



The Hebrew University of Jerusalem

Syllabus

SYMBIOSIS - 89714

Last update 12-08-2019

HU Credits: 2

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Environmental Sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Vanda Reich

Coordinator Email: Vanda.Reich@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Dr. Vanda Reich

Course/Module description:

Frontal Lectures based on Power Point presentation

Course/Module aims:

To understand the meaning of Symbiotic relations and the critical role they have in the evolution of living organisms and in shaping the nature of biotops.

Learning outcomes - On successful completion of this module, students should be able to:

To be able to look from a new point of view on the living organisms in their natural habitat or in captivity, to understand their basic needs and accordingly, to conduct experiments, taking in consideration their relations and associations with other organisms.

Attendance requirements(%):

80% attendance Obligatory

Teaching arrangement and method of instruction: Lecture

Course/Module Content:

Symbiosis as an ecological phenomenon
Nomenclature used in studying Symbiosis
Symbiosis and Evolution
Microorganisms living in the digestive track of herbivores
Symbiosis between Anemonefish and Sea Anemones
Symbiotic associations in Hydrothermal Vents biotops

Required Reading:

None

Additional Reading Material:

1. Ahmadjian, V. 1993. *The Lichen Symbiosis*. Jhon Wiley & Sons, INC. New York.
2. Buchner, P. 1965. *Endosymbiosis of Animals with Plant Microorganisms*. Jhon Wiley & Sons Inc. USA
3. Cheng, T.C. 1970. *Symbiosis*. Western Publishing Company, Inc, N.Y.

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4. Douglas, A.E. 1994. *Symbiotic Associations*. Oxford University Press, Oxford.
 - 4a. Douglas, A.E. 2010. *The Symbiotic Habit*
 5. Dubinsky, Z. (Ed). 1990. *Coral Reefs. Ecosystems of the World vol. 25*. Elsevier Amsterdam, Oxford, New York, Tokyo.
 6. Fautin, D.G. and Allen, G.R. 1997. *Anemone Fishes and their Host Sea Anemones*.
Western Australian Museum, Francic Street, Perth, WA 6000 Australia
 7. Galun, M. (Ed). 1993. *Selected Papers from the International Symbiosis Congress (Jerusalem November. 1991) In: Symbiosis vol 14 (Nos. 1,2,3) 1993*.
Balaban Publishers, POB 2039, Rehovot, Israel. Tel. 08- 467632.
 8. Galun, M. (ed.) 1988. *Handbook of Lichenology*. Boca Raton, Fla.,CRC Press.
 9. Herrera, C.M. and Pellmyr, O. (Eds.) 2002. *Plant – Animal Interactions; An Evolutionary Approach*. Blackwell Publishing USA.
 10. Lee, J.J. and Anderson, O.J. (Eds). 1991. *Biology of Foraminifera*. Academic Press, London, New York.
 11. Lee Van Dover C. 1996. *The Octopus's Garden*. Addison-Wesley Publishing Comp. NY
 12. Lee Van Dover C. 2000. *The Ecology of Hydrothermal Vents*. Princeton University Press. New Jersey.
 13. Margulis, M. 1981. *Symbiosis in Cell Evolution*. 2nd Edition (1993). W.H.Freeman and Company. San Francisco.
 14. Margulis, M. and Fester, R. (Eds). 1991. *Symbiosis as a Source of Evolutionary Innovation*. MIT Press, Cambridge, Massachusetts, London, England.
 15. Maynard Smith, J. 2002. *Evolutionary Genetics*. 2nd.Edition. Oxford University Press, Inc. NY
 16. Moore J. 2002. *Parasites and the Behavior of Animals*. Oxford University Press Inc. N.Y
 17. Paracer, S. and Ahmadjian, V. 2000. *Symbiosis - An Introduction to Biological Associations*. 2nd Edition. Oxford University Press, Inc. NY
 18. Reisser, W. 1992. (Ed.). *Algae and Symbioses: Plants, Animals, Fungi, Viruses Interactions Explored*. Biopress Limited. Bristol, England.
 19. Roberts, L.S. and Janovy, J.JR. 2009. *Gerald D. Schmidt & Larry S. Roberts' Foundations of Parasitology 8th ed*. McGraw-Hill USA.
 20. Schoonhoven, L.M., van Loon, J.A. and Dicke, M. 2008. *Insect – Plant Biology 2nd ed*.
Oxford University Press. UK
 21. Seckbach, J. (Ed.) 2002, *Symbiosis: Mechanisms and Model Systems*. Kluwer Academic Publishers, The Netherlands.
 22. Smith, D.C. and Douglas, A.E. 1987. *The Biology of Symbiosis*. Edward Arnold (Publishers) Ltd. London.
 23. Thomas, F., Renaud, F.and Guegan, JF. 2005.(Eds). *Parasitism and Ecosystems*. Oxford

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- University Press Inc. N.Y
24. Trager, W. 1986. *Living Together: The biology of Animal Parasitism*. Plenum Press. New York and London
25. Wilson, E.O. 2000. *Sociobiology: The new Synthesis*. The Belknap Press of Harvard University Press. USA (25th Anniversary Edition).
26. Zann, L.P. 1980. *Living together in the sea*. T.F.H. Publications, Inc. Ltd. USA.

24. אלון, ע. (עורך), 1982-1990, החי והצומח של ארץ ישראל, אנציקלופדיה שימושית מאוירת, ההוצאה לאור של משרד הביטחון והחברה להגנת הטבע.
25. גלון, מ. וגרטי, י. 1979. חזזיות ישראל - מדריך מאויר. הוצאת עם עובד
26. דפני, יעקב 2000. מפרץ אילת - מים סוף ועד סופו.... צ'ריקובר מוציאים לאור בע"ם. תל-אביב
27. לוי, י. וקליין, ר. 1994. שונית האלמוגים. משרד הביטחון-ההוצאה לאור, אוניברסיטת תל-אביב. ISBN 965-05-0735-3
28. מרגוליס, ל. וסגן, ד. תש"ס. מיקרוקוסמוס - ארבעה מיליארד שנה של אבולוציה מאבותינו החיידקים. הוצאת מאגנס, האוניברסיטה העברית, ירושלים.
29. סטאר, ס וטגארט, ר. 2001. ביולוגיה: האחידות והמגוון של החיים. בית ההוצאה לאור של האוניברסיטה הפתוחה תל אביב.

Course/Module evaluation:

End of year written/oral examination 100 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:

None