Academic Advising
A Handbook for Advisors and Students
Volume 2: A Guide to the Sub-disciplines

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Society for the Teaching of Psychology
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11. Comparative Psychology

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Comparative psychology is a multidisciplinary approach to the study of cognition and behavior that attempts to integrate the evolutionary focus of biology and the individual-behavior focus of psychology (Daniel & Papini, 2008). Although they may specialize in a variety of different areas (e.g., experimental analysis of behavior, cognitive psychology, neuroscience, etc.) comparative psychologists consider the evolutionary history and adaptive function of the cognitive processes and behaviors under study.

Although similar in many respects to the fields of animal learning, behavioral ecology, and ethology, comparative psychology has emerged as an integrative approach (or perspective) to the study of non-human animals (Kamil, 1988). Specifically, comparative psychology draws theoretical and methodological inspiration from the aforementioned fields to investigate mechanisms by which non-human animals learn, store, remember, and respond to information from the environment (Shettleworth, 2010).

A guiding principle of the comparative approach is to focus on similarities and differences in psychological processes across species in an effort to illuminate general and specialized mechanisms (Bitterman, 1960, 1965, 1970). Such an approach is often accomplished through experimental research in the field or laboratory on topics including, but not limited to, attention, communication, foraging, mating, memory, perception, predator-prey interaction, and tool use (for reviews see Papini, 2002; Shettleworth, 2010; Wasserman & Zentall, 2006).

**What does a comparative psychologist usually do?**

Broadly speaking, comparative psychologists are often found in university settings engaged in formal and programmatic research (either in the field, the laboratory, or both) to answer fundamental questions regarding non-human animal behavior and cognition. As a result, comparative psychologists are often faculty members in psychology departments, and they spend the bulk of their time teaching, researching, and writing.

**What credentials do I need to be a Comparative Psychologist?**

Although there is no set path to becoming a comparative psychologist, the conventional route involves attending graduate school to obtain the necessary content knowledge and research skills to begin an individual line of research. As a result, most comparative psychologists obtain a Ph.D. with a specialization in a content area (e.g., learning, memory, cognition, neuroscience, etc.).

**How do I choose a graduate program in Comparative Psychology?**

Selecting a graduate program that specializes in comparative psychology can be a tricky endeavor because “comparative psychology” rarely appears as an official program name. As a general rule, students should seek out specific faculty members around the globe who conduct research in a content area of interest to them. This may be most easily accomplished by seeking peer-reviewed articles on topics of interest and subsequently searching for the corresponding author’s name to identify his/her affiliated university and graduate program.
Which courses should I take if I have an interest in Comparative Psychology?

Technically, the word “animal” refers to both humans and non-humans, but a course with the word “animal” in the title is likely to focus more on issues prevalent in comparative psychology. As such, a general strategy may be to seek courses with “animal” in the title; however, given the breadth of comparative psychology, one should seek courses that comprise the diversity that is the comparative approach. In general, courses in biology, evolution, ethology, animal learning and behavior, animal cognition, statistics, research design, and biological bases of behavior will serve as a solid foundation for graduate study, but a more targeted approach would be to read course descriptions from your course catalog and identify courses similar to the following:

**Introduction to Psychology.** Required by most Psychology departments for majors.

**General Biology.** Because psychology involves the study of living organisms, a basic understanding of biology is essential to students interested in Comparative Psychology.

**Genetics.** Depending on the specific course, genetics may investigate changes from the molecular level to the level of the species. Evolutionary theory provides a driving rationale for comparisons among species, making the study of genetics valuable for the study of Comparative Psychology.

**Animal Behavior (may be called Comparative Behavior, Comparative Psychology).** This course examines animals, primarily in their natural habitats, to allow comparisons among species regarding innate behaviors. A sampling of topics includes mating, maternal (and if applicable, paternal) behavior, infant/parent bonding, critical or sensitive windows for development, aggression, nest building, communication within species, resource competition, feeding.

**Ethology (or Animal Behavior or similar titles in a Biology Department).** Similar in content to Animal Behavior offered in a Psychology Department, Ethology (often offered in a Biology Department) will also include an investigation of hormonal influences as well as more emphasis on the ecological niche of the species under investigation.

**Animal Learning (Principles of Learning, Comparative Learning, Conditioning and Learning, Animal Learning and Cognition, Animal Learning and Memory).** This course examines changes in behavior due to experience (rather than to maturation, development, etc.). Topics will include basic processes of habituation, reinforcement and punishment, schedules of reinforcement, classical conditioning, stimulus control, and more complex areas of learning (e.g., cognition, memory).

**Physiological Psychology (Psychobiology, Biopsychology).** This course examines the interaction between behavior and the physical body (e.g., neurons, nervous systems, hormones, etc.).

**Brain/Behavior.** Usually an advanced course, this course examines the interaction between the brain and behavior. This course should cover structures and functions of the brain in greater depth than a basic Physiological Psychology course.

**Evolutionary Psychology.** This course examines a field that was previously known as Sociobiology, and may still be referred to as such. This area examines the biological bases of social behavior as well as the roles of natural and sexual selection in the evolution of psychological traits and abilities.

**Behavioral Ecology.** This area covers a full range of living organisms, including single cell organisms, plants, animals, etc. The interaction of species, behavior and environment form the base for this area of study.

**History of Psychology (History and Systems of Psychology).** This course focuses on the progression of Psychology as a science beginning with its origins in Philosophy, Physics, and Anatomy/Physiology. The coverage of the emergence of the various areas of Psychology as well as major theoretical and empirical developments will provide students with critical information regarding our discipline’s historical roots and maturation.
**Psychological Research Method/Statistics.** These courses are crucial for students intending to attend graduate school. In these courses, the basic techniques of conducting research and evaluating the results of research will be covered. If advanced versions of these courses are available, we strongly encourage students to also take these courses. These courses will help build the analytic and quantitative skills required to succeed in graduate programs.

**What experiences should I seek if I have an interest in Comparative Psychology?**
One of the most important experiences a student can have involves engagement in research under the supervision of a faculty member. These experiences are valuable whether a student intends to continue his or her studies or would like to seek immediate employment because the skills gained in this process are often transferable to other areas. If a faculty member is not conducting research in the student’s area of interest, the student may wish to seek out a faculty member in a different area related to the student’s interests. Although in some settings such experience is voluntary, in other settings course credit may be earned. In either case, a student should familiarize himself/herself with the areas of interest of the faculty and explore this opportunity with faculty members who share similar interests. Other experiences can include involvement (via volunteer work or internships) with zoos, veterinary hospitals and clinics, animal shelters, and pharmaceutical research (either corporate or medical).

**What kinds of employment can I seek as a Comparative Psychologist?**
The most common career for a comparative psychologist is to teach and conduct research in a college or university. Depending on one’s area of expertise, there may also be opportunities to work for pharmaceutical companies (e.g., laboratory researcher), federal governmental agencies (e.g., center for disease control, environmental protection agency, national science foundation), or animal care facilities (e.g., zoo, aquarium).

**Summary**
Drawing from various sub-fields of biology and psychology, comparative psychology is an integrative approach to the study of non-human animal learning, memory, and cognition with an emphasis on similarities and differences in underlying psychological mechanisms across species. Areas of study include (but are not limited to) attention, communication, foraging, mating, memory, perception, predator-prey interaction, and tool use. Comparative psychologists are often faculty members with a Ph.D. and spend the bulk of their time teaching, researching, and writing in an effort to discover and disseminate fundamental information regarding non-human animal behavior and cognition.

**Suggested Readings**
The following books cover a variety of topics and have been published (and republished) across the years. Any (or all) of them will add to an understanding of the comparative psychological approach.


**References**