

General Education Section B Student Learning Outcomes (Approved 3/11/2022)

4. Mathematics/Quantitative Reasoning (B4)

Goal: Students will gain competence in mathematical reasoning necessary for informed judgment and decision making.

Student Learning Outcomes

Students will:

1. Represent, understand, and explain mathematical information symbolically, graphically, numerically, and with spoken or signed language.
2. Develop mathematical models of real-world situations and explain the assumptions and limitations of those models.
3. Use models to make predictions, draw conclusions, check whether the results are reasonable, and find optimal results using technology when necessary and appropriate.
4. Demonstrate an understanding of the nature of mathematical reasoning, including the ability to prove simple results and/or make statistical inferences.

Subject Explorations

5. Scientific Inquiry (Sections B1-3)

Goal: Students will develop basic knowledge and learn key principles in the natural sciences, including an understanding of the methods of scientific inquiry as applied in the natural sciences through laboratory, activity and/or field-based study.

Student Learning Outcomes

Physical Science (B1)

1. Students will demonstrate an understanding of basic knowledge, principles and/or laws in the physical sciences.

Plus, at least one of the following:

2. Explain how the scientific method can be used to obtain new data and advance knowledge.
3. Demonstrate an understanding of the logical foundations, limits, and/or potential contributions of scientific endeavors in human society and everyday life.
4. Demonstrate an understanding of the value systems and ethics associated with scientific inquiry.

Life Science (B2)

1. Students will demonstrate an understanding of basic knowledge, principles and/or laws in the life sciences.

Plus, at least one of the following:

2. Explain how the scientific method can be used to obtain new data and advance knowledge.
3. Demonstrate an understanding of the logical foundations, limits, and/or potential contributions of scientific endeavors in human society and everyday life.
4. Demonstrate an understanding of the value systems and ethics associated with scientific inquiry.

Science Laboratory Activity (B3)

In conjunction with a Physical Science (B1) or Life Science (B2) course, students will:

1. Practice skills and techniques used to obtain data and test hypotheses in the physical or life sciences.

6. Upper Division Scientific Inquiry and Quantitative Reasoning (B5)

Goal: Students will synthesize, analyze, evaluate, and communicate their knowledge of physical science, life science, or mathematical/quantitative reasoning through assignments and projects in the upper division.

Upper Division Scientific Inquiry and Quantitative Reasoning (B5) courses incorporate at least two of the student learning outcomes from one of the following subareas: Physical Science (B1), Life Science (B2), or Mathematics/Quantitative Reasoning (B4).

Physical Science (B1)

1. Students will demonstrate an understanding of basic knowledge, principles and/or laws in the physical sciences.

Plus, at least one of the following:

2. Explain how the scientific method can be used to obtain new data and advance knowledge.
3. Demonstrate an understanding of the logical foundations, limits, and/or potential contributions of scientific endeavors in human society and everyday life.
4. Demonstrate an understanding of the value systems and ethics associated with scientific inquiry.

Life Science (B2)

1. Students will demonstrate an understanding of basic knowledge, principles and/or laws in the life sciences.

Plus, at least one of the following:

2. Explain how the scientific method can be used to obtain new data and advance knowledge.
3. Demonstrate an understanding of the logical foundations, limits, and/or potential contributions of scientific endeavors in human society and everyday life.
4. Demonstrate an understanding of the value systems and ethics associated with scientific inquiry.

Mathematics/Quantitative Reasoning (B4)

Students will:

1. Represent, understand, and explain mathematical information symbolically, graphically, numerically, and with spoken or signed language.
2. Develop mathematical models of real-world situations and explain the assumptions and limitations of those models.
3. Use models to make predictions, draw conclusions, check whether the results are reasonable, and find optimal results using technology when necessary and appropriate.
4. Demonstrate an understanding of the nature of mathematical reasoning, including the ability to prove simple results and/or make statistical inferences.