

Untitled

MHHS

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Preface

Placeholder

Chapter 1

Theory in Ecology

Placeholder

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1.1.2 A general theory of ecology

1.1.3 Efficient theory

1.2 An example: Metabolic Theory of Ecology

1.2.1 Body-size dependence

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1.3 Power law scaling implies constant relative differences

1.4 Meet METE: Maximum Entropy Theory of Ecology

1.5 *In fine*

Chapter 2

Optimal Foraging

Placeholder

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2.1.1 Our intuition

2.1.2 Mathematical support

2.2 The patch model

2.3 A simulation of a prey model

2.3.1 Lab exercise

Chapter 3

Simple density-independent growth

Placeholder

- 3.1 Discrete growth rates of fruit flies in my kitchen
- 3.2 Fruit flies with continuous overlapping generations
- 3.3 Properties of geometric and exponential growth
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- 3.4 Modeling with Data: Simulated Dynamics
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 - 3.4.6 Analyzing results
 - 3.4.7 Extinction probability: expectation and uncertainty
 - 3.4.8 Inferring processes underlying growth rate
- 3.5 $1/f$ environmental noise
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- 3.6 *In fine*

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Density-independent Demography

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- 4.1 A two stage matrix model
- 4.2 A brief primer on matrices
- 4.3 Decomposing A
- 4.4 A three stage model
- 4.5 Projection
- 4.6 Analyzing the transition matrix
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 - 4.6.3 Stable stage distribution
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- 4.8 Integral projection
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- 4.10 Loggerhead Sea Turtle: a classic example

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5.2 Dynamics around the equilibria

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5.4 Nonlinear Discrete Density-dependence in Single-species Populations of Plants

5.5 Maximum Sustainable Yield

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Populations in Space

Placeholder

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Direct competition and mutualism

Placeholder

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7.3 Generalized Lotka-Volterra models

7.4 Nonlinear direct competition

7.4.1 Investigate stability criteria

7.5 In fine

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Consumer-resource Interactions

Placeholder

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8.1.1 Dynamics of ratio dependent predation

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8.2.1 Dynamics of prey-dependent predation

8.3 Interlude: Functional response - what an individual predator does

8.4 Stability analysis for the prey-dependent Lotka–Volterra model

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Host-parasitoid relations

Placeholder

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9.1.1.1 Simulating Random Attacks

9.2 Aggregation leads to coexistence

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9.3 Dynamics of the May host–parasitoid model

9.4 *In Fine*

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Disease

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10.1.1 Density-dependent transmission

10.1.2 Frequency-dependent transmission

10.2 Open epidemics

10.3 Modeling data from Bombay

10.3.1 Optimization

Chapter 11

Consumer-resource Competition and Mutualisms

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11.3 Tilman's resource ratio with essential resources

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Food webs and other networks

Placeholder

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12.2 Does omnivory destabilize food chains?

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Diversity

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13.9.1 Partitioning species–area relations

13.10 In fine

Chapter 14

References

14.1 R Markdown

- x , trial
- n/J_L , asdfgdsf

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

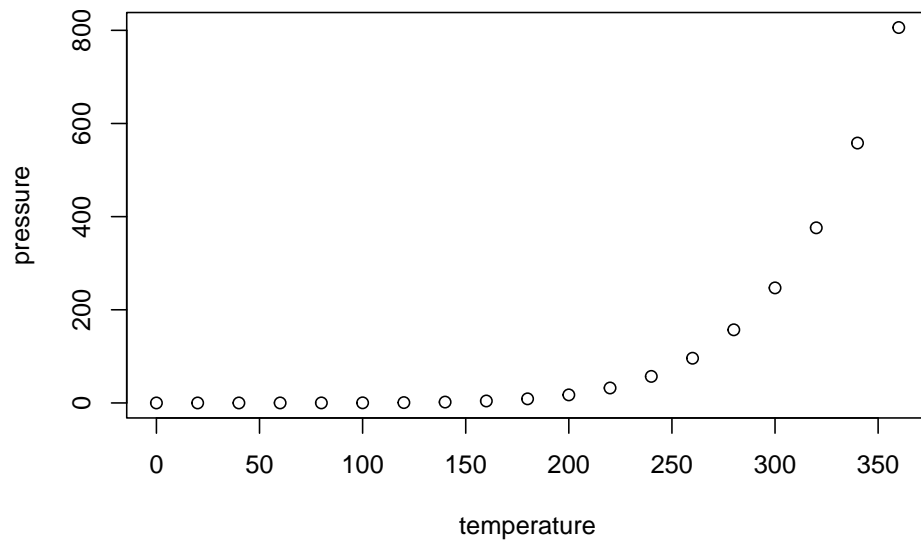
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed      dist
##  Min.   : 4.0    Min.   : 2.00
## 1st Qu.:12.0    1st Qu.: 26.00
## Median :15.0    Median : 36.00
## Mean   :15.4    Mean   : 42.98
## 3rd Qu.:19.0    3rd Qu.: 56.00
## Max.   :25.0    Max.   :120.00
```

14.2 Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.