

Memory and Stress

Janet Metcalfe, Professor

In this course we shall investigate human memory and control, including the effects of acute stress on memory and control. Topics investigated include the basis of human memory and the psychological and physiological effects of stress on human memory; a critical examination of the idea that repressed memories that initially occurred under stress may later be uncovered; the role of two different memory systems, one, a 'cool' memory system based in the hippocampal/frontal lobe system and one, a 'hot' emotional system based in the amygdala, which may have differential roles as a function of stress. These come on line, developmentally, at different times. This framework will be used to understand post-traumatic stress disorder; the concept of repression; the role of stress on attention; the effect of stress on delay of gratification (temporal discounting); the role of stress on decision making and metacognition. We will also investigate the concept and empirical data related to suggestibility; the relation of source amnesia and confabulation to normal memory; and, the implications of research in this area to admissibility of evidence in cases of uncovered memories; false confession; coerced confession. When available, data about the neural basis of particular phenomena will be discussed.

Students will be expected to participate in an active way in these classes. There will be four term tests, which are non-cumulative, and a two-hour final examination which is cumulative. The evaluation is as follows: 20% for the final exam, 20% for each of four term tests. Students will have the option of replacing the lowest of the four term test grades with the grade achieved on an optional paper, that is due the last day of class. The student must consult with Professor Metcalfe on the topic of the optional scientific research-based paper. Given that you will have the option to write this paper to replace any of the four term test grades, no excuses will be accepted for missing any test. If a test is missed it will be assigned a zero, and count as the lowest test the grade (which the student may replace by writing the paper).

This is a topic of current concern both in the field of the academic study of human memory and in the society at large, and the literature and the issues of concern are rapidly evolving. We encourage the students to post news items that are related to this course on our class discussion board, and to flag these in class.

We will use two books as background, plus obligatory source readings that will be posted on Courseworks., to augment the lectures. The background books are:
1. Searching for Memory: The Brain, the Mind, and the Past, by Daniel L. Schacter
2. Why Zebras Don't get Ulcers, by Robert Sapolsky.

Research articles that are posted on courseworks each week are *obligatory* reading.

Professor Metcalfe will be available on Mondays at 10, and by appointment.

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MEMORY & STRESS tentative schedule, subject to revision

0. . Introduction

1. Improving memory: RPL; generation; spacing; interleaving; testing
2. Historical background to the two system distinction: film of amnesic patient KC
3. Meaning and memory; working memory, more permanent memory
4. Attention 1
5. Attention 2
6. test 1
7. State dependence, and variability benefits
8. Memory systems
9. Mnemonics & Mnemonists
10. Projectability and auto-noetic consciousness
11. Eyewitness memory and suggestibility
12. test 2
13. Pathologies
14. Repression and selective forgetting : Thought suppression
15. Decision making
16. Metacognition 1
17. Metacognition 2
18. Juries and confession; cognitive complexity
19. test 3.
20. Stress and arousal
21. Memory and extreme stress

22. Amygdala, fear & emotion, animal/neuro
23. Sapolsky overview
24. Hot/cool framework of memory and self-control (i.e., willpower).
25. Developmental memory, metacognition and control
26. test 4.

Optional papers are due on Dec 8, unless you have written permission for an extension.

The final exam is scheduled by the university, and is not available yet, but it is tentatively scheduled for Dec 17, during Chanukah. You must be here for the final, so please check the university schedule before making your plans.

