PSYCH 172 · FRESNO STATE · FALL 2026

Exam 3 Study Guide

Chapters 10 to 13 · Multiple choice and true-false · 100 points · Not cumulative: Unit 3 only · Exam window Mon, Dec 14 to Thu, Dec 17

Before the exam, can you...

☐ Define punishment, tell positive from negative punishment, and list the characteristics of effective punishment.

☐ Explain time-out from positive reinforcement and response cost, including the guidelines for using time-out well.

☐ Identify FR, VR, FI, and VI schedules from examples and describe the response pattern each produces.

☐ Tell SD, SΔ, and SDp apart and give your own example of each.

☐ Explain generalization, discrimination training, chaining, prompting, and fading.

☐ Name the four variables that affect choice, explain the matching equation, and tell impulsive from self-control choices.

Chapter 10: Punishment

A punisher is defined by what it does, not by how unpleasant it seems: it is a contingent consequence that decreases the future probability of behavior. Used well, punishment can be humane, and it works best alongside reinforcement.

Term	What to know
Punisher	A contingent consequence that decreases the future probability of behavior below its pre-punishment level.
Punishment	The process or procedure whereby a punisher decreases the future probability of an operant response.
Positive punishment	The contingent presentation of a consequence that decreases the future probability of the behavior.
Negative punishment	The contingent removal, reduction, or prevention of a reinforcer, which decreases the future probability of the behavior.
Primary punisher	A consequence that functions as a punisher because, in the species' evolutionary past, it decreased the chances of survival.
Conditioned punisher	A contingent consequence that signals a delay reduction to a backup punisher.
Time-out from positive reinforcement	A signaled, response-contingent suspension of a positive-reinforcement contingency that decreases problem behavior.
Response-cost punisher	A negative punisher that involves removing or reducing a reinforcer, like losing tokens or points.
Goldilocks zone	A punisher intensity that is not too aversive and not so mild that it fails to decrease behavior.

Key studies and names

- **Raiff et al. (2008):** Pigeons pecked less when some pecks subtracted tokens from their account, showing token loss works as a negative punisher.
- **Hake and Azrin (1965):** A light that signaled an upcoming shock became a conditioned punisher through Pavlovian conditioning.

Things students mix up

- Positive and negative do not mean good and bad. Positive = something added. Negative = something removed. Punishment always decreases behavior.
- Negative reinforcement is not punishment. Negative reinforcement increases behavior by removing something aversive.

Chapter 11: Complex Contingencies of Reinforcement

Most behavior isn't reinforced every time. Schedules of reinforcement describe exactly how the response-reinforcer contingency works, and each schedule produces its own predictable pattern of responding.

Term	What to know
Continuous reinforcement	A schedule in which every instance of the response is reinforced.
Schedule of reinforcement	A precise description of the contingent relation between a response and its reinforcer.
Fixed-ratio (FR) schedule	The number of responses required per reinforcer is the same every time.
Variable-ratio (VR) schedule	The number of responses required per reinforcer varies around an average.
Fixed-interval (FI) schedule	A constant time interval must pass before a single response produces the reinforcer.
Variable-interval (VI) schedule	The time that must pass before a response is reinforced varies around an average.
Cumulative record	Skinner's graphical display of responding as it unfolds over time.
Post-reinforcement pause	A break in responding right after a reinforcer, typical of FR and FI schedules.
Schedule thinning	Gradually reducing the rate of reinforcement while maintaining the desired behavior.
Contingency management	Using complex contingencies of reinforcement to promote drug abstinence.

Key studies and names

- **B. F. Skinner:** Developed the cumulative record to show patterns of responding over time.
- **Ferster and Skinner (1957):** Studied how ratio and interval schedules of reinforcement each produce distinct patterns of responding.
- **Higgins and Silverman (1999):** Described contingency management interventions that use reinforcement to promote drug abstinence.

Things students mix up

- Ratio = responses. Interval = time. Fixed = same every time. Variable = changes around an average.
- On interval schedules, responding faster does not make the reinforcer come sooner.

Chapter 12: Antecedent Stimulus Control

Antecedent stimuli control operant behavior because of their history with consequences. An SD evokes behavior, an SΔ decreases it because reinforcement isn't available, and an SDp suppresses it because punishment is likely.

Term	What to know
Discriminative stimulus (SD)	An antecedent stimulus that evokes a response because that response has been reinforced when it's present.
S-delta (SΔ)	An antecedent stimulus that decreases a response because that response won't be reinforced when it's present.
SDp	An antecedent stimulus that decreases a response because that response will be punished when it's present.
Three-term contingency	The functional relation between antecedent, behavior, and consequence (A-B-C).
Discrimination training	Reinforcing a response in the presence of an SD and extinguishing it in the presence of an SΔ.
Generalization	A novel stimulus resembling the SD evokes the response, even though it was never reinforced with that stimulus.
Generalization gradient	A graph showing responding increase as a novel stimulus more closely resembles the SD.
Stimulus-response chain	A fixed sequence of operant responses, each evoked by a response-produced SD.
Backward chaining	Teaching the final link of a chain first, then adding links in reverse order.
Prompt	An antecedent stimulus that guides the desired response when it isn't happening under SD control.
Fading	Gradually removing a prompt as the response comes under discriminative-stimulus control.

Key studies and names

- **Guttman and Kalish (1956):** First lab demonstration of a generalization gradient: pigeons trained to peck a yellow key pecked less as key colors looked less yellow.
- **Honig (1966):** Pigeons pecked when the key was white (SD) and almost never when a black line signaled shock (SDp).
- **King et al. (2014):** Used backward chaining, prompting, and fading to teach a 4-year-old with autism to request an Elmo phone on a tablet.

Things students mix up

- SΔ = no reinforcement for that response. SDp = punishment for that response. Both decrease behavior, for different reasons.

- Backward chaining teaches the last link first. Forward chaining teaches the first link first.

Chapter 13: Choice

Choice is voluntary behavior in a context where other behaviors are possible. We strongly prefer certain outcomes, and when outcomes are uncertain, we tend to match our behavior to relative rates of reinforcement.

Term	What to know
Choice	Voluntary behavior occurring in a context in which alternative behaviors are possible.
Matching equation	Herrnstein's equation: the proportion of behavior allocated to an option matches the proportion of reinforcers obtained there.
Substitute reinforcer	A reinforcer that is increasingly consumed when access to another reinforcer is constrained.
Impulsive choice	Choosing the smaller-sooner reward and giving up the larger-later reward.
Self-control choice	Choosing the larger-later reward and giving up the smaller-sooner reward.
Delay discounting	The decrease in the subjective value of a reward as the delay to getting it increases. The curve is a hyperbola.
Commitment strategy	Making the larger-later choice in advance, before the smaller-sooner reward is available.
Delay-exposure training	Reducing impulsive choice by giving lots of experience with delayed reinforcers.

Key studies and names

- **Herrnstein (1961):** Pigeons' choices between keys matched the relative rate of reinforcement on each key: the matching equation.

Things students mix up

- Matching is about relative rate of reinforcement, not the total amount.
- A commitment strategy changes the situation ahead of time. Delay-exposure training changes your learning history.