Advanced Topics in PsychoBiology (830:411:01)
Topic: Animal Models of Alcohol and Drug Addiction
Dr. Tomie TuTh4 (1:40 PM – 3:00 PM) SEC 220

Dr. Tomie: Office: Room 103-A, Center of Alcohol Studies (next to Wright Chemistry Labs)
Office Hours: Thursday 10:00 AM – 12:00 Noon
Tele: 732-445-3593
E-Mail: tomie@rci.rutgers.edu
Webpage: http://www.rci.rutgers.edu/~tomie

Learning Goals: The learning goals of this course contribute to the more general goals of the Department of Psychology and of the Rutgers School of Arts and Sciences. Students who successfully complete this course will:

- develop an understanding of the basic methods and historical development of scientific inquiry into drug addiction;
- develop an appreciation of the strengths and weaknesses of animal behavioral models of drug addiction phenomena;
- develop a broader perspective on how experience with drugs may lead to the development of prominent symptoms of drug addiction
- develop a better understanding of the biological basis of addictive behavior;
- develop an appreciation of the relationship between animal behavior and human behavior;
- read original scientific publications on addiction phenomena;
- prepare a PowerPoint presentation of an original scientific investigation published in a research journal, highlighting the methods and results and implications of the study for advancing the body of knowledge related to addiction;

Overview of the Course: The title of this Advanced Topics course is Animal Models of Alcohol and Drug Addiction. There is no assigned textbook. You will be asked to read journal articles on selected addiction topics. Some of the journal articles will describe behavioral effects observed in animals that resemble addiction phenomena. Other journal articles will focus on invasive neurobiological investigations of addictive behaviors in animals. For each class meeting, you will be asked to come to the class

having read the journal article assigned for that class. I will lecture briefly on the general topic of the journal article. We will then discuss the findings reported in the assigned manuscript and how it relates to the general topic. Sometime during each class, a brief quiz will be administered. Particular emphasis will be placed on papers related to the Sign-Tracking Model of Addiction, a relatively novel animal model of addiction developed at Rutgers University by researchers at the Center of Alcohol Studies. Finally, you will be asked to participate during the semester by preparing a 10-15 minute PowerPoint presentation of a research publication, which you will present to the class. You will write a 5-10 page paper on the topic of your PowerPoint presentation.

Attendance: You should attend all classes in this course and all of your other courses. To encourage attendance, a quiz will be administered during each class meeting during the semester. Each quiz will consist of a question based on the material covered in the lecture given that day or in the reading assigned for that day.

Grading: Course grades will be based 50% on your scores on quizzes and 25% on the quality of your PowerPoint presentation and 25% on the 5-10 page paper on the topic of your PowerPoint presentation.

Academic Integrity: You are expected to abide by the code of conduct pertaining to academic integrity. I will not allow cheating on quizzes, and I take special precautions to reduce the opportunity for cheating, while increasing the likelihood of successful prosecution of offenders. I will vigorously enforce the University's regulations on academic integrity. The University's regulations are appropriately strict, and if you plan to cheat, you should first read the regulations and potential consequences:

http://academicintegrity.rutgers.edu/integrity.shtml

Situational Courtesy: The classroom should be viewed as a formal environment with students and faculty dedicating the 80-minute period to focused attention on the task at hand. Texting, twittering, surfing the internet, playing computer games, and other extraneous activities are inappropriate in the classroom environment because they distract the serious students who are sitting near you. Out of respect for those who are seriously participating in the course, I will ask students who engage in disruptive behaviors to leave my classroom.

WEEK OF MONDAY	TOPIC AND READING ASSIGNMENT
Tues, Jan 17	Introduction, Syllabus, e-Reserve.
Thur, Jan 19	Clinical Psychopathology: Diagnostic and Statistical Manual.
Tues, Jan 25	Animal Models of Drug-Taking: Positive reinforcement and operant drug self-administration.
Thur, Jan 27	Animal Models of Drug-Taking: Positive reinforcement and operant drug-seeking and drug-taking.
Tues, Feb 1	Animal Models of Drug-Taking: Adjunctive behavior and schedule-induced polydipsia.
Thur, Feb 3	Animal Models of Drug-Taking: CAM (Cue-At-Manipulandum) Effects
Tues, Feb 8	Animal Models of Drug-Taking: Pavlovian conditioning of directed action and sign-tracking.
Thur, Feb 10	Animal Models of Drug-Taking: Dopamine hypothesis of reward.
Tues, Feb 15	Animal Models of Drug-Taking: Dopamine hypothesis and psychomotor activation.
Thur, Feb 17	Animal Models of Drug-Taking: Dopamine hypothesis and Incentive Sensitization Theory.
Tues, Feb 22	Tolerance: Solomon-Corbit Model
Thur, Feb 24	Tolerance: Compensatory CR Model
Tues, Mar 1	Sensitization: Stress-induced and drug-induced
Thur, Mar 3	Relapse: Abstinence-induced
Tues, Mar 8	Relapse: Cue-induced
Thur, Mar 10	Vulnerability: Impulsivity
Tues, Mar 22	Vulnerability: Behavioral phenotypes
Thur, Mar 24	Vulnerability: Genetic markers
Tues, Mar 29	Vulnerability: Pathophysiological markers

Thur, Mar 31 Appetitive Compulsion: Misbehavior

Tues, Apr 5 Compulsive drug-taking: Negative reinforcement

Thur, Apr 7 Dependence and Withdrawal: Cue effects

Tues, Apr 12 Dependence and Withdrawal: Neurobiology

Thur, Apr 14 Conclusions, Student Presentations

Tues, Apr 19 Conclusions, Student Presentations

Thur, Apr 21 Conclusions, Student Presentations

Tues, Apr 26 Conclusions, Student Presentations

Thur, Apr 28 Conclusions, Student Presentations