## **ENGINEERING COLLEGE COUNCIL**

College of Engineering

Steven Strogatz
Professor
Theoretical & Applied Mechanics
IGERT

## **IGERT** =

Integrative Graduate Education and Research Traineeships

## Emphasis on:

- Interdisciplinary Work
- Team Projects
- Breadth

17 grants / 660 applicants, in all fields funded by NSF

## U.S. NEWS RANKINGS IN NONLINEAR DYNAMICS/CHAOS (1999)

- 1. University of Maryland-College Park
- 1. University of Texas-Austin
- 3. Cornell University (NY)
- 3. University of Chicago
- 5. Georgia Institute of Technology
- 6. University of California-Santa Barbara
- 7. Massachusetts Institute of Technology
- 7. University of California-San Diego
- 7. University of Illinois-Urbana-Champaign
- 10. Princeton University (NJ)
- 10. University of California-Berkeley

## OUR FIRST IGERT PROGRAM (1999-2004)

"Nonlinear Systems"

\$2.2 Million, 60 student-years of fellowships, over 5 years

2-year fellowships, \$20K stipend, tuition

Open to incoming students and students already at Cornell

Eligible: US citizens, nationals, permanent resident aliens

## OUR FIRST IGERT PROGRAM (1999-2004)

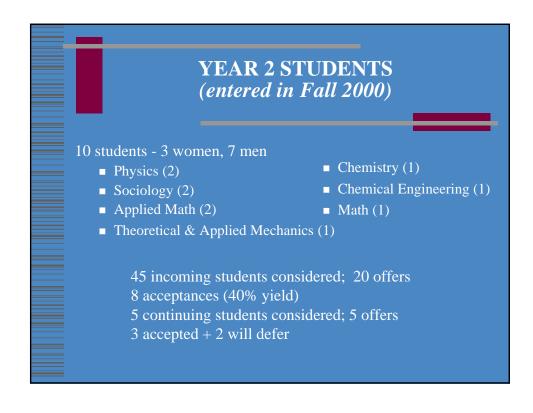
## Requirements:

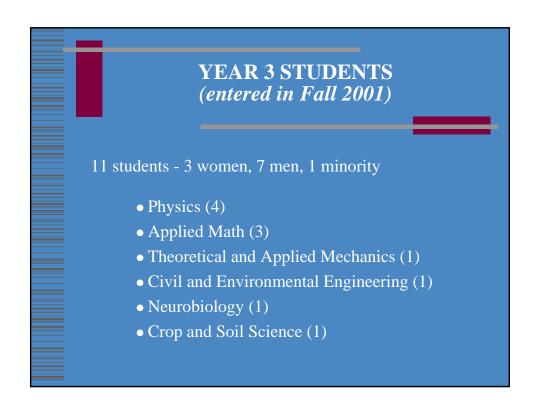
- Two- semester course in complex nonlinear systems
- Interdisciplinary team research project (publishable)
- Summer internship in lab, hospital, industry, Wall Street (e.g., Fox, Girvan, Maloney...)
- Attend colloquia and informal weekly seminars
- Plus: Complete the usual Ph.D. requirements

## YEAR 1 STUDENTS

10 students - 3 women, 7 men

- Physics (3)
- Applied Mathematics (2)
- Chemistry (1)
- Mathematics (1)
- Mechanical and Aerospace Engineering (1)
- Theoretical and Applied Mechanics (1)





# OUR SECOND IGERT PROGRAM (Renewed for 5 more years)

## Main changes:

- 1) New simulation course (Sethna, Myers)
- 2) Focused research topics, leading to thesis

#### Pattern Formation:

Gilmour, Rand, Strogatz, Steen...

## Complex Networks:

Strogatz, Heckathorn, Macy, Kleinberg, ...

### Gene Regulation:

Sethna, Clark, Guckenheimer, Cerione, ...

#### Machines and Locomotion:

Valero-Cuevas, Ruina, Guckenheimer, Wang, D'Andrea,...