

NATIONAL RESEARCH  
TOMSK STATE UNIVERSITY

Roberto Cazzolla Gatti

## **ECOLOGY: FROM CELLS TO GAIA**

**Massive Open Online Course**

*Passed the expert examination and recommended for  
production (expert resolutions from 12/12/2016 and  
12/15/2016)*

Tomsk  
Tomsk State University  
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**УДК 504(075.8)**  
**ББК**

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The course presents the principles of evolution, ecology, and behavior for students during their study of biology and of the environment. It discusses major ideas and results. Recent advances have energized these fields with results that have implications well beyond their boundaries: ideas, mechanisms, and processes that should form part of the toolkit of all biologists and educated citizens.

Major topics covered by the course include the physical environment, how organisms interact with each other and their environment, evolutionary processes, population dynamics, communities, energy flow and ecosystems, human influences on ecosystems, and the integration and scaling of ecological processes through systems ecology.

This course will also review major ecological concepts, identify the techniques used by ecologists, provide an overview of local and global environmental issues, and examine individual, group and governmental activities important for protecting natural ecosystems. The course has been designed to provide technical information, to direct the student toward pertinent literature, to identify problems and issues, to utilize research methodology for the study of natural ecosystems, and to consider appropriate solutions and analytical techniques. Discussion and understanding will be emphasized.

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