





Final project: Applications to <u>Course</u> > <u>nonlinear differential equations</u> Project 2: Solving nonlinear

1. Understanding 3 competing > populations models using MATLAB > species in an environment

## 1. Understanding 3 competing species in an environment

## **Objectives**

- Extend the Lotka–Volterra population model of 2 interacting species to a model for 3 (or more) interacting species.
- Generalize linearization techniques and the Jacobian matrix to higher order systems.
- Use MATLAB and linearization to gain information about higher order nonlinear systems.

Note that starting now, you are being tested. You will not receive feedback as to whether or not your answers are correct, and you will not be able to view solutions. However, collaboration and discussion (without revealing answers) is encouraged.

## 1. Understanding 3 competing species in an environment

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