# **Course Outline** Biology 4701 Behavioural Ecology

**2025 winter term – format: in-person spoken-word lectures with powerpoint**
Lectures – Mondays, Wednesdays & Fridays 10:00-10:50h in Rm. **C4002**
Laboratories – Tuesdays 14:00-17:00h, Rm. **CSF2331**.
**Web page (updated regularly)**: http://www.mun.ca/serg/animbehav.html
**on Brightspace: https://online.mun.ca/d2l/home/617554**
offered concurrently with **BIOL 6351 Behavioural Ecology and Sociobiology**

Dr. Ian L. Jones office CSF-2232, ph. 693-0216, e-mail: iljones@mun.ca
'office' hours: nominally immediately after lectures – but feel free to contact me by phone, text or e-mail at any time during working hours to make an appointment.

***Textbook*** (**totally optional**): Rubenstein, D.R. and J. Alcock. 2018. Animal Behavior. 11th Edition. Oxford University Press, 550 pp. ISBN 978-1605355481

## Grading:
Mid-term test 20%, Term paper (one short journal paper review) 20%, Seminar quizzes (almost weekly) 5%, participation 2%, and **seminar presentations 18%**), Final Exam 35%
*n.b., exams are in person and synchronous, **everyone writes the same exam at the same time - no exceptions**, please keep this in mind when making out of town travel plans during February - April.*

**Policies:**
*Some contents of lectures and displays provided in this course, including visual or audio recording thereof, are subject to copyright owned by Ian. It is prohibited to electronically record in digital audio or video format, openly or surreptitiously, in whole or in part, in the absence of express written permission from Ian any of the lectures or materials provided or published from the course (obviously notes may be taken using laptops). Memorial University of Newfoundland is committed to supporting inclusive education based on principles of equity, accessibility and collaboration. Accommodations are provided within the scope of University Policies for the Accommodations for Students with Disabilities (www.mun.ca/policy/site/policy.php?id=239). Students who may need an academic accommodation are asked to initiate the request with the Glenn Roy Blundon Centre at the earliest opportunity (www.mun.ca/blundon). Students are expected to adhere to those principles which constitute proper academic conduct. For more information regarding this policy, students should refer to the University Regulations for Academic Misconduct (Section 6.12) in the University Calendar.*

**Syllabus and approximate lecture schedule (winter 2025)**
*Aim: an introduction to **behavioural ecology** (**animal behaviour considered from a biological perspective emphasizing evolution and ecology**) (approximately follows order and content of Alcock's chapters) with frequent reference to topics of current interest in evolutionary ecology, with applications to wildlife conservation and human welfare*
Lecture summary notes (*not a substitute for attending lectures in person*): posted on Brightspace ***https://online.mun.ca/d2l/home/603937***

**week one**
January 8 Wednesday - **welcome**, check class list, resolve waitlist, organization of the course
**[NO SEMINAR January 7]**
January 10 Definition of behaviour, classifying approaches to studying behaviour, evolution of behaviour?, hypothesis testing, relationship between science-morals-ethics.
**week two**
January 13 Proximate versus ultimate explanations – the behavioural ecological approach, adaptation and natural selection, levels-of-analysis in behaviour study

January 15 levels of analysis examples – voles, langurs, humans, bird song
January 17 behavioural ecology of learning, mechanisms and adaptation

**week three**

January 20: conditioned learning, observational learning, spatial learning, imprinting
January 22 'nature vs. nuture' fallacy, genetic control of behaviour, examples.
January 24 neural & hormonal organization of behaviour, adaptations in neural mechanisms

**week four**

January 27 Circadian mechanisms: daily & seasonal schedules, hormonal regulation
January 29 Adaptation and the comparative method, cost benefit approaches
January 31 Surviving I: risk managment behaviour and natural selection, antipredator

**week five**

February 3 1 Surviving II: avoiding diseases and pathogens behaviour
February 5 Foraging behaviour I: optimal foraging theory
February 7 Foraging behaviour II: tradeoffs, cooperation and competition, game theory

**week six**

February 10 Foraging behaviour III: foraging – variation across all animals
February 12 Ecology of territoriality, habitat selection
February 14 Communication, signals, sensory exploitation, mind-reading, and manipulation

**week seven**

February 17 Communication II: variation across all animals, adaptive radiations
February 19 Communication III: variation across all animals, ***first half review***
February 21 **Mid-term exam**
*n.b., exams are in person and synchronous,* ***everyone writes the same exam at the same time, no exceptions*** *- please keep this in mind when making out of town travel plans*

**February 24-28 no lectures – winter semester break**

**week eight**

March 3 Reproduction I: **SEX,** biology & evolution of sex, sex roles and sexual conflict
March 5 Reproduction II: Evolution of sex, sex roles and sexual conflict, cont'd
March 7 Reproduction II: Evolution of sex, sex roles and sexual conflict, cont'd

**week nine**

March 10 Reproductive behaviour II: Sexual selection & intra-sexual competition for mates
March 12 Reproductive behaviour III: Sexual selection and mate choice - mechanisms
March 14 Reproductive behaviour IV: copulation – variation across all animals, adaptations

**week ten**

March 17 Mating systems I: Monogamy, evolution of
March 19 Mating systems II: Polygyny, evolution of
March 21 Mating systems III: Polyandry, promiscuity, homosexuality, evolution of

**week eleven**

March 24 Parental care I: adaptive sex differences in parental care, parent-offspring conflict
March 26 Parental care II: behavioural ecology of brood parasitism, parental favoritism
March 28 Social behaviour – group living, coloniality – when does this evolve?

**week twelve**

March 31 Symbiosis and commensalism
April 2 Eusociality
April 4 Human behaviour I: adaptationist approach and the 'sociobiological controversy', dealing with evolution of xenophobia, aggression, violence and war

**week thirteen**

April 7 Human behaviour II: selection on sexual behaviour, mating systems, parental care, applications of evolutionary psychology, course summary, question period

**Final exam: date (some date between *April 12-22*) TBA**
*n.b., exams are in person and synchronous,* ***everyone writes the same exam at the same time, no exceptions*** *- please keep this in mind when making out of town travel plans*

## Labatory/Seminar sessions

*Aim: discuss the major topics in* ***behavioural ecology*** *(cf lecture schedule) and review current scientific advances in behaviour study.*

Format: student seminar presentations (and led discussion, *Socratic Method*) on recent important scientific papers (synchronous, in person), each week's seminar (except the first) begins with a **mini-quiz** on the previous week's subject matter. Scientific paper suggestions posted on the web page: www.mun.ca/serg/animbehav.html

**Approximate schedule:**
**January 7 NO LAB**
January 14 THE classic critique of behavioural ecology and sociobiology (Ian presents)
January 21 Genetics of behaviour – human examples: pair bonding and social attitudes
January 28 Adaptive control of circadian rhythms
February 4 Examples of optimality theory testing studies
February 11 Communication
February 18 Mate choice and sexual selection

**February 25 no lab – winter semester break**

March 4 Mating systems
March 11 Parental care, or not
March 18 Human Behaviour I
March 25 Human Behaviour II