CAMOSUN COLLEGE
School of Arts & Science
Department of Psychology

PSYC-215-D01A/B
Biological Psychology
Fall 2020

COURSE OUTLINE

The course description is available on the web @ http://camosun.ca/learn/calendar/current/web/psyc.html

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a)	**Instructor**	Michael Pollock
(b)	**Office hours**	Mondays, Wednesdays, Thursdays, and Fridays at 11:30-12:20
(c)	**Location**	Visit me during office hours by clicking on the following link: Virtual Office Hours
(d)	**Phone**	Use the link provided above to call me during office hours
(e)	**E-mail**	If you need to contact me about an urgent personal matter, you can email me at pollockm@camosun.ca
(f)	**Website**	All course activities will be held on D2L (http://online.camosun.ca). For course content related questions, you can post them any time during the semester on the D2L Discussion Board

2. Intended Learning Outcomes

Upon completion of this course a student will be able to:

1. Summarize the history of biopsychology, and the relationship of biopsychological theories and methods to the broader field of psychology.
2. Compare the most important research methods used in biopsychology.
3. Discuss the basic concepts, supporting the evidence for the interaction of evolution, genetics and experience in the development of behaviour.
4. Label and summarize the basic structures and functions of the human nervous system.
5. Explain the processes involved in neural conduction and synaptic transmission.
6. Label images of the human visual system and explain basic visual processes in the central nervous system.
7. Discuss the mechanisms of perception, consciousness, awareness and attention.
8. Describe the functioning of the human sensorimotor system.
9. Summarize the processes involved in the development of the human nervous system and the ways in which the human brain attempts to cope with brain damage with an emphasis on neuroplasticity.
10. Discuss human learning, memory and amnesia as they relate to the human brain.
11. Summarize human sexual development, human sexual dimorphism and the effects of hormones on human development and behaviour.
12. Describe a model of drug addiction and a general model of the effects of various drugs on the neuronal function.

13. Discuss various disorders of cognition and emotion with regard to the human brain.
14. Summarize the effects of stress and emotions on human neurophysiology.
15. Discuss the neurophysiology of schizophrenia, depression and anxiety and attempts to treat these disorders.

3. Required Materials

Course Textbook
- Pinel, J.P.J. & Barnes, S.J. (2018). *Biopsychology.* (10th ed.). Toronto: Pearson.

Methods of obtaining a copy of this textbook:
1. A digital copy of this textbook is available from Camosun's Bookstore:
   https://www.camosuncollegebookstore.ca/buy_access_codes.asp
2. Alternatively, electronic access to the textbook can be purchased from the textbook's website:
   https://console.pearson.com/enrollment/oafx5f
   > Note: The textbook's website also has an option that lets you have free temporary access to the textbook for 14 days before asking you whether you still wish purchase access.
3. You can also borrow the textbook (possibly an older edition) from Camosun's Lansdowne library. Copies of it are available in the course reserve section for 2-hour loans.

Assigned Readings
All of the assigned readings for this course are from this course textbook. The Course Schedule below outlines the specific chapters and subsections of the textbook that you are to read each week. You should complete these assigned readings prior to class so that you can fully contribute to discussions of the material. Concept notes, available in D2L Content, list the names of the concepts and their associated points from the assigned readings that you should focus on the most.

4. Course Content and Schedule

Course Content
Neuroscience is a relatively new field of study, but could its findings eventually provide an explanation for all of our behavior by reducing our thoughts and feelings down to the workings of the brain? This course familiarizes students with the current major findings and limitations associated with *biopsychology* - the study of how biological knowledge can be applied to psychological topics. In the process of trying to understand the biological mechanisms of the mind, topics will range from the microscopic (e.g., genetics, the electrophysiology of neurons, and neurochemistry) to the macroscopic (e.g., functional neuroanatomy and how the different parts of the nervous system interact). In addition to studying the concepts associated with these topics, students will have the opportunity to engage in their own independent research as part of their course assignment. This course is a must for anyone interested in understanding the biological underpinnings of our minds and the first-hand experience you will gain in conducting biopsychological research will allow you to be better able to critically evaluate research claims for their practical usefulness in your personal and professional life.

Deadlines
The Course Schedule below lists the specific dates for when the different items of each course component are due. All course components have *hard* deadlines, which are deadlines for when items will no longer be accepted for marks afterwards. Failing to meet a hard deadline will result in a score of zero for that item. Exceptions may be granted at the discretion of the instructor for cases of hardship or extenuating circumstances (e.g., medical emergencies) in which the proper documentation is provided. In general, hard deadlines for the different course components are as follows:
- The first draft of each self-reflection assignment is due 2 days prior to the class that deals with its lecture topic. This is meant to encourage you to come to class fully prepared to discuss your work, and also provides the instructor with time to review the drafts before class and thus be

better prepared to provide support on the specific aspects of the assignment that the class is struggling with the most.

- The final version of each self-reflection assignment is due on the day of the class that deals with its lecture topic. This provides an opportunity for you to receive verbal support in class from the instructor and your fellow students on any aspects of the assignment you are still struggling with before you submit your final version of the assignment by the end of that day.
- The research assignments all have as their hard deadline the last day of instruction for the course. In addition to this hard deadline, the research assignments also have *soft* deadlines, which are deadlines for when each of the research assignments are expected to be submitted by but will still be accepted for full marks afterwards (i.e., no late penalties) up until their hard deadline. This provides students with an opportunity to revise and resubmit for marks research assignments based on written feedback provided by the instructor.
- Class presentations are each due in the specific class they have been scheduled for.
- Each quiz is due on the day of the class that deals with its lecture topic. This provides an opportunity for you to receive verbal support in class from the instructor and your fellow students on any quiz questions you are still struggling with before you make your final attempt at the quiz by the end of that day. You can take each quiz an unlimited number of times up until its deadline, with only the highest score you achieve recorded as your mark for that quiz.

COURSE SCHEDULE

Date	Class	Readings	Lecture topic	Quiz #	Self-refection assignment #		Research assignment
					First draft	Final version	
2020-09-10	All students		Introductory class				
2020-09-11	Lab sections						1.Research Question & Rationale
2020-09-15		1: Biopsychology as a Neuroscience; 5.1: Methods of Visualizing or Stimulating the Living Human Brain			#1		
2020-09-17	All students		1.Biopsyc & its Methods	#1		#1	
2020-09-18	Lab sections						2.Primary Research Articles & References
2020-09-22		2.3: Fundamental Genetics; 2.5: Genetics of Human Psychological Differences			#2		
2020-09-24	All students		2.Behavioral Genetics	#2		#2	
2020-09-25	Lab sections						3.Article Summaries
2020-09-29		3.2: Cells of the Nervous System; 4.1-3: Neural Conduction			#3		
2020-10-01	All students		3.Electrophysiology	#3		#3	
2020-10-02	Lab sections						4.Hypotheses
2020-10-06		4.4-6: Synaptic Transmission; 15.3: Five Commonly Used Drugs; 18.1-2: Antipsychotic and Antidepressant Drugs			#4		
2020-10-08	All students		4.Neurochemistry & Neuropharmacology	#4		#4	
2020-10-09	Lab sections						5.Correlational Study Methods

2020-10-15	All students		Class Presentations #1				
2020-10-16	Lab sections						
2020-10-20			3.1: General Layout of the Nervous System; 3.3: Neuroanatomical Techniques and Directions; 3.4: Anatomy of the Central Nervous System; 14.5: Four Areas of the Brain Involved in Sleep	#5			
2020-10-22	All students		5.PNS & Brainstem	#5		#5	
2020-10-23	Lab sections						
2020-10-27			3.4: Anatomy of the Central Nervous System; 7.1: Sensory System Organization; 7.3: Somatosensory System; 8.2: Sensorimotor Association Cortex; 8.4: Primary Motor Cortex; 9.2: Postnatal Cerebral Development; 15.5: Early Biopsychological Theories of Addiction; 17.1-4: Biopsychology of Emotion	#6			
2020-10-29	All students		6.Forebrain	#6		#6	
2020-10-30	Lab sections						6.Correlational Study Results; 7.Correlational Study Discussion
2020-11-03			16: Lateralization, Language, and the Split Brain; 17.4: Lateralization of Emotion	#7			
2020-11-05	All students		7.Lateralization	#7		#7	
2020-11-06	Lab sections						8.Experimental Study Methods
2020-11-10			6.3: From Retina to Primary Visual Cortex; 6.4: Seeing Edges; 6.6: Cortical Mechanisms of Vision and Conscious Awareness; 7.3: Somatosensory System; 7.5: Selective Attention; 11.6: Inferotemporal Cortex	#8			
2020-11-12	All students		8.Perception	#8		#8	
2020-11-13	Lab sections						
2020-11-17			8.1-5: Sensorimotor System; 8.8: Central Sensorimotor Programs and Learning; 18.5: Tourette's Disorder	#9			
2020-11-19	All students		9.Action	#9		#9	
2020-11-20	Lab sections						
2020-11-24			11: Learning, Memory, and Amnesia		#10		
2020-11-26	All students		10.Memory	#10		#10	
2020-11-27	Lab sections						9.Experimental Study Results; 10.Experimental Discussion
2020-12-03	All students		Class Presentations #2a				

2020-12-04	Lab sections						
2020-12-10	All students		Class Presentations #2b				
2020-12-11	Lab sections						Hard deadlines for research assignments

Class Attendance

Attendance at the first class is mandatory. According to Camosun's policy, students who fail to attend the first class and who do not contact the instructor (e.g., by email) prior to class with a satisfactory explanation will have their seat in the course forfeited. If you decide to miss any subsequent classes, you are responsible for ensuring that you understand all materials and are aware of any announcements, including those that may alter future course events.

You are encouraged to join the virtual classroom (via D2L Collaborate) approximately 10 minutes prior to the scheduled start time of the class. Joining 10 minutes early helps alleviate stress for the participants by allowing time to correct any potential technical problems before the class has begun and ensures the maximum amount of class time can be used effectively. Please be considerate and join early.

Only an audio connection (i.e, microphone) is required for my virtual classes and not a video connection (i.e., webcam). Once you've joined the virtual classroom, please test your audio connection in advance of the class time (see the D2L Collaborate Student Tutorial for help with this).

For technical assistance with the virtual classroom, please contact D2L Support: desupport@camosun.ca

5. Basis of Student Assessment (Weighting)

Evaluation

Your course grade will be based on a weighted average of the percentage points you achieve across the following course components:

Course component	Weight of each item	Number of items	Total weight
Self-reflection assignments			50%
-Early drafts	1%	10	10%
-Final versions	4%	10	40%
Research assignments	3%	10	30%
Class presentations	5%	2	10%
Quizzes	1%	10	10%

Each of the course components is described in more detail in the sections below. You can check the course D2L website at any time during the semester for your current class standing and you are invited to discuss any concerns about your grade with the instructor.

The following cutoffs in percentage points, which are standard at Camosun, will be used in calculating final course letter grades:

Letter Grade	A+	A	A-	B+	B	B-	C+	C	D	F
Percentage	90 to 100	85 to 89	80 to 84	77 to 79	73 to 76	70 to 72	65 to 69	60 to 64	50 to 59	0 to 49

Final grades that end with a decimal point of 0.5 or above will be rounded to the next higher whole number, and grades that end with a decimal point below 0.5 will be rounded to the next lower whole number. The grades of the entire class may be scaled up or down at the discretion of the instructor or department. Grades are not official until they appear on a student's academic record. Extra assignments (beyond what is listed below) will NOT be offered to improve your final grade.

Self-Reflection Assignments

Psychological research has found across a number of different fields (e.g., development, memory, and expertise) that meaningful learning depends upon the degree to which you can relate new information to your previously learned experiences. According to this *Constructivist* view of learning, the greater the amount and quality of these connections you make, the more you can truly understand a concept. Therefore, in order to make the concepts in this course more meaningful to you, the self-reflection assignments will have you relate lecture concepts to your own personal interests and use your own unique personal experiences to develop insights into the workings of the mind. Instructions and forms for these assignment are available in D2L Content and all of your assignment work should be submitted through D2L Assignments. The marking of these assignments will be based upon the degree to which you can in your own words accurately and clearly relate these concepts to your personal interests/experiences. A small proportion of their marks will be given for having completed a first draft a couple of days before class (see the Deadlines section below). This early deadline for first drafts is meant to encourage you to come to class fully prepared to discuss your work, and also provides the instructor with time to review the drafts before class and thus be better prepared to provide support on the specific aspects of the assignment that the class is struggling with the most. In contrast, the large remainder of the assignment marks will be given based on the final version you submit by the end of the class day, thus providing you with an opportunity to first receive verbal support in class from the instructor and your fellow students on any aspects of the assignment you are still struggling. In order to deal with the vast amount of marking these assignments will entail for the instructor, for the final version of each self-reflection assignment the instructor will chose at random one question for in-depth marking and providing written comments on.

Research Assignments

In order for you to gain first-hand experience in conducting psychological research, you will develop and write up in stages throughout the semester a biopsychological research project involving a longitudinal study of yourself and your group members. Instructions, forms, templates, and examples for these assignments are available in D2L Content and all of your assignment work should be submitted through D2L Assignments. Each week, you will work on the project outside of class time, and then in lab discuss with and receive support from your group members and instructor about your work. The instructor will provide written feedback on your work once a week after each week's research assignment deadline. Since each stage builds on the work of previous stages, you must correctly complete each stage in order to receive marks on subsequent stages, with opportunities given for revisions based on the written feedback provided (see the Deadline section below). Groups are encouraged to work on research assignments ahead of their scheduled deadlines but must wait for written instructor approval of proposed methods before data collection takes place.

Stage #1.   *Research Question & Rationale* – You will identify a biopsychological question about yourself that you wish to have answered and that you are comfortable sharing with the rest of the class the results you will eventually collect on yourself about it. In lab, you will find fellow students interested in a similar topic as yourself and form a group with them to work with on this project. In your group, you will list the reasons why you and your group members are personally interested in this topic and agree upon on a single phrasing of the research question that is broad enough to apply to each of those reasons.

Stage #2.   *Primary Research Articles & References* – You will perform a literature search to identify what possible answers to your research question previous biopsychological research has found and that later (in Stage #4 below) you will design hypotheses to test with your research group. You will then track down primary research articles that provide evidence for these claims, with each member of your group contributing different answers and primary research articles. Finally, you will reference these articles in APA format.

Stage #3.   *Article Summaries* – For each of the primary research articles that you contributed to your group, you will summarize *in your own words* both what that article did (based on its Methods section) and what it found (based on its Results section) that is of relevance to your research question. You will also provide supporting quotes, with citations, to back up your summaries of these articles.

Stage #4.   *Hypotheses* – For each of the possible answers that you contributed to your group, you will generate a hypothesis that makes a testable prediction about the direction of the relationship between two variables (a predictor variable and an outcome variable) based on your article summaries.

Stage #5.   *Correlational Study Methods* – For each of the hypotheses that you contributed to your group, you will describe in detail how your group could quantitatively measure natural variations in that variable over time (i.e., longitudinally) similarly within each of your group's members. You can base these methods on those previously used in the scientific literature (as outlined in your article summaries) or they can be entirely of your own creation.

Stage #6.   *Correlational Study Results* - Following the instructor's approval of your group's proposed correlational methods, you will start taking measurements of yourself for testing each of your group members' hypotheses. (IMPORTANT NOTE: findings from a project whose methods have not been approved will receive a mark of zero. Do not start data collection until your group has first received written approval of its proposed methods.) In order to verify the time course of your measurements, on each day of your correlational study you must submit to D2L Assignments updates of your raw data. Based on the data collected on yourself and separately on the data pooled across your group members, you will perform correlational analyses to see whether this data supports any of your group's hypotheses. You will then construct a table that reports the correlation coefficients from these analyses and produce scatterplots that visually display the relationships between the variables.

Stage #7.   *Correlational Study Discussion* - Based on your group's correlational study results, you will state which of your group's hypotheses were confirmed and which one of them received the strongest support (i.e., had the highest correlation coefficient). (IMPORTANT NOTE: Your assignment mark is not dependent on whether your hypotheses were confirmed or not, but rather whether you have correctly interpreted this based solely on the data your group collected.) You will relate the group's results to the possible answers you previously contributed to the group during the literature search. You will also compare your group's results to those of the studies you contributed article summaries about and for any discrepancies in findings speculate upon their possible reasons due to methodological differences.

Stage #8.   *Experimental Study Methods* – For the hypothesis that received the strongest support from your group's correlational study, you will describe in detail how your group plans to further experimentally test similarly on each of themselves whether a causal relationship exists between the two variables (now called the independent variable and the dependent variable) in that hypothesis. The methods your group chooses for manipulating the independent variable and for measuring the dependent variable can be based on those previously used in the scientific literature (as outlined in your article summaries) or can be entirely of your own creation. You will also describe how your group proposes to reduce the possibility of confounding variables (i.e., order effects, placebo effects, and experimenter expectancy effects).

Stage #9.   *Experimental Study Results* – Following the instructor's approval of your group's proposed experimental methods, you will start carrying out those methods on yourself. (IMPORTANT NOTE: findings from a project whose methods have not been approved will receive a mark of zero. Do not start data collection until your group has first received written approval of its proposed methods.) In order to verify the time course of your measurements, on each day of your experimental study you must submit to D2L Assignments updates of your raw data. Based on the data collected on yourself and separately on the data pooled across your group members, you will perform inferential statistics (i.e., *t*-tests). You will then construct a table that reports the descriptive statistics from this study and produce a bar graph that visually displays the difference in effects between conditions.

Stage #10.   *Experimental Study Discussion* – Based on your group's experimental study results, you will conclude whether a causal relationship exists between the two variables in your group's experimental hypothesis. (IMPORTANT NOTE: Your assignment mark is not dependent on whether your hypothesis was confirmed or not, but rather whether you have correctly interpreted this based solely on the data your group collected.) You will then relate these findings to your group's original rationale for conducting the study, and reflect on their implications and possible practical applications.

Class Presentations

Class presentations provide you with an opportunity to share with the rest of your student colleagues in the class updates on the project you are proposing (Class Presentations #1) and later that you will have conducted (Class Presentations #2) for your research assignments. In this way, others will also be able to benefit from the work and answers discovered by your research group, which is at the very heart of the scientific method's requirement to publish all methods and results in a transparent way. Each research group will have a maximum 5 minutes of class time to summarize in their presentation

to the class the stages of their research assignments they have accomplished up to that date. Marks will be provided for clarity of explanation, accuracy, and completeness in this summary. Use of visual aids (e.g., PowerPoint slides) in your presentation is strongly encouraged and each group member is expected to contribute verbally to the presentation.

Quizzes

Since your learning will be enhanced by testing yourself and practicing your retrieval of the course information from memory (known as the *testing effect* or *retrieval practice effect*), for each set of lecture concepts you will be assigned a quiz. All quizzes will cover solely the material contained in the concept notes (see the Readings section above), with each of the questions describing one of the concept points and asking for the name of that concept. The format of the questions will be very multiple-choice, with questions listing alphabetically as options the names of all the concepts from the relevant lecture. Half of the questions will be *knowledge-type questions* which use for descriptions of the concepts the same wording as the points in the concept notes, while the other half of questions will be *understanding-type questions* which reword these points usually in the form of a real-life scenario. You can access each quiz through D2L Quizzes and take it an unlimited number of times up until its deadline (see the Deadlines section below), with only the highest score you achieve recorded as your mark for that quiz.

6. Grading System

| X | Standard Grading System (GPA)

| | Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Lecture Slides

Powerpoint slides are available for each lecture topic in D2L Content. These lecture slides supplement the content in the assigned readings and provide an additional source for helping you understand the course concepts.

Additional Textbook Resources

Although not required for this course, additional resources such as study guides and video resources can be accessed through the Pinel & Barnes textbook website (known as Revel) via the following link: https://console.pearson.com/enrollment/oafx5f
If you experience any technical problems with that website, please contact their Customer Support by visiting: https://www.pearsonhighered.com/revel/students/support/

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library,

and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS http://camosun.ca/about/policies/index.html

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://camosun.ca/about/policies/index.html for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.