Syllabus, Cold Blooded Creatures
Black Rock Forest Summer Science Camp, Summer 2019

Class times:
Monday-Friday
Morning Section: 8:30–12:30 p.m., First Floor Science Center
Afternoon Section: 1:30–5:30 p.m., First Floor Science Center

Catalog description: Introduction to the basic principles of ecology and evolutionary biology of amphibians and reptiles; emphasizes conservation biology approaches to monitoring resident turtle populations. Deeper understanding of the field of herpetology and native wildlife is attained using group activities in the classroom and forest as well as hands-on contemporary field techniques.

Lecture instructor and course coordinator: Arianna Kuhn, M.Sc., City University of New York, Graduate Center; American Museum of Natural History, Richard Gilder Graduate School
E-mail: ariannakuhn@gmail.com
Webpage: www.ariannakuhn.com
Twitter: @PseudohajeSci

Recommended Field Guide, for those interested:
Powell, Robert, Roger Conant, and Joseph T. Collins. *Peterson field guide to reptiles and amphibians of eastern and central North America*. Houghton Mifflin Harcourt, 2016.

Course objectives (overview and philosophy): Ecology and Evolution examines biological processes at various levels of organization. The class combines conceptual and first-hand approaches to topics including ecology, ecosystems, genetics, evolution, and conservation. Classes will consist excursions designed to introduce students to data collection, population management, conservation biology, and field research. This course will also cover current environmental issues critical to modern society using easy to understand active learning examples in the forest and in the classroom. Major topics to be covered include: environemental niche, proper animal handling techniques, PIT tag and radio telemetry population monitoring, amphibian and reptile physiology, species interactions, species diversity, , and the relevance of ecology and evolution to society.

Course objectives **After completing this course, students should be able to:**
1. Identify some morphological characteristics and behaviors of native reptiles and amphibians, and the role environment plays in shaping these characters
2. Describe the differences in male and female turtles and the function of these differences
3. Understand the field techniques for turtle trapping, tagging, and release
2. Take measurements of carapace, plastron and weight for painted turtles
2. Understand the Latin naming system for biological organisms, and identify a few of these in native species using this system
5. Identify commonly encountered amphibian and reptile in Black Rock Forest
6. Learn safe ways to find, interact, and observe native wildlife

MORNING CLASS Lecture schedule (tentative; may be modified if necessary):

Date	**Topic/Activity**
AM Mon. 15 Jul.	**Introduction:** - What IS herpetology? - What animals can we expect to encounter *Props: turtle shells and field guides as well as printed BRF field guide* - What makes turtles unique? *Props: shells and bones, live turtle and any other live animals that are opportunistically found before the week class starts (Ringneck snake, red efts, redback salamanders, painted turtles)* **Lesson 1:** - How do we know where to find reptiles and amphibians? *Activity: Visit creek by the lodge with nets, watershoes, and cameras, look under rocks for* Eurycea, Notopthalamaus*, and frogs* **Lesson 1:** - How do we catch turtles? *Props: Small and large hoop nets, separators, stakes, bait, waders* *Activity: Take bus to* ***Alec Meadow****, students assist in setting up and baiting first 3 traps (2 big hoop nets, one small)*
AM Tues. 16 Jul.	**Lesson 1:** - How do we monitor populations? *Props: radio telemetry info session from visiting scientists, possibly with demonstration; "turtle kit"; PIT tags, PIT tag scanner + batteries, alcohol swabs, syringes*

	Lesson 2: - How do we record data about individuals? *Props: "turtle kit"; calipers, notebook, spring scales, weigh bags; show students how to measure and weigh turtles using live turtles (pre-captured) and data sheet* *Activity: Go to **the Diversion** to check nets! If turtles are captured, measure, tag and release them.* **Lesson 3:** - What are good places to encounter terrestrial herps? *Activity: Hike from **Alec Meadow** to **Upper Reservoir** and reset them. Flip logs and rocks to look for snakes and other terrestrial herps*
AM Wed. 17 Jul	**Lesson 1:** - What are ways other than nets that we can catch herps? *Props: snake hook, telescopic noose, rubber bands, practice with rubber bands and noose with fake prop animals* **Lesson 2:** - How do we identify different species and learn scientific nomenclature? *Props: Group activity using field guides to identify frogs (green frogs versus bull frogs, pickerel frog versus leopard frog, precaptured)* *Activity: Go to the **Diversion** to check nets! If turtles are captured, measure, tag and release them. Take bus and reset nets at **Southerland Pond***
AM Thurs. 18 Jul.	**Lesson 1:** - How to we monitor what species communities using biodiversity surveys? *Props: download inaturalist, practice using notebooks+cameras or the app under "Cold Blooded Creatures" group to record observations* *Activity: Walk from Science Center to Upper Reservoir via the creek, photograph and record observations to participate in mini herp BioBlitz. Check nets at **Arthur's Pond**! If turtles are captured, measure, tag and release them. Reset at **Jim's Pond*** **Lesson 2:** - Why do we want to document the animals we find? - How do we preserve information about observations? - What is the difference between scientific photographic and nature photography? *Activity: Set up indoor and outdoor in-situ settings and learn how to take realistic shots of pre-captured herps*
AM Fri. 19 Jul.	**Lesson 1:** - What is the importance of returning animals to their home range? *Activity: take down remaining traps at **Tamarak**, release all temporary captures* **Lesson 2:**

	- How can we use the data we recorded from our turtle traps? *Props: Black Rock Forest Turtle Database data entry and examination* **Lesson 3:** - What are the venomous animals of Black Rock Forest? - What are basic aspects of rattlesnake biology? *Props: rattlesnake skins, sheds, fangs and rattles* *Activity: Hike to rattlesnake basking knoll* **Last Day BONUS:** share the scientific name of a reptile or amphibian that you learned this week for a prize!

AFTERNOON CLASS Lecture Schedule (tentative; may be modified if necessary):

Date	Topic/Activity
AM Mon. 15 Jul.	**Introduction:** - What IS herpetology? - What animals can we expect to encounter *Props: turtle shells and field guides as well as printed BRF field guide* - What makes turtles unique? *Props: shells and bones, live turtle and any other live animals that are opportunistically found before the week class starts (Ringneck snake, red efts, redback salamanders, painted turtles)* **Lesson 1:** - How do we know where to find reptiles and amphibians? *Activity: Visit creek by the lodge with nets, watershoes, and cameras, look under rocks for* Eurycea, Notopthalamaus*, and frogs* **Lesson 1:** - How do we catch turtles? *Props: Small and large hoop nets, separators, stakes, bait, waders* *Activity: Take bus to the* ***Diversion****, students assist in setting up and baiting first 3 traps (2 big hoop nets, one small)*
AM Tues. 16 Jul.	**Lesson 1:** - How do we monitor populations? *Props: radio telemetry info session from visiting scientists, possibly with demonstration; "turtle kit"; PIT tags, PIT tag scanner + batteries, alcohol swabs, syringes* **Lesson 2:**

	- How do we record data about individuals? *Props: "turtle kit"; calipers, notebook, spring scales, weigh bags; show students how to measure and weigh turtles using live turtles (pre-captured) and data sheet* *Activity: Go to **Alec Meadow** to check nets! If turtles are captured, measure, tag and release them.* **Lesson 3:** - What are good places to encounter terrestrial herps? *Activity: Hike from **Alec Meadow** to **Upper Reservoir** and reset them. Flip logs and rocks to look for snakes and other terrestrial herps*
AM Wed. 17 Jul	**Lesson 1:** - What are ways other than nets that we can catch herps? *Props: snake hook, telescopic noose, rubber bands, practice with rubber bands and noose with fake prop animals* **Lesson 2:** - How do we identify different species and learn scientific nomenclature? *Props: Group activity using field guides to identify frogs (green frogs versus bull frogs, pickerel frog versus leopard frog, precaptured)* *Activity: Go to the **Upper Reservoir** to check nets! If turtles are captured, measure, tag and release them. Take bus to **Arthur's Pond** and reset nets*
AM Thurs. 18 Jul.	**Lesson 1:** - How to we monitor what species communities using biodiversity surveys? *Props: download iNaturalist, practice using notebooks+cameras or the app under "Cold Blooded Creatures" group to record observations* *Activity: Walk from Science Center to Upper Reservoir via the creek, photograph and record observations to participate in mini herp BioBlitz. Check nets at **Southerland Pond**! If turtles are captured, measure, tag and release them. Move nets to **Tamarak*** **Lesson 2:** - Why do we want to document the animals we find? - How do we preserve information about observations? - What is the difference between scientific photographic and nature photography? *Activity: Set up indoor and outdoor in-situ settings and learn how to take realistic shots of pre-captured herps*
AM Fri. 19 Jul.	**Lesson 1:** - What is the importance of returning animals to their home range? *Activity: take down remaining traps at **Jim's Pond**, release all temporary captures* **Lesson 2:** - How can we use the data we recorded from our turtle traps?

	Props: Black Rock Forest Turtle Database data entry and examination **Lesson 3:** - What are the venomous animals of Black Rock Forest? - What are basic aspects of rattlesnake biology? *Props: rattlesnake skins, sheds, fangs and rattles* *Activity: Hike to rattlesnake basking knoll* **Last Day BONUS:** share the scientific name of a reptile or amphibian that you learned this week for a prize!

Instructor (person who prepared this description): Arianna Kuhn

Date Modified: 12 Jul 2019