DRUGS OF ABUSE: FROM NEUROBIOLOGY TO POLICY AND EDUCATION.

Listing: Neuroscience C177/C277, Community Health Sciences 296

Course Chairs: Christopher J Evans (UCLA) and Martin Y. Iguchi (UCLA/RAND)

Instructors: Jim Boulter, Chris Evans, Martin Iguchi, David Krantz, Kelsey Martin, Ron Stevens.

Units/Grading: The course will be for four units (4h lectures/week with additional reading material) and can be taken for a letter grade. There will be a Midterm exam (40% of the total grade for undergraduate students and 30% total grade for graduate students). For the Final Exam, undergraduate students will be graded on an individual presentation they prepare on an assigned topic that will count for 50% of the final grade. For graduate students the individual presentation will count for 35% of the final grade and a written take-home exam for 25% of the final grade. Class attendance and participation will count for 10% of the total grade.

Course Aims: This course fills a niche for students who wish to receive comprehensive didactic information on the neuroscience of substance abuse and current policy issues in addition to some teaching experience. The course will provide an analysis of the neurobiology of substance abuse, its relation to psychiatric disorders and societal consequences. Furthermore, a student who has completed the course should be able to provide an effective and informational lecture to high school students on the biology and societal issues surrounding abuse of a number of drugs. Arrangements may subsequently be made for students to have the opportunity to present at a nearby school.

Course Material:
Course Book: A Handbook on Drug and Alcohol Abuse (4th edition) by Gail Winger, Jim Woods and Fredrick Hofmann. Oxford University Press 2004 (30 copies should be available at the UCLA Health and Sciences Bookstore)
Course Website [www.lsic.ucla.edu/classes/winter07/] scroll down to Neuroscience C177. You should be able to access with your BOL information when registered.
Each lecture will be accompanied by reading material that will contain information for the exams.

Contacts:
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COURSE OUTLINE:

Lectures are 2 X 2h/week Monday 2-4 pm and Wednesday 2-4 pm in the MacDonald Building (MRL-2740). There will be a break for Martin Luther King 1/15 and Presidents day 2/19.

1/8 Course orientation (Chris Evans and Martin Iguchi)

1/10 Presenting the Brain to a high school student (Kelsey Martin): The nature and number of cells in the brain. Neuronal communication. Development, synapse formation and cell death.

1/15 Martin Luther King Day

1/17 Brain Reward Pathways (Chris Evans): Self-stimulation/aversion. The reward system circuitry and neurotransmitters, natural rewards and drugs.

1/22 Transporters (David Krantz): Membrane/vesicular transporters as pharmacological targets.

1/24 Drugs Interacting with Transporters (David Krantz): The molecules, cellular processes and circuitry involved in the action of drugs of abuse interacting with transporters, e.g. MDMA, cocaine and amphetamine.

1/29 Problem-based learning (Ron Stevens, Chris Evans and Martin Iguchi): Principles and practicalities of the mid-term exam

1/31 Drugs of abuse that interact with ligand-gated ion channels: Part I (Jim Boulter) A discussion of the molecular, cellular and neural basis of nicotine abuse.

2/5 Drugs of abuse that interact with ligand-gated ion channels: Part II (Jim Boulter) A discussion of the molecular, cellular and neural basis of alcohol and inhalant abuse

2/7 Drugs that modulate G-protein coupled receptors Part I (Chris Evans): Opioids.

2/12 Drugs that modulate G-protein coupled receptors Part II (Chris Evans): Hallucinogens and THC. *(Mid-term due at the beginning of class)*

2/14 Transition From Drug Taker to Addict (Chris Evans): Behavioral and cellular changes that occur with continued drug taking. Acute verses chronic actions of drugs.

2/19 Presidents Day

2/21 Mid term exam and discussion of the problem sets (Chris Evans, Ron Stevens and Martin Iguchi)

2/26 Drug Abuse in Society-Overview (Martin Iguchi): Substance abuse statistics, societal attitudes, with emphasis on drug abuse in schools

2/28 Drugs and Psychiatric Disorders (David Krantz): Phenotype commonalities between psychiatric disorders and mental states following acute and chronic taking of drugs of abuse.

3/5 Demand-Side Interventions (Martin Iguchi): Public health options including an overview of drug abuse education/prevention/treatment options.

3/7 Supply-Side Interventions (Martin Iguchi): Source country control options, interdiction, and criminal justice/public safety interventions and implications.

3/12 Drug Policy (Martin Iguchi): What works? Balancing the costs and benefits of different drug control strategies, balancing individual rights, public health, and public safety.

3/14 Presentation Skills (Chris Evans and Martin Iguchi): PowerPoint, audience level, effective communication

3/19-3/23 EXAM WEEK