

July 18 - August 5, 2016

PI Summer Graduate Program

Mathematics and Climate

University of Kansas

ORGANIZERS/LECTURERS

Chris Jones, University of North Carolina

Dick McGehee, University of Minnesota

Mary Silber, University of Chicago

Erik Van Vleck, University of Kansas

GUEST LECTURERS

Kayo Ide, University of Maryland

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Adam Monahan, University of Victoria

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Sam Stechmann, University of Wisconsin

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The use of mathematical models to understand climate phenomena is an important and growing area, most recently fueled by the looming climate disruption caused by the burning of fossil fuels and the consequent release of greenhouse gasses. The aims of this summer program are to introduce participating students to mathematical modeling, analysis, and computational techniques in climate science and to related research topics of current interest. The program will have a lecture/project format with students collaborating on research topics during the summer program and continuing their research collaboration using web-based collaboration tools utilized by the Mathematics and Climate Research Network (MCRN). Lectures will be delivered over the three-week summer school to support the following lecture/project format:

Week 1: Basic climate models (both conceptual and physical) and how to analyze these models using techniques from PDEs, ODEs, and dynamical systems. Participants will form project teams and discuss project topics.

Week 2: In-depth discussion of climate phenomena and models used to understand them. Data analysis and computation, as well as integration of data and models. Participants will refine group projects and work on them.

Week 3: How to use models and data together and how data assimilation can be used to parameterize models. Participants will continue to explore research topics, present results, and plan for future collaboration.

Applications will be accepted until April 30, 2016.

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