

MATH495.4: CRN 13696
FEScUE Team Research (TRe) seminar

Simon Tavener 115 Weber Building
email: tavener@math.colostate.edu

Mike Mikucki 234 Weber
email: mikucki@math.colostate.edu

Class 8:00am–9:00am F in Weber 223A

Lab 4:00pm–6:00pm W in Weber 223A
Required reading: <http://www.math.colostate.edu/FAQ/primes.html>

Grading Policy Based on computer laboratories and individual contributions to the final group project

Syllabus

1. Modeling and sensitivity
2. Probability
 - Discrete and continuous distributions
 - Expected value and variance
 - Independence and conditional probability (Bayes Theorem)
3. Simulation
 - Monte Carlo simulation and the law of large numbers
 - Accept/reject techniques
 - Markov chains
4. Specific distributions we will encounter
 - Binomial distribution
 - Normal distribution
 - Exponential distribution
 - Poisson distribution

Labs

1. Introduction to MATLAB
2. The logistic map
3. The logistic differential equation
4. Darts
5. Sensitivity analysis for parametrized maps and differential equations
6. Stage structured models
7. SENSAI