

Climate Modeling Course (UNC MATH 578--MCRN 501)

Time: Tuesday/Thursday 2-3:15 8/20-12/3

Broadcast: using Adobe Connect (any necessary software will be provided)

Instructor: Chris Jones (UNC-CH)

Book: Nonlinear Climate Dynamics by Henk Dijkstra

I will be running a course on climate modeling this fall. It will be a second year graduate class at UNC-CH but will be open to all student members of the network. The start date will be Tuesday Aug 20, but I am open to students joining the course later and catching up online on the previous material.

This will be an active learning class in which the students will be involved in discussing and exploring the models themselves. It will therefore require a commitment to the class and the occasional drop-in will not be feasible (sorry!)

There will be four components:

1. Background material on dynamical systems and stochastic dynamics will be provided through video recordings. These will be available on the web and the expectation is that all students keep up with these recordings. Discussion of material and testing of understanding will happen in class each week.
2. Each week a new model will be introduced in lecture format. Background material on geophysical fluids will also be covered in these lectures.
3. One class time each week will be devoted to team-work aimed at further exploration of the models, and their variants. The focus will be on the formulation of questions, both mathematical and physical, and approaches to answering them. Each participant will be a member of a team and will take on a role in the team, e.g., applied mathematician, computational scientist or climate scientist. Each student will rotate through the different roles over the semester.
4. There will be three weeks during the semester when the course will take a break from class-work and the student teams will focus on more in-depth projects which will be presented when the class resumes. These will be Sept 9-13, Oct 7-11 and Nov 18-22.

For students not at UNC, arrangements will be made with your mentor/advisor at your home institution to take the course as an independent study or reading course for a full credit. A more detailed syllabus will follow during the week of Aug 12. Any student who is interested in the class is encouraged to contact me and your advisor.