States of Consciousness
On the Nature of Consciousness

• Awareness of __________ and __________
  Stimuli
  – Variations on levels of __________
    • __________ – stream of consciousness
    • __________ – unconscious
    • Sleep/dreaming research
- A family of practices that train _________ to heighten awareness and bring _________ processes under greater _________ control
- _________ & _________ waves become more prominent
- _________, _________, _________, _________, oxygen consumption, & carbon dioxide elimination _________
- Possible _________ long-term effects (but more research is needed!)
Sleep
The Sleep-Wake Cycle

• __________ Rhythm
  – Any periodic fluctuation in a __________ organism.

• __________ Rhythm
  – A biological cycle that occurs approximately every __________ hours, e.g., sleeping and waking.
Biological Rhythms and Sleep

• __________ Rhythms – 24 hr biological cycles
  – Regulation of sleep/other body functions
• __________ pathway of the biological clock:
  – Light levels → retina → __________ of hypothalamus → __________ gland → secretion of __________
• Ignoring circadian rhythms
• Realigning circadian rhythms
Sleep
__________ rhythm
• __________ from the suprachiasmatic nucleus of the __________
• Jet lag
• Shift work
Your __________ Rhythm

• Your body roughly synchronizes with the 24-hour cycle of day and night through a biological clock called the __________ rhythm.
• What is your __________ rhythm?
The __________ 
A Physiological Index of Consciousness

• __________– monitoring of brain
  __________ activity

• Brain-waves
  – __________(height)
  – __________(cycles per second)
    • __________(13-24 cps)
    • __________(8-12 cps)
    • __________(4-7 cps)
    • __________(<4 cps)
Sleep

Measuring Sleep

• Electrodes measure
  – __________
  – EMG measures
  – __________
• EEG measures
  – __________
• A camera may also record __________.
Sleep

Stages of Sleep

Presleep
- Awake, alert
- Beta waves
- Awake, relaxed (hypnogogic state)
- Alpha waves

Non-REM
- Sleep stage 1
  - Theta waves
- Sleep stage 2
  - Spindle (burst of activity)
- Sleep stage 3
- Sleep stage 4
  - Delta waves

REM
- REM stage
Sleep

A Typical Night’s Sleep

- Typically 4-5 episodes of __________, (__________) sleep per night occur.
  - Later episodes are longer and farther apart.
- Most “__________” (__________) occurs early in the night.
Sleep
Night Work, Sleeping, and Health

• __________(rotating day and night shifts) is more dangerous than night work.
• About __________ traffic accidents a year are __________ related.
• Those who drive in the middle of the night take __________.
  – Brief episodes of sleep that occur in the midst of a __________ activity.
Sleep Deprivation

• **Complete** ____________
  – 3 or 4 days max

• **Partial** ____________ or sleep ____________
  – impaired attention, reaction time, coordination, and decision making
  – accidents: Chernobyl, Exxon Valdez

• **Selective** ____________
  – REM and slow-wave sleep: rebound effect
Sleep

How to Stay Awake When Driving

• Participants drove two hours in a ___________.
• During a ____________, they drank caffeine, or a placebo, or took a nap.
• Both caffeine and nap __________ the number of traffic incidents during the ___________ hour.

Graph:
- Caffeine
- Nap
- Placebo
- Number of incidents
- Condition: Pretreatment (Hour 1), Posttreatment (Hour 2)
Sleep Problems

• __________ – difficulty falling or staying asleep

• __________ – falling asleep uncontrollably – Affects animals and humans

• __________ – reflexive gasping for air that awakens person

• __________ – sleepwalking
Figure 5.6 The vicious cycle of dependence on sleeping pills

- Suffer from insomnia
- Use sleep medication regularly
- Begin to feel dependent on sedatives to fall asleep
- Develop tolerance to drug: pills begin to lose their effectiveness
- Increase dose
- Develop tolerance to higher doses
- Increase dose and dependence on drug
The Nature and Contents of Dreams

• __________ – mental experiences during sleep
  – Content usually __________
  – Common themes
  – Waking life spillover – day residue

• Western vs. Non-Western interpretations
Research on Dreaming
Figure 5.8 Three theories of dreaming
Altered State of Consciousness or Role Playing?

- Hypnotic __________ : individual differences
- Effects produced through __________:
  - __________
  - Sensory __________ and __________
  - __________
  - __________ suggestions and amnesia
Drugs & Behavior
• The study of psychoactive drugs

• __________ drugs – Drugs that affect the ____________, and bring changes in ____________ and other ____________ processes

• A “drug” is a chemical not normally needed for physiological activity that can affect a body upon entering it
Psychopharmacology

• __________
  – Drugs must cross a __________ in the brain’s __________ that limits which substances can enter the brain from the bloodstream
Blood-brain barrier
How drugs interact with the brain...

- ___________ drugs alter ___________ interactions.
- ___________ block normal neurotransmitter-receptor binding without stimulating the receptions.
The “Reward Pathway”

• Three brain components:
  — __________
  — __________
  — __________
Substance Abuse

• The use of psychoactive drugs in ways that deviate from __________
• Psychological __________
  – When a person uses a drug __________ __________
  – Need the drug for a sense of __________ and is preoccupied with __________ of the drug it becomes unavailable
  – May occur with out without __________
• __________(addiction)
  – A __________ state in which continued drug use is needed to prevent a __________ syndrome
Substance Abuse

• The use of psychoactive drugs in ways that deviate from cultural norms.
• Psychological dependence
• Physical dependence (addiction)
Physical Dependence

• ________ Syndrome – Physiological and psychological disturbances resulting from a ________ of drugs
  – Include ________ for the drug and effects generally ________ those of the drug.

• ________ – Larger doses are needed to produce the same effect.
Expectations & Effects

• The effects of drugs on behavior can be __________.
  – __________ can form by watching __________ react to drugs.
  – Drug effects __________ from one __________ to another.
Types of Drugs

- ______________
  - ______________
  - ______________
  - ______________

- ______________
Types of Drugs

- ________
  - Alcohol
  - Barbiturates

- ________
  - __________
  - __________
  - Cocaine
  - __________
  - Nicotine
  - __________
Types of Drugs

• __________
  – __________ activity of the CNS
  – __________ activity of GABA (__________ postsynaptic neuron activity)
  – __________(i.e. Amytal)
    • “Downers” like sleeping pills cause sleepiness, mild pleasure, poor muscle coordination, and lowered mental concentration

• __________
  – __________ behavioral or mental activity (i.e. Ritalin)
  – __________(“uppers” increase the release and decrease the removal of norepinephrine and dopamine at synapses)
Drug Classes, cont’d…

• __________
  – Induce sleep and relieve pain
  – __________ is an active ingredient in opium and is used in pain relief
  • __________ is derived from morphine but is 3 times more potent
  • Stimulate receptors normally stimulated by __________, the body’s naturally occurring painkillers

• __________
  – Produce a temporary loss of contact with reality and changes in emotion, perception, and thought

• __________
  – Reduce physiological symptoms associated with __________
  – __________ are the most typical __________, although alcohol (a depressant) can have similar effects
The Addicted Brain