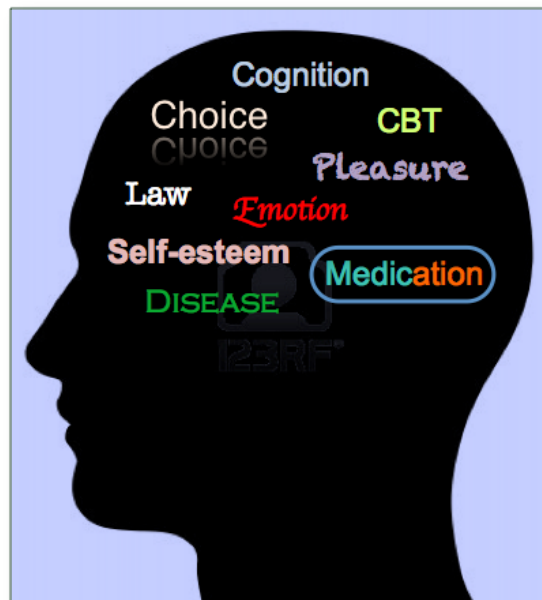


Drug Addiction and its Treatment

(Module 918C8)



Module Convenor: Professor Aldo Badiani

NOTE: Most of the questions you need answers to about this Module are in this handbook. Please read it fully and carefully before your first seminar.

NOTE: This document concerns the structure and content of the Module. If you have questions about procedures, please consult the School of Psychology Administration Office in Pev1 2A13 or via psychology@sussex.ac.uk

Module content

The module will cover the following topics: Basic pharmacology of addictive drugs; History of recreational drug use; Drug-induced neuroplasticity; Major theories of drug reward and drug addiction; Drug harm; Treatment of drug addiction. Thus, the scope of the module will range from basic pharmacology to clinical intervention. Particular emphasis will be placed on real-life aspects of drug abuse and drug addiction.

Module objectives

By the end of the module successful students should be able to:

- 1) Understand the mechanisms of action of addictive drugs;
- 2) Understand how addictive drugs can induce enduring changes in brain and behaviour;
- 3) Critically discuss and analyse major concepts and theoretical models of drug addiction;
- 4) Critically discuss and analyse the concept of drug harm and harm reduction;
- 5) Discuss the therapeutic options for the treatment of drug abuse and addiction.

Module Contact Information

Convenor:	Prof. Aldo Badiani
Location:	Pevensey I, Room 2B19
E-mail:	aldo.badiani@sussex.ac.uk
Student Feedback Sessions:	Wednesdays: 13:00-14:00 Wednesdays: 16:00-17:00 or by appointment (via email).

Lectures & Workshops

Lectures (location: BSMS Seminar Room)

Workshops (location: Pevensey I, Room 1B8)

Reading material

No single text covers all topics relevant to this module. The most important course material is represented by the journal articles that will be listed in the Module pages in Study Direct.

However, the following two books are required reading

- ◆ Meyer JS, Quenzer LF (2013) *Psychopharmacology*. Sunderland, MA: Sinauer Associates. (ISBN 978-0-87893-510-9).
- ◆ Gossop M (2003) *Drug Addiction and its Treatment*. Oxford, UK: Oxford University Press. (ISBN 978-0-19-852608-7). Note: selected chapters from this book will be made available to the students by the end of Wk4.

Students who have strong interest in the clinical aspects of drug addiction may consider the following texts:

- ◆ Ruiz P, Strain E (2011) *Lowinson and Ruiz's Substance Abuse: A Comprehensive Textbook, 5th edition*. Philadelphia, PA: Lippincott Williams and Wilkins. (ISBN 978-1605472775). Note: this text is recommended only to students who have a strong interest in the clinical aspects of drug addiction.
- ◆ Galanter M, Kleber HD (2008) *Textbook of Substance Abuse Treatment, 4th edition*. Washington DC: American Psychiatric Publishing. (ISBN 978-1585622764). Note: this text is recommended only to students who have a strong interest in the clinical aspects of drug addiction.

Assessment

Report (Literature Review) (due: End of Year Assessment week 1)

A 3000-word literature review concerning a topic to be chosen from those that will be made available at the end of Wk 2. Check Sussex Direct for the Assessment deadline. The review will be worth 100%. More information about this assignment will be provided in class and/or via Study Direct.

Important Information:

Assessments deadlines and methods of submission can be found on your assessment timetable via Sussex Direct.

Information on the following can be found at the link below:

- Submitting your work
- Missing a deadline
- Late penalties
- Exceptional circumstances
- Exams
- Help with managing your studies and competing your work
- Assessment Criteria

<http://www.sussex.ac.uk/psychology/internal/students/examinationsandassessment>

E-submission

From 2016/17, Masters and MRes students taking PG year modules will usually be asked to submit assessments electronically where assessments are text-based, for example, an essay. Your Sussex Direct - Assessment Deadlines & Exam Timetable will give all assessment details, including whether the assessment is to be submitted via e-submission through Sussex Direct or via a different method. Feedback for all e-submission assessments will also be provided electronically.

Please refer to the frequently asked questions available on the following webpage for further information:

<http://www.sussex.ac.uk/tel/submission/students/esubmission>

<http://www.sussex.ac.uk/tel/submission/students/faqs>

www.sussex.ac.uk/adqe/standards/examsandassessment/esubmission

Attendance, Absence and Engagement

You are expected to be 'in attendance' at the University for the full duration of the published term dates for your course of study. That means you should be regularly attending lectures, seminars, labs etc. and committing time to your studies to be in a position to comply with academic and administrative expectations.

The university has an 80% attendance policy in place, so it's really important that you let us know if you are ill or cannot attend classes so that we can register this as a notified absence.

If you are unable to attend your seminars or workshops, you need to send an email to psychologyabsence@sussex.ac.uk setting out the following information:

- Seminar(s) / workshop(s) that you will be absent from (list all of them)
- Tutor name
- Brief reason for absence

Please see the following link for further information:

<http://www.sussex.ac.uk/psychology/internal/students/attendance>

Lectures and workshops schedule

Lectures (location: BSMS Seminar Room; time: 14:00-16:00)

Wk 1 – <i>Wed, Feb 1</i>	Introduction
Wk 2 – <i>Wed, Feb 8</i>	Key notions of drug pharmacology
Wk 3 – <i>Wed, Feb 15</i>	Heroin and other opioid drugs
Wk 4 – <i>Wed, Feb 22</i>	Cocaine and other psychostimulant drugs
Wk 5 – <i>Wed, Mar 1</i>	Alcohol
Wk 6 – <i>Wed, Mar 8</i>	Tobacco, cannabis, and other drugs
Wk 7 – <i>Wed, Mar 15</i>	Biopsychology of reward and motivation
Wk 8 – <i>Wed, Mar 22</i>	Theories of drug addiction
Wk 9 – <i>Wed, Mar 29</i>	Epidemiology and etiology of drug addiction
Wk 10 – <i>Wed, Apr 5</i>	Drug harm
Wk 11 – <i>Wed, Apr 26</i>	Treatment of drug addiction
Wk 12 – <i>Wed, May 3</i>	Review and discussion of the module content

Workshops (location: Pevensey I, Room 1B8; time: 13:00-14:00)

Wk 1 – <i>Thu, Feb 2</i>	Animal models of drug addiction
Wk 2 – <i>Thu, Feb 9</i>	Why do humans use drugs?
Wk 3 – <i>Thu, Feb 16</i>	Drug, Set, and Setting
Wk 4 – <i>Thu, Feb 23</i>	Drug addiction: choice or disease?

Lectures 1 Introduction

Drug addiction is not an automatic outcome of drug use. Only approximately 20% of people who use drugs such as cocaine or heroin will switch from controlled to compulsive use. Thus, one of the aims of addiction research is to identify the mechanisms that are responsible for the transition from one stage of the disorder to the next: from initial drug use to chronic drug use and then to compulsive, relapsing drug abuse.

Lecture 2 Key notions of drug pharmacology

To understand the mechanisms of action of addictive drugs is necessary to have a basic knowledge of the mechanisms by which drugs act on their targets (for example, receptors and transporters) in the body (Pharmacodynamics) and of the mechanisms by which the body absorb, metabolise, and eliminate drugs (Pharmacokinetics).

Lecture 3 Heroin and other opioid drugs

Opium is the latex obtained from opium poppies. Although the cultivation of opium poppies probably began about 8000 years ago evidence of recreational use is much more recent (about 1000 years ago in Asia and about 350 years in Europe). Morphine and other molecules contained in the opium poppies (opiates) as well other molecules obtained via synthetic processes (e.g., heroin) can produce, by binding endogenous receptors in the body (hence the more general term opioids), powerful reinforcing effects. This lecture will discuss the history of opioids and the mechanisms underlying their central and peripheral effects.

Lecture 4 Cocaine and other psychostimulants

The coca plant has been used by Andean civilizations for more than 8000 years. The “active principle” in coca leaves is cocaine. The global spread of cocaine use and abuse began after the ‘discovery’ of the rewarding effects of coca and the extraction of cocaine by Europeans about 150 years ago. Cocaine increases the brain levels of dopamine and other monoamines by binding their transporters. This mechanism of action is shared by other naturally occurring (e.g. cathinone) or synthetic (e.g., amphetamine) ‘psychostimulant’ drugs. This lecture will discuss the history of psychostimulants and the mechanisms underlying their central and peripheral effects.

Lecture 5 Alcohol

Alcohol (ethyl alcohol) is obtained by the fermentation of sugar contained in plants. There is evidence of independent discovery of alcohol production in China (about 9000 years ago), Middle East (8000 years ago), Northern Africa (about 5000-6000 years ago), and Central America (about 4000 years ago). Alcohol is more abused drug world-wide. The mechanisms of action of alcohol are much more complex than those of other addictive drugs. This lecture will discuss the history of alcohol and the mechanisms underlying its central and peripheral effects.

Lecture 6 Tobacco, cannabis, and other drugs

Tabacco cultivation began in the Andean region much earlier (when is not clear) than the arrival of Spanish *conquistadores* in the early 1500s, who rapidly diffused its cultivation in other regions of the world. Nicotine, the active principle of tobacco, is most addictive substance known to man. Cannabis cultivation is thought to have originated in Central Asia about 5000-6000 years ago and then spread to Eastern Asia and Europe. Among the major drug of abuse, cannabais is the least addictive. This lecture will discuss the history of tobacco, cannabais, and other addictive drugs, and the mechanisms of action.

Lecture 7 Biopsychology of reward and motivation

It is often thought that the reinforcing effects of all addictive drugs are essentially the same, and due to the activation of dopaminergic systems of the brain. It is also thought the reinforcing effects of drugs equate to their pleasurable/hedonic effects. A third widespread notion is that all addictive drugs produce similar neuroadaptations in the brains of addicts.

In this lecture it will be argued that available evidence does not support these three claims. In particular it will be pointed out that: i) the exact role of dopamine in mediating the rewarding effects of the many different drugs of abuse is far from clear and remains an active area of investigation, ii) the chief brain mechanisms underlying drug abuse are separable from those responsible for the pleasant states associated to drug use, as well as those responsible for the unpleasant states of withdrawal when drug use is halted, iii) different drugs produce unique (sometimes opposite) neuroadaptations.

Lecture 8 Theories of drug addiction

A unified view is at the core of current theories of drug addiction. These unified theories have led to many important discoveries, some of which are described below, but they have also diverted investigators' attention away from psychological and neurobiological processes that characterize specific types of addiction.

Lecture 9 Epidemiology & etiology of drug addiction

This lecture will review the prevalence and the major risk factors for the different types of drug addiction.

Lecture 10 Drug harm

Recreational drugs are a major cause of harms to individuals and society. Hence, in virtually all countries these drugs have been the object of specific laws and regulations, albeit with major differences from country to country. However, recent detailed analyses of drug harm have shown that the some of the least harmful drugs are illegal in most countries whereas some of the most harmful drugs are legal (and often their use completely unrestricted) in many countries.

Lecture 11 Treatment of drug abuse and harm reduction

The major therapeutic approaches to the different types of drug addiction and to drug harm will be reviewed. Particular attention will be given to the so-called contingency management approach.

Lecture 12 Review and discussion of the module content