

# Defining Ecosystem Health

RESEARCH EXPERIENCE FOR UNDERGRADUATES

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Department of Mathematics  
University of Georgia  
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*E-mail:* caner@uga.edu  
*Phone:* (706) 542-0863  
*Web:* [www.math.uga.edu/~caner](http://www.math.uga.edu/~caner)

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## Schedule (First day)

- 9:00 - 10:00 Lecture (Introductions)
- 10:00 - 10:30 Break
- 10:30 - 11:30 Lecture (Modeling)
- 11:30 - 1:00 Lunch break
- 1:00 - 3:00 Meet Laura in the lounge (Boyd 409) to go get your ID and computer account information.
- 3:00 - 4:00 Exercises
- 4:00 - 5:00 Discussion

## Schedule (First 7 days)

- 9:00 - 10:30 Lecture
- 10:30 - 11:00 Break
- 11:00 - 12:00 Lecture, or Exercises
- 12:00 - 2:00 Lunch break
- 2:00 - 3:30 Guest lecture, or Exercises
- 3:30 - 4:00 Break
- 4:00 - 5:00 Guest lecture, or Exercises

## Schedule (Remaining)

9:00 - 9:40	Meeting with Leopold (Group I), Research (Group II & III)
9:40 - 10:20	Meeting with Leopold (Group II), Research (Group I & III)
10:20 - 11:00	Meeting with Leopold (Group III), Research (Group I & II)
11:00 - 12:00	Research
12:00 - 2:00	Lunch break
2:00 - 2:30	Question and answer session (with Caner) <sup>1</sup>
2:30 - 3:30	Research
3:30 - 3:50	Meeting with Leopold (Group I), Research (Group II & III)
3:50 - 4:10	Meeting with Leopold (Group II), Research (Group I & III)
4:10 - 4:30	Meeting with Leopold (Group III), Research (Group I & II)
4:30 - 5:00	Reports (with Caner)

## Group Presentations

There will be two group presentations:

<i>June 13</i>	Friday, 3:00-4:30, among REU groups.
<i>July 2</i>	Wednesday, 2:00-3:30, open to all Mathematics and Engineering faculty

## Lectures & Tutorials

The first seven days will be devoted to lectures and tutorials on the following topics:

<i>Modeling</i>	Constructing ecosystem models using Mathematics.
<i>EcoNet</i>	How to build models using EcoNet?
<i>ENA</i>	What is Ecological Network Analysis?
<i>Matlab</i>	How to write simple codes in Matlab and C++?
<i>Linux</i>	How to access and use a Linux workstation?
<i>PTS</i>	What are particle tracking simulations?

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<sup>1</sup>The following program is canceled on June 13 and July 2 for group presentations.

## Projects

### *Thermodynamics*

Defining a “temperature” for an ecosystem model, and investigating its properties.

### *Ecosystem goals*

Investigating how Ecosystem goal functions evolve.

### *Utility Analysis*

Analysis of indirect relations in ecosystems.

### *EcoNet*

Improving EcoNet