

## Evolution & Mental Health

Course #: 3EV3

Time:

Tuesdays from 10:30-11:20am

Thursdays from 9:30-11:20am

Location: BSB, Rm 136

Instructor: Paul Andrews

Email: [paul.andrews@psychology.mcmaster.ca](mailto:paul.andrews@psychology.mcmaster.ca)

Office Hours: Arranged on individual basis

TAs:

1. Amanda Beers, email: [beersam@mcmaster.ca](mailto:beersam@mcmaster.ca)

Office Hour: PC Room 207 on Tuesdays from 11:30am-12:30pm,

2. Paz Fortier, email: [fortiep@mcmaster.ca](mailto:fortiep@mcmaster.ca)

Office Hours: PC Room 205A on Tuesdays from 1:30-2:30pm and on Thursdays from 12:30-1:30pm.

3. Olivia Jon, email: [jono@mcmaster.ca](mailto:jono@mcmaster.ca)

Office Hours: PC Room 316 on Wednesdays from 4:30-5:30pm

Questions regarding course content should first be directed towards the TA's. If you can't make any of the TA's office hours, please email one of the TA's and provide them with a list of times that you are available.

The course website is accessible via Avenue to Learn: <http://avenue.mcmaster.ca>

### Course Description and Objectives

This course involves applying basic principles of evolutionary science to address important questions in the science and practice of mental health. What is a disorder and what distinguishes it from the non-disordered state? Why do disorders exist and how are they maintained in populations? How does an evolutionary approach help inform treatment practices? Registrants are expected to be familiar with the basic principles underlying evolutionary biology. The course will be a seminar with a combination of lecture and readings. Grades will be determined by pop quizzes (6%), two midterms (24% and 30%), and a final exam (40%).

The following is a partial list of learning objectives:

1. Students will become familiar with Jerome Wakefield's "harmful dysfunction" definition of disorder.
2. Relatedly, students will become familiar with the concept of an evolved adaptation, how to recognize adaptations in nature, and how the concept of adaptations is crucial to understanding disorder.
3. Students will become familiar with the mutation-selection balance argument for why mental disorders persist in populations.

The following topics will be discussed in this class (not necessarily in this order):

- A. Introduction
- B. Foundational topics
  - a. Adaptation
  - b. Disorder
  - c. Genetics
- C. Fever and sickness behavior
- D. Stress
- E. Serotonin
- F. Insulin resistance
- G. Cancer
- H. Metabolic syndrome
- I. Starvation/anorexia
- J. Alzheimer's disease
- K. Depression
- L. Anxiety
- M. Suicide
- N. Schizophrenia
- O. Psychopathy
- P. Addictive drugs

### **Communication Policy**

E-mail communications must originate from your designated McMaster e-mail account (i.e. mcmaster.ca account). Should we need to communicate with you about individual matters, the email will be sent to your mcmaster.ca account. You should monitor this account regularly. Email sent from third-party providers (yahoo, hotmail, cogeco, sympatico, etc.) will not be received. We have this policy for three reasons: 1. Reduce the amount of incoming spam to our accounts; 2. Ensure that we know with whom we are communicating; 3. Teach the professional use of e-mail. Please note that instructors cannot return long distance telephone calls. Please consider that email is a formal means of communication. You are expected to address your emails to the instructor formally, use coherent complete sentences, and should be signed with your name and student number.

The professor reserves the right to change any and all course requirements if the need should arise. Any change in the course requirements will be posted on Avenue and the details will be announced in class. Any concerns about announced changes should be addressed with the professor as soon as the changes are announced.

### **Courtesy**

Students are expected to behave courteously to instructors and other students in the class, which includes refraining from activities that will disturb or distract others. For example, texting or using the internet in class is prohibited because it distracts others. The instructors reserve the right to lower grades for violations of this policy.

## **Grading Policy**

Grades will be based on pop quizzes (6%), two midterm (worth 24% and 30%, respectively) and a final exam (40%).

### **Attendance**

Students are expected to attend every class. Pop quizzes are randomly given over the term to provide students with an incentive to attend.

### **Pop Quizzes**

There will be six pop quizzes throughout the semester that will collectively constitute 6% of the grade. Pop quizzes are intended to give students an incentive to attend the class and to do the readings. Consequently, unlike exams (see below), pop quizzes will only be based on the readings for that week.

### **Exams**

There will be two midterm exams, which will constitute 24% and 30% of the grade, respectively. There will also be a final exam, which will constitute 40% of the grade. The material covered on all exams is cumulative.

### **Final grade**

The instructors reserve the right to adjust final marks up or down, on an individual basis, in the light of special circumstances and/or the individual's total performance in the course. The instructors also reserve the right to grade the whole class on a curve. Apart from special circumstances, students will be assigned a grade from the McMaster University Grading Scale based on an overall assessment by the professor on the work submitted. To pass the course, the student will achieve a passing grade on all graded portions of the course. Grades will be computed out of 100 points and converted to a letter grade as follows:

90-100 = A+  
85-89 = A  
80-84 = A-  
77-79 = B+  
73-76 = B  
70-72 = B-  
67-69 = C+  
63-66 = C  
60-62 = C-  
57-59 = D+  
53-56 = D  
50-52 = D-  
< 50 = F

## **Missed Work Policy**

If you are absent from the university for a temporary medical issue (e.g., the flu), lasting fewer than 5 days, you may report your absence using the McMaster Student Absence Form (MSAF): <https://pinjap01.mcmaster.ca/msaf/>. Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation. When using the MSAF, report your absence to the professor and your TA. You must be in contact with the instructor within 3 business days. Please note that the MSAF may not be used for the final exam.

For excused absences, **no late assignments will be accepted and no makeups will be given.** Instead, the value of the final exam will be increased by a corresponding amount.

Also, please note that the course instructor is NOT primarily in charge of whether an absence will be given special consideration. Every student gets one free MSAF. After that, special consideration is determined by the Dean's Office for your faculty.

### **Readings and Reference Materials**

Readings will be posted on Avenue. Readings are designed to provide in-depth examples of topics presented in class. We will provide you with full references for papers available at the McMaster libraries. You will be expected to obtain these papers from Avenue and read them before the next class. These readings are materials that supplement what you learn in class, they are not a replacement for materials presented in class.

### **Letters of Recommendation**

It should be understood that I don't generally write reference letters for students in my classes unless I get to know them. I generally do write letters for people who work in my lab because I get to know them well.

If you think you might want a letter of recommendation from me after the course for graduate school, then it will be helpful to plan for this. Since a weak letter can harm one's chances of getting into graduate school, I won't agree to write a letter unless I can write a strong letter.

While graduate programs differ, many have the goal of training productive, independent scientists. Ideally, a scientist is a strong analytical thinker who can evaluate the strength of evidence and draw appropriate conclusions; generates interesting research questions of their own; has the drive and the ability to carry out a research program that tests those ideas; can effectively communicate research findings to other scientists and the public; can form and maintain collaborative relationships with other researchers; and is professional and respectful.

When I agree to write a letter, I have to think about the information that I've learned about the student to address these qualities. However, for most students, I only have a limited amount of information from the course that I can use to write a letter. So here is some advice about how to get a good letter from me.

1. Do well in the class.
2. Participate in class, ask good questions, and demonstrate that you understand the material. The more I learn about you, the easier it is for me to write a letter.
3. Write well. A person who can write well has a skill that will be helpful to them in graduate school and many other careers.
4. By your participation in the course and in your writings, show me you have the ability to evaluate evidence, draw appropriate conclusions, and generate interesting research questions.
5. Be respectful and pleasant to me and to others. Disagreements go with the territory in science, but they should be carried out in a polite and professional manner.

### **Academic Integrity**

Students are expected to be familiar with McMaster's policies on academic integrity as found in the Senate Policy Statements distributed at registration and available in the Senate Office (see <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>).

Any student who infringes one of these resolutions will be treated according to the published policy.

Any instance of plagiarism will be dealt with in the most severe terms allowable by the Senate Policy on such matters.

You may not record lectures without prior permission from the instructor. You also may not post any recordings of any lecture on the internet.