

The Biology of Amphibians

Mark Mandica



The Biology of Amphibians is an in-depth look into the biology, ecology and conservation of frogs, toads, salamanders, newts and caecilians. It examines this group in splendid detail, and the material is presented in a way that is accessible to both academics and the general public. This course is generally not offered in most universities and certainly not in the greater Atlanta area, making it a completely unique offering. This course benefits any person interested in learning about amphibians including biology and wildlife majors, continuing education students, graduate students, and professionals working in the field. The course is instructed by Mark Mandica, Executive Director of the Amphibian Foundation, with guest lecturers from local universities and Georgia Department of Natural Resources Biologists. The reading selections are from peer-reviewed journal articles delivered to students in electronic (PDF) form.

This eight- week course is an introduction to the **Biology of Amphibians**, covering the definition of amphibians (what makes an amphibian an amphibian?), and the evolution of amphibians. The course explores the taxonomy of the major groups of frogs, salamanders and caecilians; defining each group and the characters that unite them. Once defined, the biodiversity of each assemblage is further explored. Anatomy and physiology is covered in detail towards the end of the first course, as well as the biomechanics of feeding and other behaviors unique to amphibians. In the final parts of the Biology of Amphibians course, the 28 species of amphibians native to the metro Atlanta area are meticulously covered including egg, larval and adult forms, concluding with a frog call workshop to help students identify our backyard frogs by sound.

Class length: 3 Hours | Course length: 8 Weeks

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Week One

Part A : Introduction to Amphibians : What is an amphibian?

Features and shared characteristics of Amphibia

Part B : Introduction of Amphibians : Prehistory and evolutionary history of tetrapods.

Biogeography and evolution of amphibians through geologic time

Week Two

Part A : Introduction to Frogs : What is a frog?

Features and shared characteristics of Anura

Part B : Anuran Taxonomy and Biodiversity

Week Three

Part A : Introduction to Salamanders : What is a salamander?

Features and shared characteristics of Caudata

Part B : Caudate Taxonomy and Biodiversity

Week Four

Part A : Introduction to Caecilians : What is a caecilian?

Features and shared characteristics of Gymnophiona

Part B : Gymnophiona Taxonomy and Biodiversity

Week Five

Part A : Reproduction and Metamorphosis

Part B : Anatomy/Physiology : Integument and Gas Exchange

Week Six

Part A : Physiology : Poikilothermy and Freeze Tolerance

How amphibians deal with extreme (including freezing) temperatures

Part B : Functional Morphology : Prey Detection, Capture and Transport

Week Seven

Part A : Ecology: Obligate Ephemeral Wetland Breeders

Amphibian Migrations and Phenotypic Plasticity

Part B : Conservation and Global Declines

Extinction Debt, Major Threats and Responses

Week Eight

Part A + B: Atlanta's Amphibians and the Nocturnal Songs of Fr

Possible Field Trips

The Amphibian Foundation, Buckhead, GA

Clyde Shepherd Nature Preserve, Decatur, GA