.63	1.53	1.65
111111276	[redacted]	[redacted]	SS15	MTH 299	1	4	1.00	2.25	NA	1.00	1.00	1.00	1.00
111111276		COMP	SS15	MTH 299	1	557	1.41	2.15	NA	1.68	1.63	1.53	1.65
111111276	[redacted]	[redacted]	SS15	MTH 299	2	9	1.22	2.00	NA	1.78	1.89	1.78	1.78
111111276		COMP	SS15	MTH 299	2	557	1.41	2.15	NA	1.68	1.63	1.53	1.65
111111276	[redacted]	[redacted]	SS15	MTH 994	1	10	1.10	2.50	NA	1.70	1.10	1.30	1.40
111111276		COMP	SS15	MTH 994	1	199	1.14	2.22	NA	1.16	1.13	1.13	1.14
111111276	[redacted]	[redacted]	SS16	MTH 299	1	13	1.08	2.31	NA	1.15	1.23	1.08	1.08
111111276		COMP	SS16	MTH 299	1	557	1.41	2.15	NA	1.68	1.63	1.53	1.65
111111276	[redacted]	[redacted]	FS16	MTH 299	1		1.09	NA*	1.31	1.21	1.19	1.04	1.05
111111276		COMP	FS16	MTH 299	1	105	1.19	NA	1.59	1.50	1.50	1.11	1.29
111111276	[redacted]	[redacted]	SS17	MTH 299	1	18	1.23	NA	1.42	1.32	1.35	1.12	1.33
111111276		COMP	SS17	MTH 299	1	35	1.63	NA	1.67	1.79	2.00	1.41	2.03

* - Categories changed when department moved to online surveys in FS16

FORM D - IV B RESEARCH AND CREATIVE ACTIVITIES

1. **List of Research/Creative Works:**
   Attach a separate list of publications, presentations, papers, and other works that are primarily in support of or emanating from Research and Creative Activities. Indicate how the primary or lead author of a multi-authored work can be identified. The list should provide dates and, in particular, accurately indicate activity from the reporting period. Items to be identified:
   1) Books
   2) Book chapters
   3) Bulletins or monographs
   4) Articles
   5) Reviews
   6) Papers and presentations for learned professional organizations and societies
   7) Artistic and creative endeavors (exhibits, showings, scores, performances, recordings, etc.)
   8) Reports or studies

   Indicate peer-reviewed or refereed items with a "*".

   Indicate items with a significant outreach component with a "**" (determined by the faculty member)

2. **Quantity of Research/Creative Works Produced:**
   For each of the categories listed in question one above, list the number of research and creative works produced.

	1	2	3	4	5	6	7	8
During the reporting period				9		36		
During career				11		56		

3. **Number of Grants Received** (primarily in support of research and creative activities; refer to Form D-IVE):
   During the reporting period: 2 During career: 3

4. **Other Evidence of Research/Creative Activity:**
   Cite other evidence of research and creative productivity such as: seminars, colloquia, invited papers; works/grants in progress or under review (refer to Form D-IVE); patents; formation of research-related partnerships with organizations, industries, or communities; curatorial and patient care activities, etc. Include evidence of peer recognition (within and outside the university).

   This is all represented in items 1-(4) and 1-(6), attached.

COLLEGE OF **NATURAL SCIENCE**

Funded Grants Only

Title	Principal Investigator	Co-Principal Investigators	Awarding Agency	Effective Dates	Total Amount Awarded Including Indirect Costs	Total Amount Awarded to Candidate Including Indirect Costs	Indirect Cost Rate	Nature of Candidate's Participation (if not P.I.)
Integro-differential operators-- free boundaries and homogenization	[redacted]	None	Simons Foundation; Mathematics	9/1/2107 – 8/31/2022	$ 42,000	$ 0 (declined per conflict with NSF)	N/A	PI
The structure of nonlocal operators and applications	[redacted]	None	NSF DMS - Program in Analysis	5/1/2017 – 4/31/2020	$150,000	$150,000	%55	PI

[To add another row to the table, push the tab key in the very last cell.]

From the *CNS P&T Guidelines* revised November 21, 2013:
*A list of all the candidate's funded grants (using the *CNS Funded Grants Only* worksheet) including the following in order: title, principal investigator, all co-principal investigators (unless prohibitively many), awarding agency, effective dates, total amount awarded, *total amount awarded to the candidate*, whether these amounts include indirect costs or not, and *the nature of the candidate's participation in the grant if not P.I.*

FORM D - IV C SERVICE WITHIN THE ACADEMIC AND BROADER COMMUNITY

1. **Service within the Academic Community**

a. **Service to Scholarly and Professional Organizations:**
List significant committee/administrative responsibilities in support of scholarly and professional organizations (at the local, state, national, and international levels) including: elected and appointed offices held; committee memberships and memberships on review or accreditation teams; reports written and submitted; grants received in support of the organization (refer to Form D-IVE); editorial positions, review boards and ad hoc review requests; and programs and conferences planned and coordinated, coordinated or served on a panel or chaired a session. Include evidence of contributions (e.g., evaluations by affected groups or peers).

Workshop Organization

- Co-Organized the 76th Midwest PDE Seminar, Michigan State University, November 2015
- AMS Sectional Special Session, March 2015, "Fractional Calculus and Nonlocal Operators"
- SIAM Activity Group APDE, November 2011, 3-part Mini-symposium, "Nonlocal Equations: Perspectives from Probability and PDEs"

Peer Review For Scientific Journals (writing detailed reports on the quality and validity of mathematical work)

- Annales de l'Institut Henri Poincare- Analyse Non-Lineaire
- Archive for Rational Mechanics and Analysis
- Calculus of Variations and Partial Differential Equations
- Communications in Analysis and Geometry
- Communications in Partial Differential Equations (3 articles during this period)
- Communications on Pure and Applied Mathematics
- Journal of Mathematical Analysis and Applications
-
- Journal of The European Mathematical Society
- SIAM Journal on Control and Optimization
- SIAM Journal on Mathematical Analysis (4 articles during this period)

b. **Service within the University:**
List significant committee/administrative responsibilities and contributions within the University. Include service that advances the University's equal opportunity/affirmative action commitment. Committee service includes: appointed and elected university, college, and department ad hoc or standing committees, grievance panels, councils, task forces, boards, or graduate committees. Administrative responsibilities include: the direction/coordination of programs or offices; admissions; participation in special studies or projects; collection development, care and use; grants received in support of the institution (refer to Form D-IVE), etc. Describe roles in any major reports issued, policy changes recommended and implemented, and administrative units restructured. Include evidence of contributions (e.g., evaluations by peers and affected groups).

I have been involved in the following departmental activities:

- Faculty Senate and University Council, since August 2017
- Organizing committee for Workshop on Inclusion for Math Faculty and Advisors (run by [redacted], since September 2017. (Workshop upcoming for Spring 2018)
- Applied Math / PDE Seminar. I organized this seminar from August, 2012 to May, 2015.

FORM D - IV C SERVICE WITHIN THE ACADEMIC AND BROADER COMMUNITY

- Hiring Process. Although non-tenured faculty do not serve on hiring committees in the Mathematics Department, I have been active in the hiring / interviewing / recruiting process during the hiring cycles of 2012/13, 2014/15, and 2017/18 (the current cycle). This has involved contacting candidates to apply, organizing campus visit schedules, meeting with candidates, and providing the committee with professional opinions on the candidates. I was deeply involved in the process during 2014/15 as the department in focusing on a position in a research area in PDE (broadly, my area of specialization), and I am also deeply involved this year as there is a position for Analysis/Probability, which is close to mine.
- Advanced Track planning. The advanced track program has been very successful at recruiting top students from across the university into a specialized, more challenging mathematics degree program. The specialized nature of the program makes the course design and implementation much more challenging and less straightforward than the typical upper division classes. In fall 2014, I have participated extensively in the process of re-evaluating and redesigning some aspects of the program, interacting extensively with [redacted] (the faculty in charge of the program). A particular focus in this round of discussions was the recruiting and retention of women into the program.
- Alumni Distinguished Scholars recruiting, 2013, 2014, 2017. I have given 2 presentations per year during 2013, 2014, and 2017 to support the department's role in recruiting into the ADS program. This involved a short presentation, appropriate for non-mathematicians, to pique their interest in the possibilities a mathematics degree can offer, as well as describe to them the benefits of being an undergraduate in our department at MSU. The topic was on some mathematical questions related to a game in which the participant can exert a limited amount of control over a random walk to hopefully steer the trajectory of a particle towards a preferred exit point of a given domain. This is a simple example of techniques which are ubiquitous in modern engineering and finance, particularly the pricing of options through the process of replication and portfolio optimization. It is also an example of where my own research plays a role in applications of mathematical theory.

FORM D - IV C SERVICE WITHIN THE ACADEMIC AND BROADER COMMUNITY, continued

2. <u>Service within the Broader Community</u>:

As a representative of the University, list significant contributions to local, national, or international communities that have not been listed elsewhere. This can include (but is not restricted to) outreach, MSU Extension, Professional and Clinical Programs, International Studies and Programs, and Urban Affairs Programs. Appropriate contributions or activities may include technical assistance, consulting arrangements, and information sharing; targeted publications and presentations; assistance with building of external capacity or assessment; cultural and civic programs; and efforts to build international competence (e.g., acquisition of language skills). Describe affected groups and evidence of contributions (e.g., evaluations by affected groups; development of innovative approaches, strategies, technologies, systems of delivery; patient care; awards). List evidence, such as grants (refer to Form D-IVE), of activity that is primarily in support of or emanating from service within the broader community.

- Invited Mini-Course At the International Graduate College of Bielefeld University, June 2013, "Elliptic Homogenization". Gave a 10-lecture mini-course to masters and Ph.D. level students at Bielefeld University, including multiple women and minorities.
- Letter writing. I have done extensive letter writing to support undergrads, grads, and postdocs, applying to: award nominations, REU, grad school, postdoc positions, and tenure stream positions. For many of the individuals listed below, I wrote multiple letters, in some cases up to 3 total.
  - (i) (undergrads) [redacted]
  - (ii) (grads) [redacted]
  - (iii) (postdocs) [redacted]
  - (iv) (other) [redacted]

FORM D - IV D ADDITIONAL REPORTING

1. **Evi dence of Other Scholarship:**
   Cite evidence of "other" scholarship as specified on p. 2 in the "summary rating" table (i.e., functions outside of instruction, research and creative activity, and service within the academic and broader community). Address the scholarship, significance, impact, and attention to context of these accomplishments.

2. **Integration across Multiple Mission Functions:**
   Discuss ways that your work demonstrates the integration of scholarship across the mission functions of the university—instruction, research and creative activities, and service within the academic and broader community.

3. **Other Awards/Evidence:**
   Cite other distinctive awards, accomplishments of sabbatical or other leaves, professional development activities, and any other evidence not covered in the preceding pages. (If the reporting period differs from the usual review period, then justify and support that period here.)

FORM D - IV E GRANT PROPOSALS

List grant proposals submitted during reporting period relating to teaching, research and creative activities, or service within the academic and broader community. Include grants in support of outreach, international, urban, and extension activities.*

	Name of Granting Agency (Grantor:) Focus of Grant (Focus:)	Date Submitted	$ Amount Requested	Status: Pending	Status: $ Amt Funded	Status: Not Funded	$ Amount Assigned to Faculty Candidate (if	Principal/Co-Investigators (if not faculty candidate)
I.	**Instruction**							
	Grantor:			☐		☐		
	Focus:							
	Grantor:			☐		☐		
	Focus:							
II.	**Research/Creative Activity**							
	Grantor: Simons Foundation; Mathematics and Physical Sciences-Collaboration Grants for	1/28/17	$ 42,000		$42,000 (declined)	☐	0	
	Focus: Integro-differential operators-- free boundaries and homogenization PI DECLINED AWARD per conflict with NSF and Simons Foundation rules of concurrent funding							
	Grantor: NSF DMS - Program in Analysis	9/30/16	$ 255,876		$150,000	☐	$150,000	
	Focus: Collaborative Research: The structure of nonlocal operators and applications							
	Grantor: NSF CAREER	7/21/16	$ 585,531		0	X		
	Focus: The structure of nonlocal operators. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: Simons Foundation; Mathematics and Physical Sciences-Collaboration Grants for	1/28/16	$35,000		0	X		
	Focus: Analysis For Large-Tailed Events- From Levy Processes to Boundary Operators							

*Anyone with an MSU Net username and password can log onto the web-based Information Reference database, maintained by the Office of Contract and Grant Administration, to search for records of proposals and grant awards by principal investigator. Printouts may be attached to this page.

FORM D - IV E GRANT PROPOSALS

	Name of Granting Agency (Grantor:) Focus of Grant (Focus:)	Date Submitted	$ Amount Requested	Status: Pending	$ Amt Funded	Not Funded	$ Amount Assigned to Faculty Candidate (if	Principal/Co-Investigators (if not faculty candidate)
	Grantor: NSF DMS - Program in Analysis and Program in Applied Math	10/2/15	$ 224,594		0	X		
	Focus: Analysis For Large-Tailed Events-- From Levy Processes to Boundary Operators. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: NSF CAREER	7/21/15	$ 566,299		0	X		
	Focus: Analysis For Large-Tailed Events-- From Levy Processes to Boundary Operators. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: NSF DMS - Program in Analysis	10/6/14	$ 223,190		0	X		
	Focus: Analysis For Large-Tailed Events-- From Levy Processes to Boundary Operators. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: NSF CAREER	7/22/14	$551,443	☐	0.00	X		
	Focus: Analysis For Large-Tailed Events-- From Levy Processes to Boundary Operators. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: NSF DMS – Program in Applied Math	9/30/13	$ 122,323	☐	0	X		
	Focus: Analysis of nonlinear anomalous diffusions: weak solutions, regularity, and applications to boundary behavior of elliptic equations. Study various properties of integro-differential equations including regularity and applications to boundary homogenization problems for elliptic second order PDE.							
	Grantor: NSF DMS – Program in Analysis	10/2/12	$ 122,323	☐	0	X		
	Focus: Analysis of Nonlocal Interactions and Random Phenomena. Study various properties of integro-differential equations as well as some topics in the random homogenization of elliptic and Hamilton-Jacobi partial differential equations.							
III.	**a. Service – Academic Community**							
	Grantor:			☐		☐		
	Focus:							
III.	**b Service – Broader Community**							
	i. MSU Extension							

*Anyone with an MSU Net username and password can log onto the web-based Information Reference database, maintained by the Office of Contract and Grant Administration, to search for records of proposals and grant awards by principal investigator. Printouts may be attached to this page.

FORM D - IV E GRANT PROPOSALS

	Name of Granting Agency (Grantor:) Focus of Grant (Focus:)	Date Submitted	$ Amount Requested	Status: Pending	Status: $ Amt Funded	Status: Not Funded	$ Amount Assigned to Faculty Candidate (if	Principal/Co-Investigators (if not faculty candidate)
	Grantor:			☐		☐		
	Focus:							
	ii. Professional/Patient Care Activities							
	Grantor:			☐		☐		
	Focus:							
	iii. International Studies and Programs							
	Grantor:			☐		☐		
	Focus:							
	vi. Urban Affairs Programs							
	Grantor:			☐		☐		
	Focus:							
	v. Other							
	Grantor:			☐		☐		
	Focus:							

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