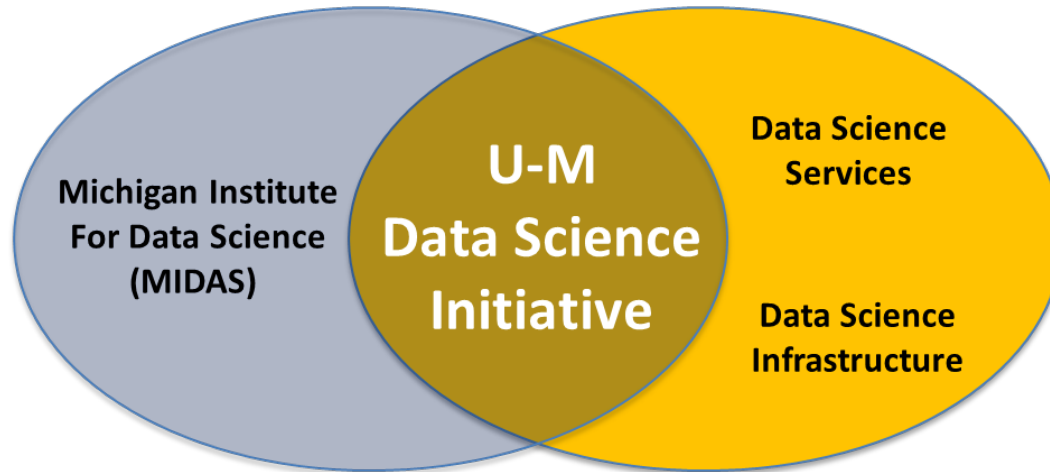


# The Michigan Data Science Initiative



**Challenge Thrust Information and Teaming Meeting  
Data Science for Health Sciences  
March 30, 2016**

**Al Hero and Brian Athey  
Co-Directors, MIDAS  
Eric Michielssen, AVP ARC**

# Agenda

- ✓ MIDAS Challenge Solicitation (Al Hero, Brian Athey)
- ✓ Data Science Services (Kerby Shedden, CSCAR)
- ✓ Data Science Infrastructure (Todd Raeker, ARC-TS)
- ✓ Engaging Industry Partners (Amy Klinke, BEC)
- ✓ Health Care Data Sets & Information Support Services at the UMHS (Andrew Rosenberg, UMHS)
- ✓ Meeting the Challenge for Semantically-Based Provenance Metadata Tools (Marcy Harris, Nursing)
- ✓ Learning Health Research Use Cases involving Data Science (Allen Flynn, Learning Health System)
- ✓ Machine Learning Approaches for Improving Clinical Care (Jenna Wiens, COE-EECS)
- ✓ Natural Language Processing for the Health Sciences (Drago Radev, SI and COE-EECS)
- ✓ Networking Reception

# MIDAS Challenge Initiatives Program



MIDAS plans to fund a total of 8 proposals

- Evenly split over the 4 challenge thrusts
- Multi-disciplinary teams
- Funded at approximately \$1.25M over 3 years
- 50% cost sharing between UMOR and units

**Leveraging Data Science Services & Infrastructure**

# MIDAS Challenge Solicitation Summary

- ✓ Full details available at [midas.umich.edu/rfp](http://midas.umich.edu/rfp)
- ✓ Requests for Proposals
- ✓ Introduction to MIDAS RFPs presentations
- ✓ Health Sciences Presentations
  - UM Health System Data Resources
  - Research Topics
  - Methodological Approaches to Solving Health Sciences Challenges
- ✓ Link to online White Paper Submission page

**Whitepaper Submission Deadline: June 30, 2016**

# Health & Social Sciences Challenge Timeline

Date	Challenge Thrust
February 16	RFPs disseminated
March 9	Health Sciences Town Hall Information Session
March 10	Social Sciences Town Hall Information Session
<b>March 30</b>	<b>Health Sciences Town Hall Information Session</b>
May 2	Social Sciences Town Hall Information Session
<b>June 30</b>	<b>White papers due with 2+ week down selection</b>
July 22	Full proposal solicitations communicated
October 17	Full proposals due
November 18	Awards announced

<http://midas.umich.edu/rfp/>

# Challenge RFPs - White Paper Requirements

No longer than **5 pages** (excluding budget and bios)

- P1. Title page with proposed project title, DSI Thrust designation, project abstract, names of co-PI's and contact information for the lead PI.
- P2-P5. Technical description. Problem to be addressed and technical approach to solve problem. Nature of data to be collected/analyzed/managed. Methodology to be applied and analytical tools to be used or developed. Data Science Services and computational infrastructure to be used. Description and justification of team, including partners from industry or other institutions (cannot be part of budget). Expected impact of research resulting from the project.
- Draft budget of approximately \$1.25M total over three years broken down yearly.
- One page bios of each co-PI.

# Challenge RFPs - White Paper Requirements

## Real-time Monitoring and Data Visualization of Infectious Disease Outbreaks

PI/Co-PI Name	Department	School/College	Budget Year 1	Budget Year 2	Budget Year 3	Total Funding
Principal Investigator	Information	Information	\$ 70,000	\$ 80,000	\$ 97,000	\$ 247,000
Co-Principal Investigator #1	EECS - CSE	CoE	\$ 45,000	\$ 55,000	\$ 50,000	\$ 150,000
Co-Principal Investigator #2	Inf Diseases	Medicine	\$ 85,000	\$ 97,000	\$ 82,000	\$ 264,000
Co-Principal Investigator #3	DCMB	Medicine	\$ 45,000	\$ 55,000	\$ 50,000	\$ 150,000
Co-Principal Investigator #4	Mathematics	LS&A	\$ 73,000	\$ 77,000	\$ 120,000	\$ 270,000
Co-Principal Investigator #5	Biostatistics	Public Health	\$ 45,000	\$ 55,000	\$ 69,000	\$ 169,000
<b>TOTAL</b>			<b>\$ 363,000</b>	<b>\$ 419,000</b>	<b>\$ 468,000</b>	<b>\$ 1,250,000</b>

Schools/Colleges	
<b>CoE</b>	<b>150,000</b>
EECS - CSE	150,000
<b>Information</b>	<b>247,000</b>
<b>LS&amp;A</b>	<b>270,000</b>
Mathematics	270,000
<b>Medical School</b>	<b>414,000</b>
Inf Diseases	264,000
DCMB	150,000
<b>Public Health</b>	<b>169,000</b>
Biostatistics	169,000

In addition to a detailed budget, broken down yearly and including cumulative totals, a budget summary that shows the distribution of the budget by faculty member is required.

***This information will be used to determine unit (school/college) cost-share.***

# Challenge RFPs - White Paper Requirements

**The Associate Deans for Research (ADR) of all colleges or schools in which the coPIs and senior investigators hold their primary appointments should be sent a copy of the white paper.**



# Challenge RFPs - Review Process and Criteria

- Evaluation will be done by a panel of experts.
- The panel will review each proposal according to the following criteria:
  1. relevance to the stated thrust area(s);
  2. likelihood of the project to result in innovative creation and/or application of data science methodology for the stated thrust area(s);
  3. complementarity to existing projects at UM;
  4. multi-disciplinary coherence of team;
  5. likelihood that proposed work will lead to competitive major extramural grant proposals within 3 years.
  6. substantial involvement of students
- The decision to solicit a full proposal from a white paper or to fund a full proposal will be made by the MIDAS co-Directors.

# Challenge RFPs - Post-selection Expectations

- All co-PIs are expected to become active affiliate members of MIDAS.
- All teams will be expected to:
  1. submit yearly reports on progress towards the aims of their grant;
  2. participate in a yearly review, organized as a workshop for all co-PI's on all projects funded by the DSI intramural funding program;
  3. maintain an active project website;
  4. actively work with MIDAS to enhance data science at UM, e.g., through hosting DS student interns, sharing resources like software, and participating in targeted industry outreach.

# Brief Presentations on

1. Data Science Services (Kerby Shedden, CSCAR)
2. Data Science Infrastructure (Todd Raeker, ARC-TS)
3. Engaging Industry Partners (Amy Klinke, BEC)
4. Health Care Data Sets & Information Support Services at the UMHS (Andrew Rosenberg, UMHS)
5. Meeting the Challenge for Semantically-Based Provenance Metadata Tools (Marcy Harris, Nursing)
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7. Machine Learning Approaches for Improving Clinical Care (Jenna Wiens, COE-EECS)
8. Natural Language Processing for the Health Sciences (Drago Radev, SI and COE-EECS)

# Questions, Discussion, and Mixer