

**St. Olaf College OLE Core General Education Curriculum
Natural Science Requirement**

Description:

Using scientific paradigms and methods, students will learn about and develop skills to lead a meaningful and responsible life in the natural world that all inhabit. This course engages students in observation, measurement, experimentation, and the interpretation and analysis of data.

Intended Learning Outcomes:

Students will:

1. Demonstrate knowledge of content or principles within the natural sciences.
2. Generate and/or test hypotheses using data about the natural world.
3. Communicate ideas and claims using scientific knowledge and data.
4. Integrate scientific knowledge within a context of broader understanding.

Course Guidelines:

1. Demonstrate knowledge of content or principles within the natural sciences.

Natural science courses support meaningful and responsible living by promoting scientific literacy. These courses develop an understanding of a specific disciplinary or interdisciplinary field within the natural sciences. Students should demonstrate understanding that the nature of science involves subjecting ideas, theories, and hypotheses to experimental tests. Students should also demonstrate an understanding that scientific knowledge is the product of an evolving consensus.

2. Generate and/or test hypotheses using data about the natural world.

Students should have an opportunity to engage regularly with scientific methods. Methods will vary by discipline and topic, but all students should use data to test hypotheses or identify patterns that generate new hypotheses. Data may be obtained from a variety of methods, including observation, measurement, experimentation, or acquisition of existing datasets. Testing hypotheses includes critically examining the scope and limitations of the hypothesis itself as well as the methods used to test it. Natural science courses shall include a significant experiential component that allows students to meet these goals. While a dedicated lab section is a practical way to achieve this component; this objective can be met through other formats.

3. Communicate ideas and claims using scientific knowledge and data.

Students should demonstrate an ability to accurately communicate scientific ideas. This means that students should be able to use scientific language appropriately to describe and interpret data, and to think coherently about science. The form of communication depends on the course and activity; some examples include: composing a lab notebook, discussing an investigation with peers or in relation to published literature, reading and responding to scientific writing in popular media, or giving oral or poster presentations. In any format, the communication may rely on graphical and other visual evidence.

4. Integrate scientific knowledge within a context of broader understanding.

Students should engage in structured opportunities to analyze or apply their learning. Students should consider the aims and limits of natural science as a way of knowing (what it can and cannot do) and/or the relationship between course content and an issue, topic, or personal experience. These activities can help students to connect their science learning with their ideas about a meaningful and responsible life in the natural world that we all inhabit. Reflection could be one effective tool for achieving these goals.