2021年华中科技大学电气与电子工程学院

**Matlab课堂作业**

名称：预习作业

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## 一、Coding

clc, clear all, close all

%% set up range

t0 = 0;

tfinal = 15;

p0 = [50; 50];

%% solve and plot

[t,p] = ode45(@evolutionODE,[t0 tfinal],p0);

plot(t,p)

title('Predator/Prey Populations Over Time')

xlabel('t')

ylabel('Population')

legend('Prey','Predators')

%% define func

function dpdt = evolutionODE(t,p)

a = 1;

b = 1;

c = 0.01;

d = 0.02;

dpdt = [p(1) .\* (a - c\*p(2));

p(2) .\* (-b + d\*p(1))];

end

