



Full Syllabus



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| Course Title | |
| Behavioral Ecology 0431-3380 | |
| Lecturer | |
| Prof. Arnon Lotem; Dr. Orr Spiegel | |
| Semester | |
| B - Spring | |
| Course requirements | |
| We recommend that students have background in evolution (e.g. took the Evolution course) and in ecology (e.g. Biology Gimel 103) but these are not mandatory requirements (i.e. there are no "DRISHOT KDAM"), and for student with lack of suitable background we can provide relevant reading materials before hand. | |
| Final grade components | |
| Final exam | |
| Course schedule | |
| Class no. / Date | Subject and Requirements (assignments, reading materials, tasks, etc.) |
| Week 1 | The adaptive value of behavior, the history of Sociobiology, proximate mechanisms shaping behaviors and their genetic basis. (Arnon 1) |
| Week 2 | Hypothesis testing and research approaches. The comparative, observational and experimental approaches (Arnon 2) |
| Week 3 | Models of optimality, central place foraging, prey selection, predation risk. (Arnon 3) |
| Week 4 | The economics of decision making: risk assessment, maximization currencies, paradoxes in empirical findings, learning rules under uncertainty. (Arnon 4) |
| Week 5 | Game theory and Evolutionary stable strategies, sex-ratios, The ideal free distribution model, polymorphism ESS (e.g. Hawk and dove). (Arnon 5) |
| Week 6 | Predator-prey arm races, brood parasites and the cost of miss-imprinting (Arnon 6) |
| Week 7 | Communication and signaling, costs and honesty in signaling and communication, the handicap principle, begging behavior (Arnon 7) |
| Week 8 | Social behavior I- the tragedy of the commons, evolution of cooperation, tit-for-tat, reciprocity, kin selection, kin recognition, altruism, the green beard hypothesis, intra-specific and inter-specific collaborations. (Orr 1) |
| Week 9 | Social behavior II – examples from social insects for common social behaviors (Orr 2) |
| Week 10 | Sex allocation - changes along the life trajectory, sex-dependent reproductive investment and deviations from balance populations, environmental effect on sex allocation (Orr 3) |
| Week 11 | Sexual selection I- the ultimate value in sex, conflicts among sexes, male (&sperm) competition, infanticide (Orr 4) |



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| Week 12 | Sexual selection II- female choice, nuptial gift, the 'good genes' hypothesis, signaling and male signal evolution, assortative mating (Orr 5) |
| Week 13 | Animal personality and individual variation, behavioral syndromes, coping styles, hierarchal levels of personality and applications to conservation (Orr 6) |
| Required course reading | |
| Davies, N.B. Krebs, J.R. & West S.A. An Introduction to Behavioural Ecology, 4th Edition, (2012) | |
| Optional course reading | |
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| Comments | |
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