



## Psych 3215G Section 530

### Sex Differences and Behavioural Neuroscience

**Dr. J. Hoshoooley**

**Winter 2023**

In the event of a COVID-19 resurgence during the course that necessitates the course moving away from in-person delivery, course content may be delivered online either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). There may also be changes to any remaining assessments at the discretion of the course instructor. In the event of a COVID-19 resurgence, detailed information about the impact on this course will be communicated by the Office of the Provost and by the course instructor.

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#### **COURSE DESCRIPTION**

This course examines sex differences in the brain and behaviour of both humans and non-human species. Topics may include strategies and methods for evaluating sex differences, genetic and hormonal influences, cognition, affiliative behaviour, stress, motivation, reward, energy regulation, immune functioning, pain, and disease.

**Prerequisites:** At least 60% in Psychology 2220A/B or 2221A/B

**Antirequisites:** Psychology 3225A/B, 3226A/B, Psychology 3990F/G taught at Brescia 2008-09 to 2010-11.

#### **COURSE INFORMATION**

Instructor:	Dr. Jennifer Hoshoooley
Delivery of Course:	In person
Time and Location of Class:	Wednesdays 2:30 – 5:30pm; BR – 204
E-mail:	jmckay6@uwo.ca
Office Hours:	Wednesday 10am – 11am & by appointment – Zoom link will be provided on Wed mornings on our Owl site
Course Website:	on Western OWL (check for updates regularly)

## LEARNING OUTCOMES

By the end of the course, students will be able to:

- Describe sex differences in brain and behaviour of non-human and human species & their significance (**Communication; Critical thinking; Valuing**)
- Hypothesize genetic, hormonal, social and/or psychological mechanisms for sex differences (**Communication; Critical thinking; Inquiry & analysis; Valuing**)
- Initiate, direct, and actively participate in critical group discussions (**Communication; Critical thinking; Social awareness & engagement**)
- Independently research, summarize and critically analyse a focussed topic in sex differences (**Communication; Critical thinking; Inquiry & analysis**)

## REQUIRED COURSE MATERIALS

**Required:** The scholarly articles listed below are the required reading for the course and are available through the UWO library system (occasionally there may be a need to make slight modifications to this list – please check our OWL site regularly for updates).

## CLASS SCHEDULE

### Wed Jan 11 - Introduction and Review

Introduction (no required reading)

### Wed Jan 18 – Article Selection Day – Sample Seminar

1. McCarthy, M. M., & Arnold, A. P. (2011). Reframing sexual differentiation of the brain. *Nature Neuroscience*, 14(6), 677 – 683.

### Wed Jan 25 – Perspectives in Sex Differences I

2. Hines. (2020). Neuroscience and Sex/Gender: Looking Back and Forward. *The Journal of Neuroscience*, 40(1), 37–43.  
<https://doi.org/10.1523/JNEUROSCI.0750-19.2019>
3. Joel, D., Berman, Z., Tavor, I., Wexler, N., Gaber, O., Stein, Y., . . . Assaf, Y. (2015). Sex beyond the genitalia: The human brain mosaic. *Proceedings of the National Academy of Sciences of the United States of America*, 112(50), 15468 – 15473.

### Wed Feb 1 – Perspective in Sex Differences II

4. Pawluski, Kokras, N., Charlier, T. D., & Dalla, C. (2020). Sex matters in neuroscience and neuropsychopharmacology. *The European Journal of Neuroscience*, 52(1), 2423–2428. <https://doi.org/10.1111/ejn.14880>
5. Friedrichs, K., & Kellmeyer, P. (2022). Neurofeminism: Feminist critiques of research on sex/gender differences in the neurosciences. *The European Journal of Neuroscience*, 56(11), 5987–6002. <https://doi.org/10.1111/ejn.15834>

**Wed Feb 8 – Anxiety & Depression**

6. Bangasser, & Cuarenta, A. (2021). Sex differences in anxiety and depression: circuits and mechanisms. *Nature Reviews. Neuroscience*, 22(11), 674–684. <https://doi.org/10.1038/s41583-021-00513-0>
7. Shors, Millon, E. M., Chang, H. Y. M., Olson, R. L., & Alderman, B. L. (2017). Do sex differences in rumination explain sex differences in depression?: Sex Differences in Rumination and Depression. *Journal of Neuroscience Research*, 95(1-2), 711–718. <https://doi.org/10.1002/jnr.23976>
8. Christiansen, McCarthy, M. M., & Seeman, M. V. (2022). Where Sex Meets Gender: How Sex and Gender Come Together to Cause Sex Differences in Mental Illness. *Frontiers in Psychiatry*, 13, 856436–856436. <https://doi.org/10.3389/fpsy.2022.856436>

**Wed Feb 15 – Work period – Report due Friday Feb 17<sup>th</sup> @ 5pm****Wed Feb 22 – NO CLASS – Reading Week****Wed Mar 1 - Stress**

9. Kornfield, S. L., Hantsoo, L., & Epperson, C. N. (2018). What Does Sex Have to Do with It? The Role of Sex as a Biological Variable in the Development of Posttraumatic Stress Disorder. *Current Psychiatry Reports*, 20(6), 1–8. <https://doi.org/10.1007/s11920-018-0907-x>
10. Juster, R., de Torre, M., Kerr, P., Kheloui, S., Rossi, M., & Bourdon, O. (2019). Sex Differences and Gender Diversity in Stress Responses and Allostatic Load Among Workers and LGBT People. *Current Psychiatry Reports*, 21(11), 1–11.
11. Becker, McClellan, M. L., & Reed, B. G. (2017). Sex differences, gender and addiction. *Journal of Neuroscience Research*, 95(1-2), 136–147. <https://doi.org/10.1002/jnr.23963>

**Wed Mar 8 – Brain Injury**

12. Wiseman-Hakes, C., Saleem, M., Poulin, V., Nalder, E., Balachandran, P., Gan, C., & Colantonio, A. (2019). The development of intimate relationships in adolescent girls and women with traumatic brain injury: A framework to guide gender specific rehabilitation and enhance positive social outcomes. *Disability and Rehabilitation*, , 1-7. doi:10.1080/09638288.2019.1597180
13. Mollayeva, T., Mollayeva, S., & Colantonio, A. (2018). Traumatic brain injury: Sex, gender and intersecting vulnerabilities. *Nature Reviews. Neurology*, 14(12), 711-722.

**Wed Mar 15 – Development**

14. Spinner, L., Cameron, L., & Calogero, R. (2018). Peer Toy Play as a Gateway to Children's Gender Flexibility: The Effect of (Counter)Stereotypic Portrayals of Peers in Children's Magazines. *Sex Roles*, 79(5-6), 314–328.
15. Aznar, A., & Tenenbaum, H. R. (2019). Gender Comparisons in Mother-Child Emotion Talk: A Meta-Analysis. *Sex Roles*, 82(3-4), 155–162.

**Wed Mar 22 – Different Sex Connections**

16. Ingahlalikar, M., Smith, A., Parker, D., Satterthwaite, T. D., Elliott, M. A., Ruparel, K., . . . Verma, R. (2014). Sex differences in the structural connectome of the human brain. *Proceedings of the National Academy of Sciences of the United States of America*, 111(2), 823 – 828.
17. Maney, D. L. (2016). Perils and pitfalls of reporting sex differences. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, 371, DOI: 10.1098/rstb.2015.0119.
18. O'Connor, C., & Joffe, H. (2014). Gender on the brain: A case study of science communication in the new media environment. *PLoS ONE*, 9(10), 1-15.

**Wed Mar 29 – Student Choice / Essay Consultations****Wed April 5 – Essay Consultations - FINAL ESSAY Due 11:59PM****EVALUATION SCHEDULE**

<u>Evaluation Summary:</u> <u>Course Component</u>	<u>Date</u>	<u>Weight</u>
Reflexploration Paper	February 17	25%
Final Assignment (Reflection and Mini – Review)	April 5	35%
Seminar or Vlog Presentation	Jan 25 – Mar 22	25%
Discussions	Jan 25 – Mar 22	15%

**Reflexploration Paper**

Students will complete a reflection/exploration (reflexploration!) paper to reflect on the readings from Jan 18 – Feb 8 and further explore scholarship considered in those readings. The paper will be worth 25% and an assignment sheet and rubric for this will be provided to students early in the course.

**Seminar or Vlog Presentation**

Students will craft **one of either**: A) a vlog (10 min) or B) a traditional seminar presentation (20 min) for one of the assigned readings (student selections will be made early in the course) to facilitate student learning of and interest in the articles under consideration. This evaluation component is worth 25% of the final course grade and an assignment sheet for this component will be provided to students early in the course.

## Discussion

For each week that there are assigned readings (except Jan 18 – 7 weeks) there will be an in-class discussion for students to participate in, to facilitate comprehension of the assigned readings. The discussion component will account for 15% of each student's final course mark and a rubric and discussion guide will be made available to students early in the course.

## Final Assignment (Reflection and Mini-Review)

Students will first write a reflection considering the readings from March 1 – March 22 and what themes are revealed in the literature. Students will then apply all they have learned regarding sex differences and behavioural neuroscience towards researching and crafting an original mini-review regarding a self-selected topic in this domain. The mini-review will be 5-7 pages in length with standard APA formatting applied. This assignment is worth 35% of the student's final course mark and will be due at 11:59pm on April 5.

## 2022-23 BRESCIA UNIVERSITY COLLEGE ACADEMIC POLICIES AND REGULATIONS

### 1. POLICY REGARDING ACADEMIC ACCOMMODATION

The complete policy regarding Accommodation for Illness - Undergraduate Students can be found at [https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_135](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_135)

Students who have long-term or chronic medical conditions which may impede their ability to complete academic responsibilities should seek Academic Accommodation through Student Accessibility Services

([https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_10](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_10)).

Personal commitments (e.g., vacation flight bookings, work schedule) which conflict with a scheduled test, exam or course requirement are **not** grounds for academic accommodation.

Students who experience an illness or extenuating circumstance sufficiently severe to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

1. For medical absences, submitting a **Student Medical Certificate (SMC)** signed by a licensed medical or mental health practitioner;
2. For non-medical absences, submitting **appropriate documentation** (e.g., obituary, police report, accident report, court order, etc.) to their Academic Advisor. Students are encouraged to contact their Academic Advisor to clarify what documentation is acceptable.

### Request for Academic Consideration for a Medical Absence

When a student requests academic accommodation (e.g., extension of a deadline, a makeup exam) for work representing 10% or more of the student's overall grade in the course, it is the responsibility of the student to provide acceptable documentation to support a medical or compassionate claim. All

such requests for academic accommodation **must** be made through an Academic Advisor and include supporting documentation.

Academic accommodation for illness will be granted only if the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete their academic responsibilities. Minor ailments typically treated by over-the-counter medications will not normally be accommodated.

The following conditions apply for students seeking academic accommodation on medical grounds:

1. Students must submit their Student Medical Certificate (SMC) along with a request for relief specifying the nature of the accommodation being requested no later than two business days after the date specified for resuming responsibilities. An SMC can be downloaded from [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf);
2. In cases where there might be an extended absence or serious issue, students should submit their documentation promptly and consult their Academic Advisor for advice during their recovery period;
3. Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, scheduled tests or examinations, and other academic requirements;
4. Students **must** communicate with their instructors **no later than 24 hours** after the end of the period covered by the SMC to clarify how they will fulfil the academic expectations they may have missed during the absence;
5. Appropriate academic accommodation will be determined by the Dean's Office/Academic Advisor in consultation with the course instructor(s). Academic accommodation may include extension of deadlines, waiver of attendance requirements, arranging Special Exams (make-ups), re-weighting course requirements, or granting late withdrawal without academic penalty.

## 2. ACADEMIC CONCERNS

If you feel that you have a medical or personal challenge that is interfering with your work, contact your instructor and Academic Advisor as soon as possible. Problems may then be documented and possible arrangements to assist you can be discussed at the time of occurrence rather than on a retroactive basis. Retroactive requests for academic accommodation on medical or compassionate grounds are not normally considered.

If you think that you are too far behind to catch up or that your work load is not manageable, you should consult your Academic Advisor ([https://brescia.uwo.ca/enrolment\\_services/academic\\_advising/book\\_an\\_appointment.php](https://brescia.uwo.ca/enrolment_services/academic_advising/book_an_appointment.php)). If you consider reducing your workload by dropping one or more courses, this must be done by the appropriate deadlines; please contact your Academic Advisor or see the list of sessional dates in the Academic Calendar (<https://www.westerncalendar.uwo.ca/SessionalDates.cfm?SelectedCalendar=Live&ArchiveID=>).

You should consult with the course instructor and the Academic Advisor who can help you consider alternatives to dropping one or more courses. *Note that dropping a course may affect OSAP eligibility and/or Entrance Scholarship eligibility.*

## 3. ABSENCES

**Short Absences:** If you miss a class due to a minor illness or other problems, check your course outline for information regarding attendance requirements and make sure you are not missing a test or assignment. Cover any readings and arrange to borrow notes from a classmate. Contact the course instructor if you have any questions.

Please note that for asynchronous online courses, attendance or participation requirements may be different than for synchronous or in-person courses.

**Extended Absences:** If you have an extended absence, you should contact the course instructor and an Academic Advisor. Your course instructor and Academic Advisor can discuss ways for you to catch up on missed work, and arrange academic accommodations if appropriate and warranted.

It is important to note that the Academic Dean may refuse permission to write the final examination in a course if the student has failed to maintain satisfactory academic standing throughout the year or for too frequent absence from the class or laboratory

([https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#Page\\_64](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#Page_64)).

#### 4. SCHOLASTIC OFFENCES

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence at:

[https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_20](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_20).

Students are responsible for understanding the nature of and avoiding the occurrence of plagiarism and other academic offences. Note that such offences include plagiarism, cheating on an examination, submitting false or fraudulent assignments or credentials, impersonating a candidate, or submitting for credit in any course without the knowledge and approval of the instructor to whom it is submitted, any academic work for which credit has previously been obtained or is being sought in another course in the University or elsewhere. Students are advised to consult the section on Scholastic Discipline for Undergraduate Students in the Academic Calendar.

If you are in doubt about whether what you are doing is inappropriate or not, consult your instructor, the Academic Dean's Office, or the Registrar. A claim that "you didn't know it was wrong" is not accepted as an excuse.

The penalties for a student guilty of a scholastic offence (including plagiarism) include refusal of a passing grade in the assignment, refusal of a passing grade in the course, suspension from the University, and expulsion from the University.

##### **Plagiarism:**

Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence.

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 The University of Western Ontario and Turnitin.com.

##### **Computer-marked Tests/exams:**

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. Software currently in use to score computer-marked multiple-choice tests and exams performs a similarity review as part of standard exam analysis.

## 5. PROCEDURES FOR APPEALING ACADEMIC EVALUATIONS

All appeals of a grade must be directed first to the course instructor. If the student is not satisfied with the decision of the course instructor, a written appeal is to be sent to the School Chair. If the response of the Chair is considered unsatisfactory to the student, they may then submit a written appeal to the Office of the Dean. If the student is not satisfied with the decision of the Dean, they may appeal to the Senate Review Board Academic (SRBA), if there are sufficient grounds for the appeal and if the matter falls within the jurisdiction of the SRBA. For information on academic appeals consult your Academic Advisor or see the Student Academic Appeals – Undergraduate in the Academic Calendar [https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_14](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_14).

Note that final course marks are not official until the Academic Dean has reviewed and signed the final grade report for the course. If course marks deviate from acceptable and appropriate standards, the Academic Dean may require grades to be adjusted to align them with accepted grading practices.

## 6. PREREQUISITES

Unless you have either the prerequisites for a course or written Special Permission from the Dean to enroll in it, you will be removed from the course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisite(s).

## 7. SUPPORT

### Support Services

The Brescia University College Registrar's website, with a link to Academic Advisors, is at <http://brescia.uwo.ca/academics/registrar-services/>. Students can access supports through Brescia's Student Life Centre (<http://brescia.uwo.ca/life/student-life/>) and Learning Development & Success at Western (<https://www.uwo.ca/sdc/learning/>).

### Mental Health and Wellness

Students may experience a range of issues that can cause barriers to your learning, such as increased anxiety, feeling overwhelmed, feeling down or lost, difficulty concentrating and/or lack of motivation. Services are available to assist you with addressing these and other concerns you may be experiencing. You can obtain information about how to obtain help for yourself or others through **Health & Wellness at Brescia**, [https://brescia.uwo.ca/student\\_life/health\\_and\\_wellness/index.php](https://brescia.uwo.ca/student_life/health_and_wellness/index.php) and **Health and Wellness at Western**, [http://uwo.ca/health/mental\\_wellbeing/index.html](http://uwo.ca/health/mental_wellbeing/index.html).

### Sexual Violence

All members of the Brescia University College community have a right to work and study in an environment that is free from any form of sexual violence. Brescia University College recognizes that the prevention of, and response to, Sexual Violence is of particular importance in the university environment. Sexual Violence is



strictly prohibited and unacceptable and will not be tolerated. Brescia is committed to preventing Sexual Violence and creating a safe space for anyone in the Brescia community who has experienced Sexual Violence.

If you or someone you know has experienced any form of Sexual Violence, you may access resources at [https://brescia.uwo.ca/safe\\_campus/sexual\\_violence/index.php](https://brescia.uwo.ca/safe_campus/sexual_violence/index.php).

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Portions of this document were taken from the Academic Calendar, the Handbook of Academic and Scholarship Policy, and the Academic Handbook of Senate Regulations. This document is a summary of relevant regulations and does not supersede the academic policies and regulations of the Senate of the University of Western Ontario.

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