# BIOL 380 – ANIMAL BEHAVIOUR

**Territorial acknowledgement:** The University of Regina is situated on the territories of the nêhiyawak, Anihšināpēk, Dakota, Lakota, and Nakoda, and the homeland of the Métis/Michif Nation. The Regina campus is on Treaty 4 lands, and Saskatoon classes are on Treaty 6 lands.

**Course Instructor:** Dr. Mark Brigham
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Office: LB 257
Office phone: 585-4255

**Lectures:** The class will be delivered in person M, W, F: 08:30-09:30 in CL 251

**Final Exam**: Monday 15 December at 0900

**Office hours:** I do not keep formal office hours but, whenever I am in my door is open. I encourage you to "disturb" me to ask questions, seek advice etc. I am a strong believer that students should NEVER be afraid or even timid about approaching the professor. The best time to see me is in the morning. Typically, I will be in the gym over the lunch hour and there always seems to be meetings to attend in the afternoon. Feel free to contact me by email and set up a specific time to meet.

**Course description:** An evolutionary approach to the study of the behaviour and ecology of individual animals. Topics covered particularly well in the text may not be covered in lectures. Supplemental readings will be assigned as required. There will be a mid-term examination in the class period on **Wednesday 8 October**. Although a Friday afternoon lab section is time-tabled, your "lab" is the time spent in the Cypress Hills. On one or two occasions we will use the Friday "lab" time (after Dept. seminar so no need to worry re Biol 488) for seminars or to catch up on some lecture time due to when I am away.

**Learning outcomes:**
1. Understand basic behaviour concepts surrounding history, genetics, evolution, communication, learning, reproduction, and foraging.
2. Demonstrate an ability to devise and carry out a behavioural project from the generation of a question, data collection, statistical analysis, manuscript writing, review and giving an oral seminar about it.
3. Reading scientific papers critically and being able to discuss them with classmates.

**Prerequisites:** BIOL 275 and one of STAT 200, STAT 201 or higher or BIOL 341.

**Textbook:** Rubenstein. 2023. *Animal Behavior* 12th Edition. Sinauer Assoc. Earlier editions are perfectly acceptable.
Additional readings will be made available on UR Courses.

**Additional requirements:**

Tutorials: On 4-6 occasions we will have a class discussion of a relevant paper from the primary literature. You will be expected to critically read the paper and come to tutorials prepared to discuss the material. Class participation will be evaluated as part of your grade! If you need it, I can arrange a session in the library with the Science librarian to introduce you to how to find peer reviewed literature which will be important for writing your paper.

Field Course: The purpose of the field component of the course will be to let you explore an aspect of Animal Behaviour that is of interest to you in detail. You will collect data at the field station to test a hypothesis, and then during September, you will analyze the data statistically, review the relevant primary literature and write up your results as a scientific manuscript.

Possible Project Topics: Optimal foraging, prey discrimination, foraging preferences, habitat use and spacing patterns, niche partitioning, predator avoidance and risk perception, spacing patterns or habitat selection, moisture selection. Potential study species: squirrels, mice, ants, beaver, dragonflies, trout; chickadees, woodpeckers, barn swallows, frogs, ground squirrels, cattle, grasshoppers, butterflies, deer, elk, spiders, bees, pocket gophers, Biol 380 students, visitors to Fort Walsh.

Project Paper: The project paper (the idea of which is to mimic a scientific paper) should be approximately 2500 - 3500 words in length (8-12 double-spaced pages of text), plus figures, tables and references. It will be marked on the basis of quality and completeness, NOT length. The paper will be the result of the analysis and interpretation of the data you collect in Cypress. High quality data will not necessarily get the best grade (the best science communicated poorly is no better than bad science). I DO recognize that even the best planned and executed field projects can have unforeseen problems e.g., weather etc. and it is not fair to impose a penalty for that given the short duration of the field trip. Your discussion and review of the particular area of research must be more detailed than in either lectures or the text. That is, I expect you to review and cite relevant primary literature. The textbook and popular articles are a good starting point, especially if they list lots of primary references (which do not include semi-popular journals such as Scientific American). One purpose of writing the paper is to increase your expertise and critical use of the primary literature (contained in specialized peer-reviewed journals and reviewed symposium volumes). These papers report the results of original scientific research. Books are secondary sources and are less valuable because they invariably simplify the information from the original sources. At the same time, there are certainly papers in the peer-reviewed literature that contain mistakes and inaccuracies. Another purpose of the exercise is to expose you to how real scientific writing takes place. Your paper will go through a friendly and then a formal review

process after each of which you will revise your work. The goal is to mimic how the scientific process works and help you to improve your writing and research skills.

DUE DATE Friendly Review – Friday 26 September. On this date you will submit to me an electronic copy of your paper. I will randomly choose 2 classmates to send it to. They will read your work and make suggestions (anonymously) to improve the analysis and interpretation of your data and the clarity of the writing. The friendly review must be returned to me by Wednesday 4 October. Anyone who does not submit their work will not receive friendly reviews of their work. There is no grade for these reviews.

DUE DATE First Formal Draft – Wednesday 15 October. Although I call this a first draft, it should be prepared it as if it is the only version you will submit. There will be a 10% per work-day penalty for lateness. Again I expect you to submit an electronic copy to me. I will randomly pick one of your classmates (but neither of the two who did the friendly review) to perform a full review of your paper. This review will be returned to me and I will grade it before giving it back to you. Anyone who does not submit their review will receive a grade of 0 for it.

Final Draft: Due 2-3 weeks after return of first draft; approximately 20 November. In this draft I expect you to address the comments made on the first draft by me and your colleague but only IF you agree with them (we will talk about this in class)! I also expect you to tell me what you have done in a formal "letter to the editor" accompanying the final draft. I will talk about how to write such a letter.

Format: The paper must follow the format of a paper in the *Canadian Journal of Zoology* which both the library and I get. READ the "Instructions to Authors" for this journal and follow them precisely! I also recommend you read the handouts I will post on URCourses about how to write a scientific paper which have useful guidelines. Your paper should have an introduction which briefly outlines the broad perspective into which your research fits and a CLEAR statement of the purpose of your work followed by a methods section, results, discussion, and literature cited. Cite figures and tables in the results section and put them at the end of the paper to illustrate your data. A particularly good reference is R.A. Day. 1983. How to write and publish a scientific paper - 2nd edition, ISI Press, Philadelphia. The major thrust of the discussion should be to evaluate your data in light of published information. I welcome and will reward logical and well argued interpretations of your analysis in the context of literature information. Cite references in the manner typical of the scientific literature (e.g., "Wasnizicki (1904) showed that sheep are tasty" or "goats preferentially eat starched bed sheets (Grossenschpitz 1905)"). Avoid footnotes; they are virtually never used in biological journals. All references must be listed alphabetically at the end of the paper in a "Literature Cited" section. See CJZ for examples. Only those references actually cited in the text are listed.

Journals: Many journals (some of which are even in the library and some of which you may borrow from me) contain papers that will be applicable and could be browsed for possible research topics. Examples: Animal Behaviour; Behavioural Ecology and Sociobiology; Ethology; Behaviour; Ecology and Evolution; Ethology and Sociobiology; Evolution, Ecology; Oecologia;

American Naturalist; Journal of Animal Ecology, Journal of Zoology (Lond.); CJZ; Journal of Herpetology; Herpetologica; Auk; Condor; Ibis; Journal of Mammalogy.

Seminar: Each of you will present a 10 min (+2 min for questions) seminar summarizing your project to the class. The talk is to be modeled after what occurs at scientific meetings. Seminars will take place after the first draft of your essay has been graded, but before you submit the final draft. Tentatively this will be in class and during the afternoon of 7 November after the Dept. seminar. I encourage you to use some form of slideware to illustrate your talk. The rest of the class will participate by attending and asking relevant questions (for participation grades). You will have worked hard to collect and analyze the data, reading and integrating relevant literature, and writing your paper. The class should benefit from this knowledge.

**Grading**

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| Midterm | | 15% |
| Term Paper - | First Draft | 9% |
| | Formal Review of student 1st draft | 4% |
| | Final Draft | 25% |
| Seminar | | 8% |
| Participation (tutorials and seminars) | | 7% |
| Final Lecture Exam | | 32% |
| | | --- |
| | | 100% |

**Late assignments/missed exam policy:** Late assignments will lose 10% per working day. If you miss the midterm with a valid reason, the grade will be folded into the final exam. There will be no "make-up"

**Attendance policy:** Attendance at lectures is expected.

**Academic integrity:** Academic integrity requires students be honest. Assignments and exams are to help students learn; grades show how fully this goal is attained. Thus, all work and grades should result from a student's own understanding and effort. We will have a lengthy discussion in Cypress Hills about ChatGPT etc.

Acts of academic misconduct violate academic integrity, and are considered serious offences by the University. Examples include, but are not limited to, cheating on tests or exams, plagiarizing, copying from others, falsifying lab results, etc. Instances of academic misconduct will be reported to the Associate Dean Academic for investigation. Full details are provided in the Undergraduate academic calendar. I encourage you to understand your obligations as a student, as well as your rights.

**Accommodations**: Students in this course who may have need for specialized accommodations, should contact the Centre for Student Accessibility (Riddell Centre 229, 585-4631), and must discuss their accommodation letter with me.