

Virginia Master Naturalist Program

Basic Training Considerations During COVID and Beyond

Overarching Goals of the VMN Basic Training Course

The Virginia Master Naturalist program is a corps of well-trained volunteers providing education and outreach, citizen science, and stewardship to benefit natural resources and natural areas across Virginia. The basic training course is the entryway into the program for everyone, regardless of their background in natural resources or prior experience. Because it functions as this entryway, the basic training course functions as more than just a platform for delivering natural resource information.

Every VMN basic training course should be designed to achieve all three of these overarching goals:

- (1) Provide trainees with knowledge and skills related to natural resources and conservation education that is applicable to VMN volunteer projects and service and prepare them for continued lifelong learning on these topics.
- (2) Instill an affinity for the VMN program and the chapter in the trainees so that they feel connected to the group and build social connections that facilitate their continued long-term engagement as VMN volunteers.
- (3) Connect trainees to nature places (parks, natural areas, demonstration sites), people (other VMNs, expert instructors, agency personnel), organizations (partners), and service projects in their local community.

The list of more specific learning objectives, broken down by course topic, can be found online.

Course Structure

VMN basic training courses are a combination of classroom and field instruction. The minimum requirement for every VMN basic training course is 40 total hours of training with at least 10 of those hours spent in outdoor field study.

- 40 hours generally refers to class contact time, not the overall time trainees spend preparing for class, completing pre- or post-class readings, or completing assessments.
- It is acceptable to count the time watching an assigned instructional presentation (e.g., recorded webinar or video) towards the 40 hours, but that should be no more than 25% of the overall course time. For example, trainees could spend one hour watching a recorded lecture before class, then two hours in an in-person or synchronous online class each week for ten weeks, plus 10 hours of field study. This percentage is a suggested guideline, not a to-the-minute rule. Using this kind of “flipped classroom” approach can allow you to spend more of the synchronous time (whether virtual or in-person) doing hands-on and interactive activities, rather than passive lectures.

Field Sessions (In-person)

- Trainees must spend a minimum of 10 hours of the basic training course in outdoor field study. A higher percentage of field time is also acceptable.

- Field time is an opportunity to connect trainees to local nature places, people, and projects. Consider how to link the field sessions to the volunteer service the trainees might do in the future.
- Having trainees essentially listening to an outdoor lecture should be avoided. The field study time should be an opportunity for trainees to practice their skills, make observations, and engage in hands-on learning.
- The field study cannot be replaced with videos or online classes, except in rare cases where someone requests an ADA accommodation that cannot be met in another way.
- To accommodate COVID-19 guidelines, chapters may need to arrange for smaller groups during field sessions so that everyone can see and hear while remaining at least six feet apart. The ideal numbers depend on the activity, the location, the instructors, and current health and safety guidelines.
- Self-led field study is an acceptable alternative if gathering in a small group for the field session is not feasible for an individual trainee or for a given point in time. For self-led field study, the trainees should be provided with specific objectives to accomplish. Another important component of self-led field study is a debrief with the group afterwards, at the next class session.
 - Example: Self-study bird field session
 - Specify location, such as one of the DWR Virginia Bird and Wildlife Trail sites. Help trainees look up bird lists for that site on eBird.
 - Communicate the objectives the trainees should accomplish during their self-led field session. For example:
 - Practice using binoculars until you can confidently find and focus on a bird through them.
 - Identify 5 birds and report your observations to eBird.
 - Use a field notebook to describe a bird you see, including coloration, overall shape, beak shape, distinctive markings, sounds.
 - Look up the bird in a field guide or reliable online source to learn its preferred habitat, what it eats, phenology, etc.
 - In the next synchronous class time, have time for trainees to share their observations and ask questions. Have a person who is knowledgeable about birds, eBird, etc. join to help answer questions and interact with the trainees.

Classroom Sessions (Online or In-person)

- Classroom sessions may be conducted in-person, online, or through a combination of the two. If classroom sessions are held in-person, current COVID-19 guidelines state that you will need to provide an alternate way for individuals to participate online or individually.
- As with the field study, it is best to have the classroom instruction include hands-on learning and interaction, rather than only passive listening to lectures. These activities could include practice using keys and field guides to learn about species, small group

discussions, scenarios and role playing activities, and practice using naturalist tools and apps.

- Consider having trainees watch recorded lectures before class, so that there is more time during the synchronous class for hands-on activities. It is acceptable to design the course so that it includes this recorded lecture time towards the 40 hour minimum, but try to make that no more than 25% of the overall course time.
- Be sure to include icebreakers and get-to-know-you activities throughout the course in order to achieve the second overarching course goal.
- Some elements to consider including in every classroom session:
 - 5 minute interview with a seasoned chapter member to share examples of what they do for their volunteer service *or* a 5 minute interview with a representative from a local partner organization to share current volunteer needs and projects.
 - Icebreaker/get-to-know-you activity
 - Sharing from field notebooks and other observations
 - Highlight any currently approved projects that connect to that week's subject matter
 - Written and practical assessments. Assessments can include a series of open-book quizzes, writing assignments, and practical assessments throughout the course. This approach might seem less intimidating to trainees and help them internalize the information and concepts they are learning each week.

Tools for the Online Classroom

- Zoom has many tools you can use to promote interaction amongst trainees and to promote active learning. Some of these include *breakout rooms* for small group discussions, the *polling feature* for having trainees respond anonymously to questions, the *annotation feature* for having trainees contribute to a shared document, *screen sharing* to have trainees show something they are working on, the *reactions tool* to use for a quick read on how the audience is doing, and *re-naming oneself* to communicate current attitudes and feelings.
- A course webpage can be a place to collect links to documents (syllabi, directions to field session locations, etc.), links to readings, announcements, etc., all in one place to make it easy for the trainees to find them.
- A Google Drive or Dropbox folder can be a place to store and share documents for the course, including PowerPoint presentations. Some chapters instead use a thumb drive. A shared folder in the cloud allows you to more easily change and update the documents as you go along.
- A class Facebook group or even just a class email group can be a way to promote communication amongst the trainees.
- A Class Who's Who guide with photos and bios for trainees, instructors, training committee members, and other chapter leaders will help everyone get to know each other. Share the guide with your existing chapter members to help them get to know the new cohort.

Tools for the Field

- Field notebooks. Whether you give them out as part of the course or ask trainees to provide their own, make sure every trainee has a field notebook to use throughout the course. Have them use it to document observations, write down questions, respond to journal prompts, etc.
- Course iNaturalist project. Set up a new project on iNaturalist to collect trainees' observations. Set weekly goals (e.g., everyone contribute at least one plant observation this week.)
- Microphones. For in-person field trips, some sort of audio system can really help trainees be able to hear, especially if everyone is staying at least six feet apart from each other. Sometimes systems can be borrowed or rented for affordable pricing, rather than purchased.
- Numbered flagging can be used to mark plants or features that you want trainees to observe or identify. Make sure you have permission to put out flagging at that location.
- Audio tours. If it becomes necessary to have self-study field sessions, audio tours can help trainees learn about the sites and features that would normally be discussed by an instructor. Here is one of how audio tours are being used by the Jefferson Chapter of the Virginia Native Plant Society to support monthly self-guided plant walks at Ivy Creek Natural area: <https://vnps.org/jefferson/events/>.
- Video tours. Video clips with an instructor in the field can also be helpful if you are doing self-study field session. Just watching the video is not a substitute for the field time, but watching the video ahead of time or on site may help trainees know what to look for and do while they are in the field.

Other Suggested Course Elements

- Consider requiring having trainees complete and report to the VMS one or two hours of approved volunteer service as part of the graduation requirements. This requirement will help ensure that all trainees know how to correctly document their volunteer time, and it will get them started on the path to completing their first 40 hours of service. You can add an hour or two on to the end of a field trip to make it easy for the trainees.
- Before graduation or as part of the final exam, have trainees map out a tentative plan for completing their first 40 hours of volunteer service. Provide them assistance in identifying projects and roles that fit their interests, availability, location, and skill level.

Sample Syllabus for Online Course

This sample syllabus is intended to just provide a suggestion of how an online course could use existing readings and video presentations in the VMN curriculum to achieve the overarching basic training course goals and address the specific learning objectives. It is not intended to be a one-size-fits-all. As written, it comes to 27.5 hours of synchronous class time, 5 hours of asynchronous video lectures, and 10 hours of field sessions, or 42 hours total. Every class would include at least 15 minutes for activities such as having a volunteer or chapter

partner to talk about a volunteer project, icebreakers, and debriefing of any assignments.

Class 1: Introduction to the VMN Program, Naturalists, & Naturalist Skills (2 hours synchronous)

Pre-class assignments: Read the volunteer handbook and American Naturalists

In class: Introductions & icebreakers, Intro to the VMN program presentation, discussion on keeping a field notebook, overview of recommended field guides and how to use them

Post-class assignments: Start a field notebook and respond to prompts or do an observation activity.

Class 2: Virginia Biogeography, Geology & Soils (0.5 hour asynchronous, 2.5 hours synchronous)

Pre-class assignments: Read the Overview of the Physiography and Vegetation of Virginia. Collect a soil sample to examine during class. Browse the Geology of Virginia website.

Asynchronous learning: Watch the Virginia Biogeography videos (Overview plus appropriate ones for the geographic region).

In class: Debrief of Virginia Biogeography, Presentation(s) on geology & soils in Virginia. Have trainees examine their soil samples and show/describe them to each other.

Post-class assignments: Choose a favorite park or natural area in the region. Use available online tools to determine the physiographic province, the likely geology and soils, and the likely natural communities in that place. If possible, visit the site to take photos and observations to confirm your predictions.

Class 3: Ecological Concepts; Scientific Names; Using the VMS (2.5 hours synchronous)

Pre-class assignment: Reading

In class: Ecology presentation, with interactive group discussions and activities; overview of scientific classification and naming, Overview of how to use the VMS, the importance of documenting activities, and how to get help with the system.

Post-class assignments: Log on to the VMS, edit your profile to have your complete and current contact information. Look outdoors for an example of an ecological interaction between two species and document it in your field notebook.

Class 4: Weather & Climate; Risk Management (0.5 hours asynchronous; 2.5 hours synchronous)

Pre-class assignments: Reading

Asynchronous learning: Watch risk management video

In class: Presentation on basic principles of weather; presentation on basics of climate, how it is changing, and how that change is impacting Virginia; discussion of risk management scenarios

Post-class assignment: Identify potential risks of a volunteer activity and appropriate precautions to take. Look into a volunteer activity that relates to weather or climate (e.g., Nature's Notebook, King Tide measurements, CoCoRaHS, etc.)

Class 5: Plants (Botany) (2 hours synchronous)

Pre-class assignment: read VMN botany publication and the botany primer from the USA National Phenology Network

In class: Debrief of basic botany from the readings, hands-on practice looking at the parts of a plant, practice distinguishing plant families, basic keying skills, using Newcomb's guide, using the Flora of Virginia app.

Post-class assignment: Find a plant and identify it as best you can, using whatever guides are available. Sketch and describe it in your field notebook.

Class 6: Trees (Dendrology), Forest Ecology and Management (0.5 hour asynchronous, 2 hours synchronous)

Pre-class assignment: read Forests of Virginia publication

Asynchronous learning: Watch Forest Ecology and Management videos

In class: Presentation on basic tree identification, practice keying using the Flora of Virginia app, the VTree app or Virginia Tech dendrology website, or other tools. Debrief information from forest ecology videos.

Post-class assignment: Identify a tree using the VDOF guide to Virginia's native trees, the VTree app, or other tools. Describe its leaves, twigs, bark, and growth structure in your field notebook.

Class 7: Aquatic Ecology and Management, Fish, Wetlands (1 hour asynchronous, 2 hours synchronous)

Pre-class assignment: Read Aquatic Ecology "most recommended" readings, read VMN Ichthyology publication, read Selected Freshwater Fish families publication

Asynchronous learning: Watch Aquatic Ecology videos

In class: Debrief of aquatic ecology and ichthyology material. Do Exploring Virginia's Watersheds or A Snapshot in Time activity from online curriculum. Practice fish ID from images. Presentation on wetland ecology and management

Post-class assignment: Respond to or do written and/or practical assessment questions from Aquatic Ecology curriculum and Ichthyology publication.

Class 8: Urban and Developed Systems Ecology and Management; Coastal & Estuarine Ecology and Management (1.5 hours asynchronous, 2 hours synchronous)

Pre-class assignment: Read one of the recommended Urban Systems readings, read one of the Coastal & Estuarine Systems recommended readings,

Asynchronous learning: Watch Urban Systems videos; watch Coastal & Estuarine Ecology and Management videos

In class: Review material from the Urban Systems videos through interaction discussion, do role playing activity from curriculum. Review material from Coastal & Estuarine Systems videos, do "What's for Lunch" activity.

Post-class assignment: Respond to or do written and/or practical assessment questions from curriculum.

Class 9: Mammals and Birds (3 hours synchronous)

Pre-class assignment: Read VMN Mammalogy publication, read Birding Basics from DWR.

In class: Presentation on mammals of the local area, practice skull ID with photos or samples, practice track ID. Presentation on birds, practice bird ID from photos and sounds.
Post-class assignment: Make a bird observation and post it to eBird.

Class 10: Reptiles & Amphibians (2 hours synchronous)

Pre-class assignment: Read Frog Biodiversity & Conservation, Salamander Biodiversity & Conservation; Turtle Biodiversity & Conservation; Managing Human Wildlife Interactions: Snakes. Look through animal pages on Virginia Herpetological Society website.

In class: Debrief background information on herps, practice using keys for identification, review the calls of common frogs in the region.

Post-class assignment: Respond to a journal prompt related to herpetology.

Class 11: Insects (2 hours synchronous)

Pre-class assignment: Read Aquatic Insect Biodiversity and Conservation

In class: Presentation on insects, practice keying insects to order, discuss other invertebrates as time allows.

Post-class assignment: Make an insect observation, identify it to order, post on iNaturalist. Distribute take-home, open book final assessments, if using.

Class 12: Citizen Science and Research Skills; Interpretation and Teaching Skills; Civil Rights Responsibilities (1 hour asynchronous, 2 hours synchronous)

Pre-class assignment: Watch Citizen Science and Research Skills videos and read “most recommended readings”; watch civil rights responsibilities video; read interpretation publication.

In class: Debrief of citizen science and research skills material; presentation on interpretation and teaching skills with hands-on practice; debrief of civil rights responsibilities; discussion on inclusive practices and engaging with diverse audiences.

Assignment: Plan a 15 minute interpretive talk, choosing your audience, theme, location, main points, props, etc. Give your talk to another person in the class and get peer feedback.

Field Study Sessions

- **Plants, plant communities, forests.** Visit location(s) to see forest management practices. Practice using keys to identify trees and other plants. (2.5 hours)
- **Wildlife observation and monitoring.** Visit location(s) where wildlife may be observed and where wildlife-related projects may be done. Practice skills such as use of binoculars, documenting observations in field notebooks, using field guides, reporting observations to eBird and iNaturalist, VBWT Adopt-a-Trail project, etc.(2.5 hours)
- **Water quality monitoring, watersheds, stormwater.** Visit aquatic site(s). Practice collecting samples for water quality monitoring. Visit sites to see stormwater mitigation projects such as riparian buffers. (2.5 hours)
- **Stewardship-focused field session.** Visit site(s) of stewardship projects to discuss principles of trail building, habitat restoration, pollinator plantings, etc. Practice

stewardship-related skills such as tree planting, identifying site characteristics before a habitat restoration, identifying and managing invasive plants. (2.5 hours)

Class 13: Graduation (1 hour synchronous)

Pre-class assignment: Complete evaluations

In-class: Review any final assessments, debrief/discuss evaluations, graduation ceremony. Have trainees identify volunteer interests and make plans to complete their 40 hours of service.

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