

Evolution and Mental Health

Course #: 4MH3

Time: Thursdays, 8:30-11:30am

Location: BSB 122 (Burke Science Building, Rm 122)

Instructor: Paul Andrews

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Office Hour: TBA (also by appointment)

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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? What is the best way to treat a mental health condition? Registrants are expected to be familiar with the basic principles of evolutionary biology.

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. This is a 4th year course and we expect you to communicate with us at the university level.

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 the webpage 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.

Grading Policy

Grades will be based on five writing assignments (each worth 10% of grade; cumulatively they are worth 50%) and a final paper (the remaining 50% of grade).

Writing assignments

The writing assignments are formal essays of a maximum of 4 pages in length, double spaced, normal font (Arial, Times New Roman). As essays, they must have a clear thesis, which

is introduced near the beginning of the essay, followed by paragraphs supporting the thesis, and ending with a concluding paragraph.

The essays must be related to one or more of the readings for that week. Other than that, the topics are open. For instance, one could critically evaluate one of the points discussed in an assigned reading, evaluating the evidence pro and con, provided it did not simply recapitulate what was said in the readings. One could take issue with a point made in one of the assigned readings, providing evidence that contradicts the authors' point. One could discuss a new idea or hypothesis inspired by one of the readings. Other topics are possible.

For the essays, the class will be divided into two groups—A and B. Each group will turn in one essay every two weeks, with the groups covering alternating weeks. This way, one group or the other will cover the material for most weeks. There are some dates where an essay is not due, so the due dates for each group are denoted on the course schedule below.

Essays will be graded on the clarity of the writing and the quality of reasoning. It is also assumed that every student in the course has had enough education to know how to spell and use proper grammar. Points will be deducted for incorrect spelling or inappropriate grammar. Essays will be graded on a 100 point scale.

Final paper

For the final paper, students should apply the principles taught in class to do one of the following: (A) Critique the evidence for and against one of the phenotypes that are considered “disorders” in the DSM-IV-TR. Students choosing this option should not choose a phenotype already covered in the course (e.g., depression, anxiety, schizophrenia, recreational use of drugs) unless they intend to take an approach that was not covered in the course. (B) Propose and evaluate a novel hypothesis, based in evolutionary logic, to help understand any phenotype in the DSM-IV-TR, including ones covered in the course. (C) Propose and defend a novel evolutionary principle that can be of general use to understand physical and mental health. Other topics are possible, but students should first discuss with the course instructor.

The final paper should be approximately 15-20 pages in length and will be due on the last day that classes are held in the university (April 4th). Final papers will be graded on the clarity of the writing, the quality of reasoning, and originality. It is also assumed that every student in the course has had enough education to know how to spell and use proper grammar. Points will be deducted for incorrect spelling or inappropriate grammar. The final paper will also be graded on a 100 point scale.

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. 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 (including class participation). 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. <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 pandrews@mcmaster.ca. You must be in contact with the instructor within 5 business days. Please note that the MSAF may not be used for the final paper.

Readings and Reference Materials

In North America, psychiatrists use a manual entitled “Diagnostic and Statistical Manual for Mental Disorders” (DSM) to diagnose mental disorders. The current version of the DSM is the fourth edition, text revision (DSM-IV-TR). We will not be doing a great deal of primary reading from the DSM-IV-TR, but there will be times when students may find it a useful reference. For this reason, the instructors will ensure that at least one copy is kept on reserve in the Health Sciences Library.

Many course readings will be chapters of a book that is being prepared by Dr. Andrews and several colleagues. Readings from this book will be handed out in class. All other readings will be assigned in-class and posted on the course website. 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 the library or library website 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. You will be tested on materials from the readings and class presentations. As per the communication policy, any changes in readings will be posted on the course website and announced in class.

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.

Table 1. Course Schedule. (A)=writing assignment due dates for Group A; (B)=writing assignment due dates for Group B.

| Date | Topic | Readings |
|-------------------|--|---|
| Jan 5 | Issues in mental health science | No readings |
| Jan 12 (A) | What is a disorder? | Chapter 1, Wakefield (1992) |
| Jan 19 (B) | Adaptation | Chapter 2 |
| Jan 26 (A) | Depression | Chapter 5; Cavanagh et al. (2011); von Helversen et al. (2011) |
| Feb 2 (B) | Depression and suicide | Chapter 6 |
| Feb 9 (A) | Anxiety | Macleod & Mathews (2004); Coelho & Purkis (2009); Lee et al. (2006) |
| Feb 16 (B) | Female sexual difficulties | Chapter 7 |
| Feb 23 (A) | Addictive drugs | Chapter 8 |
| Mar 1 (B) | Why do disorders persist in populations? | Chapter 3 |
| Mar 8 (A) | Schizophrenia | Chapter 4; Keller et al. (2012) |
| Mar 15 (B) | Therapies—psychotropic medications | Andrews et al. (2011); Andrews et al. (in prep.); |
| Mar 22 | No class | |
| Mar 29 | Therapies—talking therapies | Jacobson et al. (1996); Dimidjian et al. (200X); Hollon et al. (2000); Barlow et al. (2000) |