

WESTERN UNIVERSITY  
LONDON CANADA

Department of Psychology  
Winter 2026

Psychology 4295G Section 001

## **Special Topics in Behavioural and Cognitive Neuroscience: Origins of the Social Brain**

### **1 Calendar Description**

In this course, students explore human and non-human animal social behaviour from neurobiological, developmental, and evolutionary perspectives.

Antirequisites: n/a

Prerequisites: Psychology 2220A/B, Psychology 2221A/B, or Neuroscience 2000 PLUS registration in fourth year Main Campus Honours Specialization in Psychology, fourth year Honours Specialization in Developmental Cognitive Neuroscience, fourth year Honours Specialization in Neuroscience, or fourth year Honours Specialization in Animal Behavior. Fourth year Main Campus Psychology students and Main Campus Psychology Special Students who receive 70% in the prerequisite course may enroll in this course.

3 lecture hours; Course Weight: 0.5

Unless otherwise stated, students are responsible for ensuring that they have successfully completed all prerequisites prior to enrolling. Where prerequisites have not been met, the instructor may require the student to withdraw from the course. In accordance with Western policy, this decision is not subject to appeal.

In the event of a discrepancy between this outline and Senate or University policies, the latter shall prevail. The instructor reserves the right to modify elements of this course outline for pedagogical or operational reasons. Any such changes will be communicated to students in a timely manner.

### **2 Course Information**

|                 |                                                      |
|-----------------|------------------------------------------------------|
| Instructor:     | Dr. Morgan Gustison                                  |
| Office & Phone: | SSC 9232                                             |
| Office Hours:   | TBD                                                  |
| Email:          | <a href="mailto:mgustiso@uwo.ca">mgustiso@uwo.ca</a> |

Teaching Assistant: TBD  
Office:  
Office Hours:  
Email:

Time and Location of Classes: Wednesdays 1:30-4:30pm in UC-3225

### 3 Course Materials

Students are expected to print out weekly discussion material (typically 3 journal articles per week) and bring them to class. Printing costs depend on where and how articles are printed (e.g., color vs grayscale, # of pages per paper, whether references or supplemental materials are printed). Students are only required to have access to main article content (e.g., Abstract, Introduction, Methods, Results (with Tables and Figures), and Discussion).

### 4 Course Objectives and Learning Outcomes

This course surveys empirical work and theoretical advances in the study of social behaviour. This is a rapidly growing and multidisciplinary field, and as such, readings will emphasize current research from the primary literature. We will read articles that focus both on human and non-human study systems to address three main questions: (1) How do neurobiological mechanisms regulate social behaviour? (2) How does social behaviour develop across the lifespan? (3) Why have complex forms of social behaviour evolved in some species over others? By the end of the class, students will be able to read, understand, and critique scientific research papers from diverse levels of analysis.

The following table outlines the course learning outcomes and how they are assessed.

| Learning Outcome                                                                                                                                                                                                                                                                                                    | Learning Activity                                              | Assessment                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Depth and Breadth of Knowledge</b> <ul style="list-style-type: none"><li>Understand key concepts and research findings on the neurobiology, development, and evolution of social behaviour.</li><li>Learn about the science communication, including different writing formats and presentation style.</li></ul> | Course Readings<br>Lectures<br>Class Discussion<br>Assignments | Reflections<br>Thought Papers<br>Capstone Project                               |
| <b>Knowledge of Methodologies</b> <ul style="list-style-type: none"><li>Explore data collection approaches used to study social behaviour in different species</li></ul>                                                                                                                                            | Course Readings<br>Class Discussion<br>Assignments             | Reflections<br>Thought Papers<br>Capstone Project                               |
| <b>Application of Knowledge</b> <ul style="list-style-type: none"><li>Use online databases to find and access current empirical literature.</li></ul>                                                                                                                                                               | Class Discussion<br>Assignments                                | Class Participation<br>Leading Discussion<br>Thought Papers<br>Capstone Project |

|                                                                                                                                                                                                                                                                                                                             |                                                     |                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Evaluate hypotheses and results in current research articles.</li> <li>Design research to test unique hypotheses.</li> </ul>                                                                                                                                                         |                                                     |                                                                                                |
| <b>Communication Skills</b> <ul style="list-style-type: none"> <li>Collaborate with classmates to critique the strengths and limitations of research.</li> <li>Develop skills to communicate complex ideas in informal and formal writing</li> <li>Develop spoken language skills to communicate ideas to others</li> </ul> | Class Discussion<br>Assignments                     | Class Participation<br>Leading Discussion<br>Reflections<br>Thought Papers<br>Capstone Project |
| <b>Awareness of Limits of Knowledge</b> <ul style="list-style-type: none"> <li>Learn about unanswered questions on the biological basis of social behaviour</li> </ul>                                                                                                                                                      | Course Readings<br>Class Discussions<br>Assignments | Reflections<br>Leading Discussion<br>Capstone Project                                          |
| <b>Autonomy and Professional Capacity</b> <ul style="list-style-type: none"> <li>Develop personal interests in a scientific topic</li> <li>Carry out independent work to design a research study to test a unique question</li> </ul>                                                                                       | Class Discussion<br>Assignments                     | Leading Discussion<br>Capstone Project                                                         |

## 5 Evaluation

Class Participation: 15%

Leading Discussion: 20%

Reflection Assignments: 5%

Thought Papers: 20%

Capstone Project: 40% (Literature Review 20%, Research Proposal 15%, Proposal Presentation 5%)

Class Participation: Students are expected to prepare for (e.g., bring notes and printed copies of required readings), attend class, and engage in all class activities. Participation is marked based on the level of student engagement during class activities. Meeting basic expectations means attending class and paying attention, but not making many contributions. A strong level of participation consists of asking or answering thoughtful questions about the lecture content and assigned reading materials. Students who excel at participation regularly contribute additional information from other courses and lived experiences, or engage in similar advanced levels of involvement during classroom lectures, class discussions, and small group activities.

Leading Discussion: Most weeks will focus on in-class discussions of scientific journal articles. Typically, there will be three articles per class discussion, one each from neuroscience, developmental, and evolutionary perspectives. Teams of 2 or more students will be assigned to each article. Each team will prepare and ask questions to encourage and guide class discussions on the content in each article section (e.g., Introduction, Methods, Results, and Discussion). Students are encouraged to stay away from technology when facilitating discussion, unless the overhead projector would be useful to share supplemental material from the article (e.g., tables,

figures, or videos). Students can expect to lead discussion on 3 articles throughout the term (depending on class size).

Reflection Assignments: Reflections are brief answers to a set of questions about the assigned research articles for each weekly topic. Student responses will be submitted on Brightspace and are available to discussion leader teams to help them guide discussion of those articles. Students are only required to submit reflections on 2 of the 3 assigned weekly articles.

Thought Papers: Thought Papers are informal and short (300-400 words) essays that expand on the weekly in-class discussion topic by critiquing and developing one or more of the discussion questions that were covered in class. Students should include specific comparisons to lecture material, other articles from that week's discussion, ideas discussed in other courses, or similar relevant material. These papers will be submitted on Brightspace.

Capstone Project: The Capstone Project is an independent project in which students review scientific literature related to a specific research question, develop a unique hypothesis with testable predictions, and design a feasible study to test their predictions. The written component of the capstone project involves two parts – a literature review and a research proposal. At the end of term, students will give a brief presentation on their research proposals to the entire class.

The evaluation and testing formats for this course were created to assess the learning objectives as listed in section 4 and are necessary for meeting these learning objectives. All evaluations listed in this course outline are required components of the course and together account for 100% of the final grade. Weightings and assessment formats may be adjusted where required to support course learning objectives, with appropriate notice to students.

### ***Policy on Missing Coursework***

In class participation is by definition, work that occurs during class time. There are no alternative assessments for this course component. It is University Policy that all students get one undocumented absence per course per term, and students are welcome to take this if/when needed. For students who have an approved absence (undocumented or documented), that week's contribution will be excluded from the participation grade. This means that other class periods will carry more weight.

Reflection assignments have built-in assessment flexibility. Of the available 10 reflections, students only need to submit 8 reflections for credit. Only the top 8 marks will be included in the final grade. Due to this flexibility, late assignments will not be accepted, and requests for academic consideration may be denied.

Thought papers also have built-in flexibility. Of the available 10 thought papers, students only need to submit 8 thought papers for credit. Only the top 8 marks will be included in the final grade. Due to this flexibility, late assignments will not be accepted, and requests for academic consideration may be denied. It is expected that students who are absent for a class will use their

thought paper flexibility that week. If, however, a student needs to submit a thought paper for a week they were absent from class, it is their responsibility to get class notes from their peers to write their thought paper.

Student discussion leaders who miss one of these assignments will need approved academic consideration (undocumented or documented) to complete an alternative make-up assignment for equivalent credit. In the alternative make-up assignment, the student will present a supplemental course reading (i.e., a literature review) and lead discussion on it in a future class, both of which are chosen by the instructor. Grading will be similar to the typical discussion leader assignments.

Both written components of the capstone project (Literature review and Research proposal) have a no-late-penalty period of 48h past the original deadline, during which a mark deduction will not be applied. Late submissions outside of the 48h no-penalty period will receive a 5% per day deduction. Due to this built-in flexibility, requests for academic consideration may be denied. If extenuating circumstances do occur, academic consideration requests must include both the original due date and the 48h no-penalty period. Requests based on issues that occurred after the original due date will be denied. The capstone project presentation is considered a designated assessment and requires an approved documented absence to give a make-up presentation.

Students who encounter extenuating circumstances affecting their academic responsibilities may submit a request for academic consideration in accordance with Western University's Academic Consideration policies. Requests must be submitted through the [Student Absence Portal](#) and may require supporting documentation.

Because this is an essay course, as per Senate Regulations, you must pass the essay component to pass the course. That is, the average mark for your written assignments must be at least 50%.

This course is exempt from the Senate requirement that students receive assessment of their work accounting for at least 15% of their final grade at least three full days before the date of the deadline for withdrawal from a course without academic penalty.

Course grades within the Psychology Department are expected to be distributed around the following averages:

|     |                                  |
|-----|----------------------------------|
| 70% | 1000-level to 2099-level courses |
| 72% | 2100-2999-level courses          |
| 75% | 3000-level courses               |
| 80% | 4000-level courses               |

In the event that course grades are significantly higher or lower than these averages, instructors may be required to make adjustments to course grades. Such adjustment might include the normalization of one or more course components and/or the re-weighting of various course components.

### ***Policy on Grade Rounding***

Course grades are rounded to the nearest whole number. No additional assignments will be offered to enhance a final grade. Requests to change a grade because it is needed for a future program will not be considered.

## **6 Assessment/Evaluation Schedule**

There are no tests or exams in this course. Due dates for other course assessments are as follows:

### Weekly Assessments

- Reflections: These are due by Tuesdays at 11:55pm during weeks 2-11, BEFORE the associated class. Only the top 8 reflections are included in final grade.
- Thought Papers: Due on Fridays at 11:55pm during weeks 2-11, AFTER the associated class. Only the top 8 papers are included in final grade.

### Capstone Project

- Literature Review: Due February 28 at 11:55 pm on Brightspace.
- Research Proposal: Due April 7 at 11:55 pm on Brightspace.
- Proposal Presentation: March 31 and April 7 during class. Slides are due on Brightspace at noon on the student's presentation day.

## **7 Class Schedule**

Below is an overview of the course schedule and required readings. Readings are subject to change early on to tailor the course to student interests and keep the reading list current.

| <b>Week</b> | <b>Date</b>  | <b>Course Topic &amp; Capstone Project Due Dates</b>                                                                                                                                                                                                                                                                                                            |
|-------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>    | <b>Jan 6</b> | <b>Introduction &amp; What is Social Behaviour?</b>                                                                                                                                                                                                                                                                                                             |
| <b>2</b>    | Jan 13       | <b>Levels of Analysis &amp; Discussion Leader Lottery</b> <ul style="list-style-type: none"><li>• Tinbergen (1963) On aims and methods of ethology</li><li>• Krakauer et al (2017) Neuroscience needs behavior: Correcting a reductionist bias</li><li>• Decety &amp; Cacioppo (2010) Frontiers in human neuroscience: The Golden Triangle and beyond</li></ul> |
| <b>3</b>    | Jan 20       | <b>Social Attachment</b> <ul style="list-style-type: none"><li>• Escobar et al (2013) Attachment patterns trigger differential neural signature of emotional processing in adolescents</li></ul>                                                                                                                                                                |

|          |               |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |               | <ul style="list-style-type: none"> <li>• Moutsiana et al (2014) Making an effort to feel positive: insecure attachment in infancy predicts the neural underpinnings of emotion regulation in adulthood</li> <li>• Topal et al (2005) Attachment to humans: A comparative study on hand-reared wolves and differently socialized dog puppies</li> </ul>                                                               |
| <b>4</b> | Jan 27        | <b>Parental Care</b> <ul style="list-style-type: none"> <li>• Cerrito &amp; Burkart (2023) Human amygdala volumetric patterns convergently evolved in cooperatively breeding and domesticated species</li> <li>• Danoff et al (2023) Father's care uniquely influences male neurodevelopment</li> <li>• Rilling et al (2021) The neural correlates of grandmaternal caregiving</li> </ul>                            |
| <b>5</b> | <b>Feb 3</b>  | <b>Pair Bonding</b> <ul style="list-style-type: none"> <li>• Acevedo et al (2020) After the honeymoon: Neural and genetic correlates of romantic love in newlywed marriages</li> <li>• Coan et al (2006) Lending a hand: Social regulation of the neural response to threat</li> <li>• Kinreich et al. (2017) Brain-to-brain synchrony during naturalistic social interactions</li> </ul>                            |
| <b>6</b> | Feb 10        | <b>Group Living</b> <ul style="list-style-type: none"> <li>• D'Onofrio et al (2022) The anatomy of friendship: Neuroanatomic homophily of the social brain among classroom friends</li> <li>• Fox et al (2017) The social and cultural roots of whale and dolphin brains</li> <li>• Testard et al (2022) Social connections predict brain structure in a multidimensional free-ranging primate society</li> </ul>    |
|          | Feb 17        | <i>Reading Week</i>                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>7</b> | Feb 24        | <b>Communication</b> <ul style="list-style-type: none"> <li>• Gold et al (2013) Lifelong bilingualism maintains neural efficiency for cognitive control in aging</li> <li>• Nagasawa et al (2015) Oxytocin-gaze positive loop and the coevolution of human-dog bonds</li> <li>• Zhao &amp; Kuhl (2016) Musical intervention enhances infants' neural processing of temporal structure in music and speech</li> </ul> |
|          | <b>Feb 28</b> | <b>Capstone Project: Literature Review Due</b>                                                                                                                                                                                                                                                                                                                                                                       |
| <b>8</b> | Mar 3         | <b>Social Reward</b> <ul style="list-style-type: none"> <li>• Kilford et al (2023) Associations between age, social reward processing and social anxiety symptoms</li> <li>• Sherman et al (2018) What the brain 'Likes': Neural correlates of providing feedback on social media</li> </ul>                                                                                                                         |

|    |        |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |        | <ul style="list-style-type: none"> <li>• Tomova et al (2020) Acute social isolation evokes midbrain craving responses similar to hunger</li> </ul>                                                                                                                                                                                                                                                                   |
| 9  | Mar 10 | <b>Social Cognition</b> <ul style="list-style-type: none"> <li>• Chang et al (2015) Neural mechanisms of social decision-making in the primate amygdala</li> <li>• Chen et al (2016) Shared memories reveal shared structure in neural activity across individuals</li> <li>• Richardson et al (2018) Development of the social brain from age three to twelve years</li> </ul>                                      |
| 10 | Mar 17 | <b>Cooperation &amp; Competition</b> <ul style="list-style-type: none"> <li>• Decety et al (2004) The neural bases of cooperation and competition: a fMRI investigation</li> <li>• Nguyen et al (2020) The effects of interaction quality on neural synchrony during mother-child problem solving</li> <li>• Samuni et al (2018) Social bonds facilitate cooperative resource sharing in wild chimpanzees</li> </ul> |
| 11 | Mar 24 | <b>Altruism &amp; Empathy</b> <ul style="list-style-type: none"> <li>• Burkett et al (2016) Oxytocin-dependent consolation behavior in rodents</li> <li>• Goldstein et al (2018) Brain-to-brain coupling during handholding is associated with pain reduction</li> <li>• Levy et al (2019) The neural development of empathy is sensitive to caregiving and early trauma</li> </ul>                                  |
| 12 | Mar 31 | <b>Capstone Project: Proposal presentations</b>                                                                                                                                                                                                                                                                                                                                                                      |
| 13 | Apr 7  | <b>Capstone Project: Proposal presentations</b><br><b>Capstone Project: Research Proposal Due</b>                                                                                                                                                                                                                                                                                                                    |

## 8 Academic Integrity

Scholastic offences are treated seriously at Western University. Students are expected to understand and comply with the University's standards of academic integrity. Scholastic offences may result in penalties up to and including expulsion from the University. Please read [Western's Scholastic Offences](#) policy for definitions and examples of Scholastic offences.

### ***Statement on Use of Electronic Devices***

For most class activities, such as lecture and article discussions, electronic devices (computers, tablets) **will NOT be** permitted (unless required for accommodation purposes). Students must bring paper copies of research articles to class with any relevant printed or handwritten notes. This requirement is to support the entire class in focusing on in-class content and discussion of research without external distractions. Students can access electronic devices during breaks.

There may be some class activities where computers and tablets are allowed, such as for student teams leading discussion and during proposal presentations. Use of electronic devices for purposes outside of a relevant class activity will impact assessment of participation.

### ***Plagiarism Detection Software***

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western and Turnitin.com.

### ***Use of AI***

This course is designed to develop your own critical thinking, writing, and analytical skills. Accordingly, the use of generative artificial intelligence (AI) tools (e.g., ChatGPT, Claude, Copilot) to generate course content is **not permitted**, unless explicitly authorized by the instructor for a specific assignment. All use of artificial intelligence tools must comply with Western University's academic integrity standards.

Students may not use AI tools to:

- Generate written text, arguments, analyses, or interpretations
- Draft or rewrite assignment responses
- Paraphrase substantial portions of source material
- Create references or cite sources not independently verified

Limited, non-substantive uses of AI (e.g., spelling or grammar checks) may be permitted only if they do not alter the intellectual content of the work. Any permitted use must be explicitly disclosed. All submitted work must represent the student's own thinking and independent effort. Students are fully responsible for verifying the accuracy, originality, and integrity of any material they submit. Unauthorized or undisclosed use of AI constitutes a potential scholastic offence and will be handled in accordance with Western University's policies on academic integrity. Students are responsible for ensuring that all work complies with Western's scholastic integrity standards.

You are ultimately responsible for all work submitted under your name. AI output should be critically evaluated, substantially revised, and integrated thoughtfully, not copied verbatim.

All written assignments must include a brief AI Usage Statement, indicating:

- Which tools were used (if any)
- The purpose for which they were used
- How the output was modified and incorporated

Assignments submitted without an AI Usage Statement will not be accepted. Misuse of AI or failure to disclose its use may constitute a scholastic offence and will be addressed in accordance

with Western University's academic integrity policies. Students are responsible for ensuring that all work complies with Western's scholastic integrity standards.

## **9 Academic Accommodations and Accessible Education**

Western University is committed to providing an accessible learning environment. Students with disabilities or medical conditions requiring accommodation are encouraged to contact Accessible Education as early as possible. Accommodations will be implemented in accordance with University policy. Please review [Western's policy on academic accommodations](#) for student with disabilities. Accessible Education provides supports and services to students with disabilities at Western. If you think you may qualify for ongoing accommodation that will be recognized in all your courses, visit [Accessible Education](#) for more information. Email: [aw@uwo.ca](mailto:aw@uwo.ca) Phone: 519 661-2147

## **10 Absence & Academic Consideration**

Please review Western's policy on [Academic Considerations](#):

## **11 Other Information**

### ***Helpful Websites***

- Western's academic policies are available at the [Office of the Registrar](#).
- Departmental policies are available at the [Psychology Department website](#).
- Learning supports available at [Learning Development & Success](#).

### ***Well-being***

Western University provides a range of supports to promote student well-being. Students are encouraged to seek assistance when needed. Students who are in emotional/mental distress should refer to [Health and Wellness at Western](#) for a complete list of options about how to obtain help. Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you.

### ***Grade Appeals***

If you wish to appeal a grade, please read the [policy documentation](#) on requests for relief. Please first contact the course instructor. If your issue is not resolved, you may make your appeal in writing to the Undergraduate Chair in Psychology ([psyugrd@uwo.ca](mailto:psyugrd@uwo.ca)).

### ***Copyright Statement***

Lectures and course materials, including power point presentations, outlines, videos and similar materials, are protected by copyright. You may take notes and make copies of course materials

for your own educational use. You may not record lectures, reproduce (or allow others to reproduce), post or distribute any course materials publicly and/or for commercial purposes without the instructor's written consent.