CAMOSUN COLLEGE
School of Arts & Science
Department of Psychology

PSYC-215-001
Biological Psychology
Winter 2019

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 11:30-12:50 and Thursdays 10:30-11:50	
(c) Location	Fisher 308B	
(d) Phone	250-370-3111	**Alternative:**
(e) E-mail	pollockm@camosun.ca	
(f) Website	http://online.camosun.ca	

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

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

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 be assisted with engaging in their own independent research as part of their course assignments. 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 neuroscience 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 dates for when the different components of your course grade are due. Assignments have both target deadlines (i.e., deadlines for when assignments are expected to be submitted by) and hard deadlines (i.e., deadlines for when assignments will no longer be accepted for marks), with hard deadlines following 3 weeks after target deadlines or until the end of classes (whichever comes first). Quizzes/exams have just hard deadlines, which means there will be no make-up quizzes/exams for this course. Failing to take a quiz/exam by its scheduled date will result in a score of zero for that quiz/exam. Exceptions may be granted at the discretion of the instructor for cases of hardship or extenuating circumstances (e.g., a medical emergency) if the proper documentation to show this can be provided. In the case of a missed exam due to such documented extenuating circumstances, a make-up exam will be provided. In the case of all other missed/non-approved course items, the marks from that item will automatically be waived from your course grade and its weight distributed proportionately to the remaining accomplished course items.

Course Schedule:

Week	Lab or Lecture	Date	Lecture Topic	Readings*, *Assignment*, or **Quiz/Exam**
Week 1				
	Lecture	Jan 9 Wednesday	Course Overview	
	Lab	Jan 11 Friday		
Week 2		Jan 15 Tuesday		Read Ch.1 & 5.1 **Online quiz on Biopsychology & its Methods**
	Lecture	Jan 16 Wednesday	Biopsychology & its Methods	
	Lab	Jan 18 Friday		*Research Topic* **Bonus quiz on Biopsychology & its Methods**
Week 3		Jan 22 Tuesday		Read Ch.2.3 & 2.5 **Online quiz on Behavioral Genetics**

	Lecture	Jan 23 Wednesday	Behavioral Genetics	
	Lab	Jan 25 Friday		*Primary Research Article* **Bonus quiz on Behavioral Genetics**
Week 4		Jan 29 Tuesday		Read Ch.3.2 & 4.1-4.4 **Online quiz on Electrophysiology**
	Lecture	Jan 30 Wednesday	Electrophysiology	
	Lab	Feb 1 Friday		*Article Summary* **Bonus quiz on Electrophysiology**
Week 5		Feb 5 Tuesday		Read Ch.4.5-4.7, 15.3, & 18.1-18.2 **Online quiz on Neurochemistry & Neuropharmacology**
	Lecture	Feb 6 Wednesday	Neurochemistry & Neuropharmacology	
	Lab	Feb 8 Friday		*Hypothesis* **Bonus quiz on Neurochemistry & Neuropharmacology**
Week 6		Feb 12 Tuesday		Read Ch.3.1, 3.3, 3.5, 3.6, & 14.5 **Online quiz on PNS & Brainstem**
	Lecture	Feb 13 Wednesday	PNS & Brainstem	
	Lab	Feb 15 Friday		*Baseline Methods* **Bonus quiz on PNS & Brainstem**
Week 7		Feb 19 Tuesday		
	Lecture	Feb 20 Wednesday	*Reading Break*	
	Lab	Feb 22 Friday	*Reading Break*	
Week 8		Feb 26 Tuesday		
	Lecture	Feb 27 Wednesday	Review for Midterm	
	Lab	Mar 1 Friday		*Correlational Analyses* **Midterm Exam**

Week 9		Mar 5 Tuesday		Read Ch.3.6, 7.1, 7.3, 8.2, 8.4, 9.2, 15.4, & 17.1-17.4 **Online quiz on Forebrain**
	Lecture	Mar 6 Wednesday	Forebrain	
	Lab	Mar 8 Friday		*Experimental Methods* **Bonus quiz on Forebrain**
Week 10		Mar 12 Tuesday		Read Ch.16 & 17.4 **Online quiz on Lateralization**
	Lecture	Mar 13 Wednesday	Lateralization	
	Lab	Mar 15 Friday		**Bonus quiz on Lateralization**
Week 11		Mar 19 Tuesday		Read Ch.6.4, 6.6, 7.3, 7.5, & 11.7 **Online quiz on Perception**
	Lecture	Mar 20 Wednesday	Perception	
	Lab	Mar 22 Friday		*Descriptive & Inferential Statistics* **Bonus quiz on Perception**
Week 12		Mar 26 Tuesday		Read Ch.8.2-8.5, 8.8, & 18.4 **Online quiz on Action**
	Lecture	Mar 27 Wednesday	Action	
	Lab	Mar 29 Friday		*Tables & Figures* **Bonus quiz on Action**
Week 13		Apr 2 Tuesday		Read Ch. 11 **Online quiz on Memory**
	Lecture	Apr 3 Wednesday	Memory	
	Lab	Apr 5 Friday		*Conclusions* **Bonus quiz on Memory**
Week 14		Apr 9 Tuesday		
	Lecture	Apr 10 Wednesday	Review for Final	

	Lab	Apr 12 Friday		*Research Paper* **Bonus quiz on Final**
		TBA		**Final Exam**

5. Basis of Student Assessment (Weighting)

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

Course Component	Weight
Online Quizzes (each online quiz is worth 0.1%)	1%
Midterm Exam	33%
Final Exam	33%
Assignments (each assignment is worth 3%)	33%
Participation & Bonus Questions (each bonus question is worth 0.05% extra)	Maximum 14% extra credit

Each of these 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.

Quizzes & Exams:
All quizzes and exams will cover solely the material contained in the concept lecture notes, with each of the questions describing one of the points from the concept lecture notes and asking for the name of that concept. The format of the questions will be either short-answer or very multiple-choice (with questions listing as options the names of all the concepts from the relevant lectures). 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 lectures 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.

Online 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), for each set of concept lecture notes you will be assigned an online quiz. In addition to being worth marks, the online quizzes will also help prepare you for exams since they cover the same content from the concept lecture notes (although the understanding-type questions will use different scenarios). The online quizzes can be accessed through the course D2L website and can be performed on a computer either on or off campus. Students may take each online quiz an unlimited number of times until its deadline and only the highest score you achieve on a quiz before its deadline will be recorded as your mark for that quiz.

Exams – Exams will be in-class, closed book, and will not be cumulative (i.e., the final exam will only cover material that came after the midterm exam). You will only be given a single attempt at each exam. The content of the questions will be taken equally from each of the concept lecture notes covered by that exam.

Assignments:
Working in groups of up to 4 students, you will develop in the following 11 stages a psychological research project involving self-experimentation. Guidance will be provided in lecture throughout the semester for how to carry out these assignments. After you have completed an assignment, you should submit it into its proper D2L Dropbox. Feedback on the assignment will be provided by the instructor via the same D2L Dropbox. If you have any questions about the feedback, you should meet in person with the instructor during office hours to discuss these questions. Students may resubmit each assignment an unlimited number of times without late penalties until its hard deadline. To

receive a mark for each assignment, your work must meet a satisfactory level of quality as determined by the instructor. You will not be allowed to progress to the next assignment until all requested revisions on the previously submitted assignment have been made and approved by the instructor.

Assignment #1 - Research Topic – You will identify a psychological aspect that the members of your group have each agreed to investigate in themselves to study the neuroscience of it, and provide a description of why you are personally interested in that topic. Example topics include the following:
- attention
- sleep
- dreams
- circadian rhythms
- drug use
- addiction
- sensation
- perception
- motor skills
- learning
- memory
- concept formation
- problem solving
- judgement formation
- cognitive skills
- executive functioning
- language
- intelligence
- creativity
- hunger
- body-weight regulation
- sex drive
- affiliation need
- achievement motivation
- happiness
- emotions
- stress
- health
- coping
- social cognition
- conformity
- obedience
- prejudice
- aggression
- attraction
- altruism

IMPORTANT NOTE: make sure it's a topic that you expect will naturally show variations within yourself from day-to-day and that you'd also be willing to share with the rest of the class the results you have taken on yourself about it.

Assignment #2 - Primary Research Article – You will perform a literature search using the Camosun Library database Medline to see what aspects about your topic have already been examined by neuroscientific research and find at least one primary research article about that topic, with each member of your group contributing a different article.

Assignment #3 - Article Summary - You will reference (in APA format) your approved primary research article, identify from its Results and Methods sections a finding that article has revealed about your topic and the methods they used to assess it, and then summarize in your own words this finding.

Assignment #4 - Hypothesis - Based on the finding from your approved Article Summary, you will generate a hypothesis that makes a specific prediction involving two variables (an independent and a dependent variable) and an expected direction of results.

Assignment #5 - Baseline Methods – Based on your group's approved hypotheses, you will describe in detail a method your group proposes for how each member of your group will similarly quantitatively measure in themselves natural variations in the variables listed in those hypotheses in order to non-experimentally test the hypotheses. The methods your group chooses for measuring your variables can be based on those previously used in the scientific literature or can be entirely of your own creation.

Assignment #6 - Correlational Analyses - Following approval of your proposed baseline methods by the instructor, you will start carrying out those methods. 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 methods have first been approved. Data on each of your variables must be measured at least once a day (on the same days) for a minimum of 12 days. Based on the data you have individually collected in your baseline measurements, you will perform correlational analyses to test your group's approved hypotheses. In order to receive a mark for this assignment, on each day of your baseline measurements you must submit to D2L that day's data and your updated correlational analyses.

Assignment #7 - Experimental Methods – Based on the hypothesis that your group's approved correlational analyses most strongly support and that predicts a desired outcome, you will describe in detail a method your group proposes for how each member of your group will similarly experimentally test on themselves the relationship between the independent variable and the dependent variable listed in that hypothesis. The methods your group chooses for manipulating your independent variable and measuring your dependent variable can be based on those previously used in the scientific literature or can be entirely of your own creation. In your experimental methods, you will also describe a method your group proposes for how each member of your group will reduce the possibility of order effects, placebo effects (when blind manipulation options are available), and expectancy effects in measurements.

Assignment #8 - Descriptive & Inferential Statistics – Following approval of your proposed Experimental Methods by the instructor, you will start carrying out those methods. 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 methods have first been approved. Data on your dependent variable must be measured at least once a day for a minimum of 6 days per condition, with at least 2 conditions (i.e., a minimum of 12 days in total). Based on the measurements you have individually collected in your experiment, you will calculate descriptive statistics (means and standard deviations) for each of your experimental and control conditions, and perform inferential statistics (t-tests) to determine if there were statistically significant differences between your conditions as predicted by the hypothesis for your experiment. In order to receive a mark for this assignment, on each day of your experimental study you must submit to D2L that day's data and your updated descriptive and inferential statistics.

Assignment #9 – Tables & Figures – To present your data in a clear format, you will create a table displaying the descriptive statistics from the data you individually collected in your experimental study. Also, to visually represent the major findings you have individually collected, you will create two types of summary figures: (1) scatterplots of the correlations between variables from your baseline measurements and (2) a bar graph comparing the average values of the different conditions in your experiment. You will provide meaningful labels of the axes in the figures: with the name of the independent variable as the title of the X-axis (i.e., horizontal axis) and the name of your dependent variable as the title of the Y-axis (i.e., vertical axis), along with descriptions of their units/conditions.

Assignment #10 - Conclusions – Based on the statistical analyses of your individual data, you will state which of your approved hypotheses were confirmed (if any), the direction of any relationships, and based on the results from your individual experimental study state whether any causal conclusions can be made. 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 you collected and not based on what the scientific literature or others might have expected.

Assignment #11 – Research Paper – You will collaborate with your group to co-author in proper APA-style format a report of your group's research project based on each of the members' previously approved assignments. It will include in it each of the following sections: Title Page, Abstract, Introduction, Methods, Results, Discussion, References, Tables, and Figures.

Participation & Bonus Questions:
You will be offered extra credit for participating in the testing of experimental teaching methods applied to this course for the following three reasons:
1. to enhance your learning of course material by active engagement in class activities
2. to increase your knowledge of psychological research by being a study participant
3. to improve the teaching of this course by providing feedback on its effectiveness

Examples of the teaching methods that may be used, and that have been recommended in the academic literature on teaching and learning, include the following:
- case studies
- classroom discussion
- competitive learning
- concept mapping
- cooperative learning
- elaborative interrogation
- game-based learning
- generation effect
- imagery use for learning
- individualistic learning
- keyword mnemonic
- meta-cognition strategies
- peer tutoring
- practice testing
- problem-based learning
- rereading
- self-explanation
- simulations

The effectiveness of the teaching methods will be assessed by the following three types of measures:
1. behavioral measures of attention (video recordings of class behavior)
2. subjective evaluations (survey ratings of enjoyment, perceived knowledge/understanding, and motivation)
3. objective measures of knowledge/understanding (class performance on review questions)

With regards to the latter type of measures, in most lectures and labs you will be provided the opportunity to answer review questions about that week's course material. In lecture the review questions will consist of approximately 6 bonus questions (each worth 0.05% extra on your final course grade) given to all students (in randomly assigned groups) throughout the lecture and 1 bonus puzzle (worth 0.5% extra on your final course grade) given to the group of students that achieves the highest level of performance in these review activities. In lab the review questions will consist of a bonus quiz containing 20 bonus questions (each worth 0.05% extra on your final course grade) given at the end of the lab and with the format similar to exams. In order to be eligible to receive credit for correctly answering bonus questions in a given lecture/lab, at the beginning of that class you will need to sign an informed consent form granting permission for your responses in class to be collected anonymously for research purposes and you will need to fully participate in class activities for the entire duration of that lecture/lab.

6. Grading System

| X | Standard Grading System (GPA) |

| | Competency Based Grading System |

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

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.