



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

> populations models using MATLAB > 2. A three species population model

## 2. A three species population model A 3x3 model



https://courses.edx.org/courses/course-v1:MITx+18.033x+1T2018/courseware/final/7\_nonlinear/

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## Identify the type of population model

1 point possible (graded, results hidden)

Which of the following scenarios is modeled by the system

$$\dot{x} = x - x^2 - 2xy - xz$$

$$\dot{y} = 3y - 2y^2 + xy - 2yz$$

$$\dot{z} = z - 2z^2 + xz - 3yz$$

$\bigcirc$	Competition	of three	species.
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ullet Predator-prey with  $oldsymbol{x}$  the predator and  $oldsymbol{y}$  and  $oldsymbol{z}$  the prey in competition with each other.

ullet Predator-prey with  $oldsymbol{y}$  and  $oldsymbol{z}$  the predators in competition and  $oldsymbol{x}$  the prey.

ullet Predator-prey with  $m{z}$  a predator for  $m{y}$  and  $m{x}$  and  $m{y}$  a predator for  $m{x}$ .

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• Answer submitted.

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