Answer the following questions as instructed and turn in your answer by 1:00, Tuesday, 8 May 2001. Each answer should be complete, thorough, and concise. Begin each answer on a separate page. Places all answers in a single packet with your name on the front and on each page.

Make it easy for me to give you a good grade! That is, answer the question in an organized manner and in good, standard English. I recommend making a brief outline first. Supplement answers with tables and figures where it can contribute to the answer's clarity. Data are always highly regarded, where appropriate and contribute to the sense and believability of the answer. These can be photocopies (or scans of the figures—the library has an excellent scanner on the first floor) of data from the original figures. Captions and narrative describing the figures should be made by you. Figures need not contribute to the page count; tables do contribute. Answers should be written in 12 point font, single spaced, an extra space between paragraphs, and 1 inch margins. The top margin (header) should contain your name and the page number. I will not accept handwritten answers.

Do your own work on these items from beginning to end. Any evidence of working together on these items will be treated as cheating and the policies described in the Tiger Cub will apply. You will be sharing library resources with other class members, so cooperate. Any unfair hoarding of public resources will also be regarded as cheating and dealt with harshly. I don't expect this to occur, it never has to my knowledge, but I do wish to lay out the ground rules.

Enjoy!

1. Describe the reinforced abstinence approach to drug treatment by reviewing some of the important papers in the primary literature describing the approach. The papers that you cover may include the ones that we covered in class except that at least one paper must be published in the last 5 years, and not covered in class. You can find recent papers using Medline (which contains the primary and secondary medical literature) or Science Citation Index (which shows papers that cite some particular work). This answer should comprise no more than 4 pages. Tables, figures, and other conceptual prostheses are welcome.

a. In your description of the general literature include in the narrative or tabular form some description of the following general issues:
   i. Specifically what the treatment entails, and does not entail.
   ii. Participant selection, retention, and compliance.
   iii. How treatment efficacy was measured.
   iv. Long-term follow-up.
vi. Control conditions.

b. There are experimental papers in this literature. In these some variable is manipulated and the effect is examined. (As opposed to having just treatment/notreatment conditions). Find one of these papers, describe the variable, the effect, and whether it corresponds to how that variable influences behavior in the basic (usually animal) experimental literature. Include a copy of the paper with your answer.

c. Do you think that such a procedure could be implemented in a double-blind, placebo trial? (One paragraph, defend your answer).

d. Place the reinforced abstinence approach in the context of the three-term contingency of reinforcement by using the simple rate relationship in equation 1. State which term(s) would be influenced by the clinical intervention. Also, explain, using a graph with labeled axes, how "drug-seeking" behavior (behavior reinforced by drug delivery) would be influenced. The graph may be hand drawn (neatly) or drawn with a graphics program. It must be neat, clear, informative and clearly linked to the narrative.

2. Review (briefly!) the recent clinical psychopharmacology literature describing two of the following topics. Your review can be based on secondary sources or textbooks, including texts for this course, but since this is a take-home exam some contact with the primary literature is expected. In your review include the description of the disorder, pharmacological interventions, behavioral interventions (if any), the theory underlying the pharmacological actions (e.g., what receptors are acting, why these are important), side effects, tolerance (does it occur? Mechanism? Behavioral? Pharmacodynamic? Metabolic?) and the kinetics (½ life) of one or more drugs used to treat/manage the disorder. An answer should be no more than 2 pages. One or more tables or figures can be used if they contribute to brevity. In this case, the table need not contribute to the page count.

a. Sleep and depression. (State the theoretical underpinning for a link between the two. Describe drug actions and the receptors on which these drugs act.

b. Changes in eating patterns and depression. (Similar comments as in above)

c. Glutamate and schizophrenia.

d. "Atypical" neuroleptics.

e. Pharmacological management of extrapyramidal side effects of neuroleptics.


g. Pharmacological treatment of substance abuse (e.g., D1 agonists, re-uptake inhibitors).

h. Autism and neural tube defects.

i. Anxiety disorders.
j. A sleep disorder.
k. Disorder of your choice, with my approval.

3. Sketch out an illustrated lecture describing how the NMDA receptor operates. Come up with a metaphor describing its action. No more than three pages (four if heavily illustrated).

Answer any two of questions 4-6 OR answer #7.

4. Describe the two types of behavioral tolerance that we've discussed in class: that mediated through respondent mechanisms, and that mediated through operant mechanisms. You may use figures, and should use data in your description. Find one paper published in the last 10 years on behavioral tolerance and critique it, *i.e.*, describe its findings, its strengths, and limitations. Include a copy of the paper in your answer. (3-4 pages)


6. Describe the process by which a new drug is approved. Include in your description the conditions under which accelerated approval might be appropriate. You may use material from the FDA home page if this helps. (about 2 pages)

7. Describe the effects of methylmercury on development across the entire lifespan. There are two sources that you can use to get started.

   a. Describe the effects on children in either the Seychelles Island (Davidson et al., 1998; Davidson et al., 1999) or the Faroe Islands (Grandjean, Weihe, White, & Debes, 1998). Include descriptions of the relevant tests used.

   b. Describe how methylmercury crosses the blood-brain barrier (Aschner & Aschner, 1990).

   c. Describe effects of methylmercury on one of: schedule-controlled operant behavior, sensory function, or motor function.

Some other sources that you may use are: (Newland & Paletz, 2000), (D. C. Rice, 1996; D.C. Rice, 1996),(Committee on the Toxicological Effects of Methylmercury, 2000)


Study [see comments]. *JAMA, 280*(8), 701-707.


