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## Course Outline for PSYC 20

### DRUGS AND THE BRAIN

Effective: Fall 2007

#### I. CATALOG DESCRIPTION:

PSYC 20 — DRUGS AND THE BRAIN — 3.00 units

Overview of the physiological and psychological effects of recreational and medicinal psychoactive substances, including opiates, sedative-hypnotics, anxiolytics, antidepressants, antipsychotics, stimulants, marijuana, hallucinogens, and dissociative anesthetics. The course will examine the theories and evidence concerning dependence, substance abuse, tolerance, and withdrawal for the major drug classes. Prerequisite: Psychology 1 (completed with a grade of "C" or higher.) 3 hours lecture.

3.00 Units Lecture

#### Prerequisite

PSYC 1 - General Psychology

#### Grading Methods:

Optional

#### Discipline:

	<u>MIN</u>
<b>Lecture Hours:</b>	54.00
<b>Total Hours:</b>	54.00

#### II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT:

#### III. PREREQUISITE AND/OR ADVISORY SKILLS:

**Before entering the course a student should be able to:**

A. PSYC1

#### IV. MEASURABLE OBJECTIVES:

**Upon completion of this course, the student should be able to:**

1. describe the patterns of drug use among youth and adults
2. identify individual risk factors and protective factors for substance abuse
3. describe the historical role of psychoactive drugs in world societies
4. identify, compare and contrast the basic structures in the nervous system
5. describe neurotransmitters as they relate to drugs action
6. identify and describe the processes involved in drug action, drug tolerance, and drug dependence
7. contrast and analyze controversies in concepts of physical and psychological dependence
8. identify, compare, and contrast the major drugs of abuse, mechanisms of action, beneficial effects, and harmful effects (opiates, sedative-hypnotics, anxiolytics, stimulants, anabolic steroids, marijuana, hallucinogens, hallucinogenic-stimulants, dissociative anesthetics)
9. identify the acute and chronic effects of alcohol consumption
10. describe the mechanisms of action of drugs used for treating mood disorders, schizophrenia, and anxiety disorders
11. describe the interventions used to treat substance abuse and dependence
12. critically analyze prevention and education programs in schools and communities

#### V. CONTENT:

- A. Drug Use: An Overview
  1. History of Drugs and Drug Use
  2. Drug Use Today
    - a. Demographics
    - b. Protective and Risk Factors
  3. Substance Abuse and Dependence as a Psychological Problem
- B. Drug Use as a Social Problem
  1. Theories of Substance Abuse & Dependence
  2. Substance Use and Crime
- C. Drug Regulation
  1. Regulation of Pharmaceuticals
  2. Controlled Substance Act
  3. Impact of Drug Enforcement

- D. Preventing Substance Abuse
  - 1. Types of Prevention
  - 2. Evaluating Outcomes
  - 3. School Programs
  - 4. Family and Community Programs
- E. Substance Abuse and Dependence
  - 1. Behavioral Treatments
  - 2. Psychosocial Treatments
  - 3. Pharmacotherapies
  - 4. Is Treatment Effective?
- F. Medications for Psychological Disorders
  - 1. Medical Model of Psychological Disorders
  - 2. Antidepressants
  - 3. Typical and Atypical Antipsychotics
  - 4. Consequences of Drug Treatments
- G. Nervous System
  - 1. Neurons and Glia
  - 2. Major Structures of the Nervous System
  - 3. Drug Effects on the Brain
  - 4. Genomics and Proteomics
    - a. Emerging Technologies
    - b. Gene and Protein Mapping
- H. Drug Action and Drug Research
  - 1. Scientific Method and Hypothesis Testing
  - 2. Research Methods in Psychopharmacology
  - 3. Categories of Drugs
    - a. Drug Effects
    - b. Mechanisms of Drug Action
    - c. Tolerance and Withdrawal
- I. History, Pharmacology, Mechanisms, Acute and Chronic Effects
  - 1. Stimulants
  - 2. Performance-Enhancing Drugs
  - 3. Sedative-Hypnotics
  - 4. Inhalants
  - 5. Alcohol
  - 6. Tobacco
  - 7. Caffeine
  - 8. Opiates
  - 9. Over-the-Counter Drugs
  - 10. Hallucinogens
  - 11. Marijuana

#### VI. METHODS OF INSTRUCTION:

- A. **Lecture** -
- B. Read text and other sources
- C. **Audio-visual Activity** - Videos
- D. Small group exercises
- E. **Projects** - Student presentations and projects
- F. **Discussion** - Small and large group discussions

#### VII. TYPICAL ASSIGNMENTS:

A. Lecture: Substance Abuse Education in the Community 1. Reading: Levinthal "Point-Counterpoint: Opposing Perspectives on Issues of Drug Policy," Ch 3, pp 50-69 Needle Exchange Programs 2. Reading: Ksir, Hart, & Ray "Drugs, Behavior, and Human Behavior" Ch 17 pp 417-432 Preventing Substance Abuse B. Small Group Discussion 1. Should we encourage needle exchange programs for intravenous drug users? 2. What are the concerns with needle exchange programs? 3. Do needle exchange programs reduce the spread of HIV? 4. Should harm reduction be the goal of community intervention strategies? C. Community and Family Intervention 1. Develop a strategy to educate members of the local community about a specific type of recreational or medical drug. You will work with 2-3 other students to develop this project. Your plan should discuss the target audience or group, strategies for disseminating information, and an example of the type of media used to educate (flyers, posters, radio ads, television commercials, or a webpage). Your group's strategy will be presented to the class at the end of the semester. D. Group Poster Presentations 1. Select a psychoactive drug. Give a brief overview of the epidemiology, physiology, and pharmacology of the drug. Also, find three research articles involving the drug and describe the findings of those studies.

#### VIII. EVALUATION:

##### A. **Methods**

- 1. Exams/Tests
- 2. Quizzes
- 3. Research Projects
- 4. Papers
- 5. Oral Presentation
- 6. Final Performance
- 7. Other:
  - a. Quizzes
  - b. Essays
  - c. Presentations and research projects
  - d. Midterm and final examinations

##### B. **Frequency**

- 1. Quizzes; approximately weekly
- 2. Essays; at least two
- 3. Presentations and projects; at least two
- 4. Midterm and final examinations

#### IX. TYPICAL TEXTS:

- 1. Grilly, D. M. *Drugs and Human Behavior*. 5th ed., Pearson: Allyn-Bacon, 2006.

2. Ksir, C., Hart, C. L., Ray, O. *Drugs, Society, and Human Behavior*. 12th ed., McGraw-Hill, 2007.
3. Levinthal, C. F. *Drugs, Behavior, and Modern Society*. 4th ed., Pearson: Allyn-Bacon, 2005.
4. Levinthal, C. F. *Point-Counterpoint: Opposing Perspectives on Issues of Drug Policy*, Pearson: Allyn-Bacon, 2003.
5. Meyer, J. S., Quenzer, L. F. *Psychopharmacology: Drugs, Brain, and Behavior*. 1st ed., Sinauer Associates Inc, 2006.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

- A. Internet Access