Evolutionary biology of cognition

Tentative syllabus, June 2020

Location: TBA
Time: Monday 14:30-17:20; January 11 - April 12, 2021
Instructor: Dr. Reuven Dukas (dukas@mcmaster.ca, PC 104). Office hour: Tue. 2-3 PM.
Teaching Assistants: TBA PC 151, phone: 26042). Office Hours: TBA.

Objectives. By the end of this course the students will be able to:
1. Write a thorough critique of a scientific paper.
2. Present a thorough critique of a scientific topic.
3. Write and present a critical analysis of the evolutionary biology of a cognitive trait, which integrates evolutionary theory with relevant biological knowledge.

Assumptions about the students’ prior knowledge: animal behaviour, neurobiology, genetics, evolution, statistics. Three and a half years of university courses. Students should refresh their knowledge if necessary.

Schedule. The course will consist of weekly readings of a few scientific papers, in-class discussions of these papers, followed by independent work on individual final projects, ending with oral and written presentations of these projects.

Week 1. Jan. 11: The major theme: integrating theory with mechanistic knowledge
Week 2. Jan. 18: The simplest cognition
Week 3. Jan. 25: Perception and attention
Week 4. Feb. 1: Learning, social learning and memory
Week 5. Feb. 8: Decisions
Week 6. Feb. 22: Space and time
Week 7. Mar. 1: Supervised work on independent final projects
Week 8. Mar. 8: Supervised work on independent final projects
Week 9. Mar. 15: Supervised work on independent final projects
Week 10. Mar. 22: Supervised work on independent final projects
Week 11. Mar. 29: Final oral presentations
Week 12. Apr. 5: Final oral presentations.
Week 13. Apr. 12: Submission of final paper

Grading. Weekly paper reports: 30%
Quality of in-class participation: 30%
Weekly progress reports on independent project: 10%
Oral presentation: 15%
Final paper: 15%

The weekly reports and final paper must be submitted on Avenue by Monday at noon.

McMaster University Statement on Inclusivity and Academic Integrity: The University values integrity, inclusiveness and teamwork, and strives to support the personal and collective growth of the McMaster student community. These values are foundational to ensuring campus environments – both in-person and virtual – are conducive to personal wellbeing and academic success.

Inclusivity and a Culture of Respect: As a McMaster student, you have the right to experience and the responsibility to demonstrate respectful and dignified interactions within
all of our living, learning and working communities. Expectations are described in Code of Student Rights & Responsibilities. It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms. Additional information about the Code and netiquette can be found here.

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