

Nature's Notebook in the University-Level Course



What is *Nature's Notebook*?

Nature's Notebook is a national **professional program**, sponsored by the **USA National Phenology Network** (USA-NPN). It is focused on the timing of plant and animal life cycle events (**phenology**), and is a great tool for holistically engaging college-level students in ecology and understanding species response to change (especially climate). This phenology data are used by researchers to better understand how things are changing related to a changing climate and in support of management decisions regarding allergies, wildfires, water, and conservation.

The purpose of the *Nature's Notebook* program is to create a long-term, standardized data set of phenology observations.

Similarly, *Nature's Notebook* is most successful when used by multiple university courses through time because it allows students to see and analyze changes happening on their campus.

How can *Nature's Notebook* enhance your course?

Science Questions

Nature's Notebook provides an opportunity for students to experientially develop their own research questions, grounded in place. Use *Nature's Notebook* to create a long-term class project. Develop research questions to better understand plant bloom times, plant pollinator interactions,

effects of irrigation in plant life cycles, and create comparisons between your campus site and others. Local data that is collected is as valuable to the broader USA-NPN research goals as it is to the classroom participants.

Data Collection

Moreover, long term datasets can be valuable to your course and campus as well as the *Nature's Notebook* data set. Data can immediately be viewed and compared to others made locally and nationwide.

Data Analysis

Nature's Notebook is a real-world scientific research program with over three-million records representing hundreds of species are already available for download. Your students can conduct basic analyses of the changes recorded through time using programs such as first leaf for multiple species. Data for *Nature's Notebook* are collected using rigorous protocols. The USA-NPN also curates phenology data sets collected using alternative protocols.

Nature's Notebook can be used as an outreach component for engagement with other university programs, the surrounding community, and local schools. Consider talking to local community organizations for partnership ideas.

Students in my classes benefit from the outstanding opportunity *Nature's Notebook* provides to share their data on plant and animal life cycles with a national audience.

- Dr. Heidi Steltzer, Fort Lewis College, Durango, CO



How much time will this project take?

Many university-level faculty choose to use phenology as a lens to teach topics such as ecology, basic research, biology, data analysis, pre-service teacher training, water harvesting, land management and beyond. Depending upon your course goals you may choose to do an introduction to the topic during a lecture session and encourage students to collect observation data throughout the semester at a pre-established local site. Students can analyze their results and make year-to-year comparisons as well as compare their results those collected by students in other courses.

What do I have to do?

1. Create a *Nature's Notebook* account. Details on www.usanpn.org/nn/guidelines.
2. Create a shared campus site in *Nature's Notebook* to which students can contribute data and you can track who is participating. More information can be found at www.usanpn.org/shared_sites Select a species to monitor. Email groups@usanpn.org to get started.
3. Review *Nature's Notebook* community **implementation guides** on www.usanpn.org/nn/connect/trails.
4. Join our **Phenology Education Community of Practice** by emailing education@usanpn.org!

naturesnotebook.org

For information on how to get stated with *Nature's Notebook*, contact the USA-NPN's Education Coordinator (education@usanpn.org)

