

NPTEL

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Courses » Introduction to Evolutionary Dynamics



Announcements

Course

Ask a Question

Progress

Unit 9 - Week 8



Course outline

How to access the portal?

Week 1

Week 2

Week 3

Week 4

Week 5

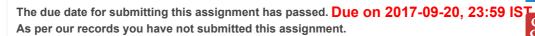
Week 6

Week 7

Week 8

- Lecture 36 : Evolutionary Game Theory – 3
- Lecture 37 :EvolutionaryGame Theory –
- Lecture 38:
 Evolutionary
 Game Theory
 Applied to
 Moran Process
- Lecture 39 : EvolutionaryGames DuringWeak Selection
- Lecture 40 : Evolutionary Dynamics of HIV
- Quiz : Week 8Assessment
- Week 8
 Assessment
 Solutions

Week 8 Assessment



- Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, it denotes the payoffs received by whom?
 - The players or strategy or genotype denoted by each column
 - The players or strategy or genotype denoted by each row and column
 - None of the choices
 - The players or strategy or genotype denoted by each row

No, the answer is incorrect.

Score: 0

Accepted Answers:

The players or strategy or genotype denoted by each row

Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and X_A and X_B the population fractions, calculate the fitness of the two species A and B.

 $f_A = bX_A + aX_B, f_B = dX_A + cX_B$

$$f_A = aX_A + bX_B, f_B = dX_A + cX_B$$

$$f_A = cX_A + dX_B, f_B = aX_A + bX_B$$

$$f_A = aX_A + bX_B, f_B = cX_A + dX_B$$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$$f_A = aX_A + bX_B, f_B = cX_A + dX_B$$

- Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, where a > c and b > d. Tick all correct:
 - A is wiped out of the population





B is wiped out of the population

No, the answer is incorrect.	
Score: 0	
Accepted Answers: $\frac{dX_A}{dt} > 0$	
B is wiped out of the population	
4) What describes the steady state of HIV infection? Tick all correct.	1 point
Constant viral load	£
Asymptomatic phase	Į
Constant immune responseAIDS	y
No, the answer is incorrect. Score: 0	
Accepted Answers:	in
Constant viral load Constant immune response	
Asymptomatic phase	g
5) What are the different outcomes associated with different values of parameters in the HIV infection model? Select the correct choice.	1 point
Immediate disease	
Indefinite virus control	
Disease after asymptomatic period	
All the above	
No, the answer is incorrect. Score: 0	
Accepted Answers:	
All the above	
Which of the two strategies A and B are Nash equilibria in the Payoff matrix $P = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$	1 point
○ В	
Neither A nor B	
O A	
A and B	
No, the answer is incorrect. Score: 0	
Accepted Answers: Neither A nor B	
7) The genome of HIV is approximately:	1 point
100 bases	
10000 bases	
100000 bases	
○ 1000 bases	
No, the answer is incorrect. Score: 0	
Accepted Answers:	
10000 bases	
8) The weak selection regime corresponds to:	1 point
$\omega = 0$	
$\omega \to 0$	
$\omega \rightarrow 0$	

 $\omega = 1$

 $\omega \rightarrow 1$

No, the answer is incorrect.

Score: 0

Accepted Answers:

 $\omega \to 0$

- 9) For $\omega = 1$,
 - Fitness = payoff
 - Fitness = 1/payoff
 - Fitness > payoff
 - Fitness < payoff

No, the answer is incorrect.

Score: 0

Accepted Answers:

Fitness = payoff



- B only
- Neither A nor B
- A only
- A and B

No, the answer is incorrect.

Score: 0

Accepted Answers:

A and B

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End

1 point

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