# COURSE SYLLABUS

## 1. Data about the program

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|---|---|
| 1.1 Higher education institution | Babeș-Bolyai University |
| 1.2 Faculty | Faculty of Biology and Geology |
| 1.3 Doctoral school | Integrative Biology |
| 1.4 Field of study | Biology |
| 1.5 Study cycle | Doctorate |
| 1.6 Study program / Qualification | Doctoral training / PhD in Biology |

## 2. Course data

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|---|---|---|---|---|---|---|---|
| 2.1 Name of discipline | Sociobiology | | | | | | |
| 2.2 Teacher responsible for lectures | prof. dr. Bálint Markó | | | | | | |
| 2.3 Teacher responsible for seminars | prof. dr. Bálint Markó | | | | | | |
| 2.4 Year of study | 1 | 2.5 Semester | 1 | 2.6. Type of evaluation | C | 2.7 Course framework | Opt |

## 3. Estimated total time of teaching activities (hours per semester)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 Hours per week | 3 | Out of which: 3.2 Lectures | 2 | 3.3 Seminars / Laboratory classes | 1 |
| 3.4 Total hours in the curriculum | 36 | Out of which: 3.5 Lectures | 24 | 3.6 Seminars / Laboratory classes | 12 |
| Allocation of study time: | | | | | |
| Study supported by textbooks, other course materials, recommended bibliography and personal student notes | | | | | 200 |
| Additional learning activities in the library, on specialized online platforms and in the field | | | | | 200 |
| Preparation of seminars / laboratory classes, topics, papers, portfolios and essays | | | | | 45 |
| Tutoring | | | | | 20 |
| Examinations | | | | | 2 |
| Other activities: - | | | | | 0 |

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| 3.7 Individual study (total hours) | 467 |
| 3.8 Total hours per semester | 500 |
| 3.9 Number of credits | 20 |

## 4. Preconditions (where applicable)

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|---|---|
| 4.1 Curriculum | • None |
| 4.2 Competences | • None |

## 5. Conditions (where applicable)

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|---|---|
| 5.1 Conducting lectures | • lecture hall equipped with laptop, videoprojector, access to softwares as MS PowerPoint, MS Word, MS Teams, acces to wireless internet |
| 5.2 Conducting seminars / laboratory classes | • lab equipped with climatic chamber, balance, exsiccator, fridge, microscopes, micropipettes, hood, etc. |

## 6. Specific competences acquired

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|---|---|
| **Professional competences** | • Competences in General Ecology<br>• Competences in Behavioural Ecology<br>• Competences in Social Evolution |
| **Transversal competences** | • Competences in behavioural anthropology<br>• Competences in English language science communication<br>• Competences in presentation techniques<br>• Competences in research methodology |

**7. Course objectives** (based on the acquired competencies grid)

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|---|---|
| 7.1 The general objective of the course | • The primary objective of the course is to transfer knowledge on the biological and evolutionary basis of social behaviour, the determining factors of cooperation within social systems |
| 7.2 Specific objectives | • Offering competences with regards to the features of specific social animal groups<br>• Transferring knowledge on the different theories of social evolution<br>• Teaching advanced research methodologies used in the study of social behaviour. |

**8. Content**

| 8.1 Lectures | Teaching methods | Comments |
|---|---|---|
| 1. Introduction to sociobiology: evolutionary bases of social entities, the theory of the selfish gene, the definition of fitness. | Presentation, open discussions, case studies / Online teaching with the use of MS Teams platform according to prevailing regulations | 2 hrs |
| 2. Group selection theory and debates. | | 2 hrs |
| 3. Kin selection theory, the Hamiltonian fitness concept, and parental manipulation. | | 2 hrs |
| 4. Spite: the dark side of the kin selection and maternal arrest effects. | | 2 hrs |
| 5. Reciprocal altruism and the theory of the selfish herd. | | 2 hrs |
| 6. The handicap hypothesis (Amotz Zahavi's theory), honest and false signals. | | 2 hrs |
| 7. Game theory and social strategies. | | 2 hrs |
| 8. Collective decision-making. The theory of self organization in social context. | | 2 hrs |
| 9. Social roles: castes and division of labour. | | 2 hrs |
| 10. Social organisms I. Protozoans and invertebrates.<br>Yeast, social amoeba, Cnidarians, social insects. | | 2 hrs |
| 11. Social organisms II. 'Cold-blooded' social organisms: fishes, amphibians and reptiles. | | 2 hrs |

| | | |
|---|---|---|
| 12. Social organisms III. Birds and mammals | | 2 hrs |

**Bibliography:**


Billen, J. (ed.) (1992): *Biology and Evolution of Social Insects*. – Leuven University Press, Leuven, Belgium.

Camazine, S., Deneubourg, J.-L., Franks, N.R., Sneyd, J., Theraulaz, G., Bonabeau, E. (2001): *Self-organization in Biological Systems*. – Princeton University Press, Princeton and Oxford, pp. 538.

Dugatkin, A. L. (ed.) (2001): *Model Systems in Behavioural Ecology. Integrating Conceptual, Theoretical, and Empirical Approaches*. – Princeton University Press, Princeton and Oxford, pp. 551.

Stringer, C. (2012): *Lone survivors. How we came to be the only humans on Earth.* – St. Martin's Griffin, New York, USA.

Sutherland, William J. (1995): *From individual behaviour to population biology*. – Oxford University Press.

Wilson, E.O. (2000): *Sociobiology: the new synthesys*, twenty-fifth anniversary edition. – Harvard University Press

Wilson, E.O. (2012): *Cucerirea socială a Pământului*. – Editura Humanitas, București.


| 8.2 Seminars / laboratory classes | Teaching methods | Comments |
|---|---|---|
| 1-12. Sociobiology workshops. Small research projects will be done in the Sociobiology Laboratory of the 3B Centre of the Faculty of Biology and Geology. The main objective of these projects is to acquire competences with regards to research methodologies used in sociobiology research, field and lab experiments alike. The primary topics treated will be as follows: division of labour, personality-wise differences among colony members, cooperative decisions etc. in ants and in other social insects. The results of these projects will be presented in the form of a scientific presentation. | Presentation, discussion, exercises / Online teaching with the use of MS Teams platform according to prevailing regulations | 12 × 1 hr = 12 hrs |

**Bibliography:**


Billen, J. (ed.) (1992): *Biology and Evolution of Social Insects*. – Leuven University Press, Leuven, Belgium.

Camazine, S., Deneubourg, J.-L., Franks, N.R., Sneyd, J., Theraulaz, G., Bonabeau, E. (2001): *Self-organization in Biological Systems*. – Princeton University Press, Princeton and Oxford, pp. 538.

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**9. Aligning the contents of the discipline with the expectations of the epistemic community representatives, professional associations and standard employers operating in the program field**

- The content of the course is permanently updated and correlated with how such topics are taught at other universities within the country and outside of it;

- The content of the course is changing in accordance with the novel results in the field of sociobiology but also in fields that are related to it (anthropology, evolutionary psychology, etc.);
- Those who take this course will be able to use the acquired knowledge and competences employed in education, in research, in the environmental offices of public institutions on central (ministries, central agencies) and on local (municipalities, county offices) level, in environmental protection agencies, administration of water resources, in the administration of national parks, and also in firsm and NGOs that offer consultancy on environmental issues and nature conservation problems,

**10. Examination**

| Activity type | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Weight in the final grade |
|---|---|---|---|
| 10.4 Lectures | Assessment of knowledge | Oral exam | 60% |
| 10.5 Seminars / laboratory classes | Activity during seminars | Discussions, answers to questions, practical performance | 40% |
| 10.6 Minimum performance standard | | | |
| • The quality (seriousness, precision, correct approach to the topic) of activities within the seminars, and the final presentations quality – a minimum grade of 5.<br>• At least 50% proficiency at the oral exam – a minimum grade of 5.<br>• Final exam is allowed only with fulfilled seminar duties.<br>• Presence at seminars is mandatory. | | | |

Date of issue
25.09.2021

Signature of the teacher responsible for lectures

Signature of the teacher responsible for seminars

Date of approval by the doctoral school council

Signature of the doctoral school director
prof. univ. dr. Marcel Pârvu