



**Brescia University College**  
**LONDON CANADA**

**Psych 3215G, Section 530**  
**Sex Differences and Behavioural Neuroscience**

**Dr. J. Hoshoooley**

**2018-19**

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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

Office: UH 356

E-mail: [jmckay6@uwo.ca](mailto:jmckay6@uwo.ca)

Office Hours: Thursdays 11:30 – 12:30 and by appointment

Time, Location of Classes: Thursdays 8:30 – 11:30pm, BR-UH26

Course Website: on Western OWL

**LEARNING OUTCOMES**

**a) Describe sex differences in brain and behaviour of non-human and human species & their significance** (Communication; Critical thinking; Valuing)

**b) Hypothesize genetic, hormonal, social and/or psychological mechanisms for sex differences** (Communication; Critical thinking; Inquiry & analysis; Valuing)

**c) Initiate, direct, and actively participate in critical group discussions** (Communication; Critical thinking; Social awareness & engagement)

**d) Independently research, summarize and critically analyze a focussed topic in sex differences** (Communication; Critical thinking; Inquiry & analysis)

**TEXTBOOK AND COURSE MATERIALS**

**Required:** Custom Course Pack for Psych 3215G from Western Bookstore

**CLASS SCHEDULE - subject to change, see WebCT Owl and class for updates**

<b>Date</b>	<b>Topic</b>	<b>Reading</b>
Jan 10	Introduction and Review	
Jan 17	Perspectives in Sex Differences	Class 2 articles
Jan 24	Sex Differences in Memory and Emotion	Class 3 articles
Jan 31	Sex Differences in Neuroplasticity and Disease	Class 4 articles
<b>Feb 7</b>	<b>Midterm #1 – in class</b>	<b>Articles 1 – 11 &amp; review from class</b>
Feb. 14	Gender, Hormones, Context	Class 5 articles
Feb 19-22	Reading Week – <i>no class</i>	
Feb 28	Sex Differences in Motivation, Stress, and Mental Health	Class 6 articles
Mar 7	Different Sex Connections	Class 7 articles
<b>Mar 14</b>	<b>Midterm #2 – In class</b>	<b>Articles 12 – 22</b>
Mar 21	Essay and Lightning Talk Information Session and Individual Article Meetings	
Mar 28	Lightning Talks	
Apr 4	Lightning Talks	

Readings for each topic are available in the custom course pack from the Western Bookstore. [Follow the reading schedule below.](#)

**Class 2 - January 17, 2018: Perspectives in Sex Differences**

1. Cahill, L. (2006). Why sex matters for neuroscience. *Nature Reviews Neuroscience*, 7(6), 477-484. AND Cahill, L. (2017). An issue whose time has come. *Journal of Neuroscience Research*, 95(1-2), 12-13.

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

### **Class 3 - January 24, 2018: Sex Differences in Emotion, Memory and Neuroplasticity**

4. Shors, T. J. (2016). A trip down memory lane about sex differences in the brain. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences*, *371*, DOI: 10.1098/rstb.2015.0124
5. Shors, T. J., Millon, E. M., Chang, H. Y. M., Olson, R. L., & Alderman, B. L. (2017). Do sex differences in rumination explain sex differences in depression? *Journal of Neuroscience Research*, *95*, 711-718.
6. Schiffer, B., Pawliczek, C., Muller, B. W., Gizewski, E. R., & Walter, H. (2013). Why don't men understand women? Altered neural networks for reading the language of male and female eyes. *PLoS ONE*, *8*(4), 1 – 7.
7. Babbage, D. R., Zupan, B., Neumann, D., & Willer, B. (2018). Sex differences in response to emotion recognition training after traumatic brain injury. *Brain Injury*, *32*, 1492-1499.

### **Class 4 – January 31, 2018: Sex Differences in Neuroplasticity, Brain Injury and Disease**

8. Gobinath, A. R., Choleris, E., & Galea, L. A. M. (2017). Sex, hormones, and genotype interact to influence psychiatric disease, treatment, and behavioral research. *Journal of Neuroscience Research*, *95*, 50 – 64.
9. Mychasiuk, R., Hehar, H., Farran, A., & M. J. Esser. (2014). Mean girls: Sex differences in the effects of mild traumatic brain injury on the social dynamics of juvenile rat play behaviour. *Behavioural Brain Research*, *259*, 284-291.
10. Colantonio, A., Kim, H., Allen, S., Ashbridge, M., Petgrave, J., & Brochu, S. Traumatic brain injury and early life experiences among men and women in a prison population. *Journal of Correctional Health Care*, *20*, 271-279.
11. Ilie, G., Adlaf, E. M., Mann, R. E., Boak, A., Hamilton, H., Ashbridge, M.,...Cusimano, M. D. (2014). The moderating effects of sex and age on the association between traumatic brain injury and harmful psychological correlates among adolescents. *PLOS ONE*, *9*(9), <https://doi.org/10.1371/journal.pone.0108167>

### **Midterm #1 – February 7, 2018 Covering Articles 1 – 11 and information from Class 1**

**Class 5 – February 14, 2018: Gender, Hormones & Context**

12. Fausto-Sterling, A., Coll, C. G., & Lamarre, M. (2012). Sexing the baby: Part 1 – What do we really know about sex differentiation in the first three years of life? *Social Science & Medicine*, *74*, 1684-1692.
13. Fausto-Sterling, A., Coll, C. G., Lamarre, M. (2012). Sexing the baby: Part 2 applying dynamic systems theory to the emergences of sex-related differences in infants and toddlers. *Social Science & Medicine*, *74*, 1693 – 1702.
14. van Anders, S. M., Goldey, K. L., Kuo, P. X. (2011). The steroid/peptide theory of social bonds: integrating testosterone and peptide responses for classifying social behavioral contexts. *Psychoneuroendocrinology*, *36*, 1265 – 1275.

**Class 6 – Feb 28, 2018: Sex Differences in Motivation, Stress, and Mental Health**

15. Altemus, M., Sarvaiya, N., & Neill Epperson, C. (2014). Sex differences in anxiety and depression clinical perspectives. *Frontiers in Neuroendocrinology*, *35*(3), 320 – 330.
16. Fattore, L., Melis, M., Fadda, P., & Fratta, W. (2014). Sex differences in addictive disorders. *Frontiers in Neuroendocrinology*, *35*(3) 272 – 284.
17. Chao, A. M., Loughhead, J., Bakizada, Z. M., Hopkins, C. M., Geliebter, A., Gur, R. C., & Wadden, T. A. (2017). Sex/gender differences in neural correlates of food stimuli: a systematic review of functional neuroimaging studies. *Obesity Reviews*, *18*, 687 – 699.
18. Cornier, M-A., Shott, M. E., Thomas, E. A., Bechtell, J. L., Bessesen, D. H., Tregellas, J. R., & Frank, G. K. (2015). The effects of energy balance, obesity-proneness and sex on the neuronal response to sweet taste. *Behavioural Brain Research*, *278*, 446-452.
19. Taylor, S.E., Klein, B. P., Gruenewald, T. L., Gurung, R. A. R. & Updegraff, J. A. (2000). Biobehavioural responses to stress in females: tend-to-befriend, not fight-or-flight. *Psychological Review*, *107*(3), 411 – 429.

**Class 7 – March 7, 2018: Different Sex Connections**

20. 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.
21. 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.
22. 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.

**EVALUATION & EXAM SCHEDULE****Evaluation Summary:**

<b><u>Course</u></b> <b><u>Component</u></b>	<b><u>Date</u></b>	<b><u>Weight</u></b>
<b>Midterm #1</b>	Feb 7	20%
<b>Midterm #2</b>	Mar 14	20%
<b>Seminar</b>	Jan 21 – Mar 7	20%
<b>Lightning Talk</b>	Mar 28 – Apr 4	20%
<b>Essay</b>	Apr 4	20%

**Midterms:**

The two midterms will each be 2 hours long and will include questions in several formats that may include definition, diagram, fill-in-the-blank, and short answer questions. Midterm #2 will not be cumulative.

**Seminar:**

Individually or in pairs students will lead 20 minute seminars (informal and interactive) on an assigned scholarly article regarding sex differences in behavioral neuroscience to the class. A marking scheme/assignment sheet will be provided to students at the beginning of the course. There will be a draw to determine when and which articles students will present.

**Lightning Talk:**

Individually, students will give 5 min blitz type presentations regarding a self-selected topic in the sex influences domain. The talk must make reference to two different primary research papers. The papers selected must be approved by the instructor. To accompany this talk, students must also submit a 2 page summary report regarding the two selected articles. A marking scheme/assignment sheet will be provided to students following the second midterm.

**Essay:**

Individually, students will research and craft an original scholarly essay regarding the topic explored in their **Lightning Talk**. This essay will be 8 pages in length with standard APA formatting applied. This essay will be due at 8:30am on April 4.

## 2018-19 BRESCIA UNIVERSITY COLLEGE ACADEMIC POLICIES AND REGULATIONS

### POLICY REGARDING MAKEUP EXAMS AND EXTENSIONS OF DEADLINES

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 her academic responsibilities. Minor ailments typically treated by over-the-counter medications will not normally be accommodated.

Students must submit their documentation 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. 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. Whenever possible, students who require academic accommodation should provide notification and documentation in advance of due dates, examinations, etc. Appropriate academic accommodation will be determined by the Dean's Office/Academic Advisor in consultation with the student's instructor(s). Academic accommodation may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty.

Please note that 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.

A UWO Student Medical Certificate (SMC) is **required** if a student is seeking academic accommodation on medical grounds. This documentation should be obtained at the time of the initial consultation with the physician/nurse practitioner or walk-in clinic. A SMC can be downloaded from: [http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf) . The student must request documentation sufficient to demonstrate that her ability to meet academic responsibilities was seriously affected. Please note that under University Senate regulations documentation stating simply that the student "was seen for a medical reason" or "was ill" is **not** adequate to support a request for academic accommodation.

The full policy on requesting accommodation due to illness can be viewed at:

[http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_12](http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page_12)

### 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. If you consider reducing your workload by dropping one or more courses,

this must be done by the appropriate deadlines (refer to the Registrar's website, <http://brescia.uwo.ca/academics/registrar/services/> or the list of official sessional dates in the Academic Calendar, see the Sessional Dates tab at <http://www.westerncalendar.uwo.ca/index.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.*

## 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.

**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

([http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading\\_68](http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading_68) ).

## 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:

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

### **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, she may then submit a written appeal to the Office of the

Dean. If the student is not satisfied with the decision of the Dean, she may appeal to the Senate Review Board Academic (SRBA), if there are sufficient grounds for the appeal. For information on academic appeals you can consult your Academic Advisor or see the Student Academic Appeals – Undergraduate in the Academic Calendar

[http://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=1&SelectedCalendar=Live&ArchiveID=#Page\\_14](http://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.

### **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).

### **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/>. The website for the Student Development Centre at Western is <http://www.sdc.uwo.ca/>.

#### **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 learn more about mental health and wellness at Brescia at <http://brescia.uwo.ca/life/mental-health-wellness/>. Students who are in emotional/mental distress should refer to Health and Wellness at

Western, [http://uwo.ca/health/mental\\_wellbeing/index.html](http://uwo.ca/health/mental_wellbeing/index.html), for information about how to obtain help for yourself or others.

### **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 <http://brescia.uwo.ca/life/sexual-violence/>.

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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.