SUNY Cortland Program Assessment Plan BIO major

Part 1: Student Learning Outcomes

I. Conceptual Knowledge/Content

Be able to demonstrate understanding of fundamental biological concepts. These key conceptual areas include: (A) cell biology, (B) genetics/molecular biology, (C) biological organization, form, and function of organisms, and (D) ecology and evolutionary biology.

II. Scientific Process

Apply the process of scientific inquiry, formulation and testing of scientific hypotheses, and development of experimental protocols to address biological problems.

Use quantitative reasoning (e.g., statistics) to analyze and interpret scientific data, and to formulate appropriate conclusions.

III. Communication

Accurately discuss and communicate biological concepts, research results, and their importance to a variety of audiences.

Demonstrate effective writing skills that can be applied to both technical and general purposes.

IV. Critical Thinking

Evaluate the validity of claims from an evidence based perspective by reviewing, synthesizing, and critiquing scientific literature.

Part 2: Curriculum Map

See attached

Part 3: Key Assessments

Biology field test (seniors, covers outcomes 1 a, b, c and d)
See assessment cycle plan below for key assessments of each learning outcome

Part 4: Assessment Cycle

- Year 1: measure SLO 1 a, b, c and d

Utilize one Introductory level assessment (ex. Final exam for 201 or 202) and one Mastery level (Emphasis level) assessment (ex. Field test) to mix cohorts of students.

Fall semester plan: Bio 201 and 202 final exams for introductory level SLO Ia, b, c, d
BIO 210 final exam for emphasis/mastery of Ia

Spring semester plan: BIO 312 final exam for emphasis/mastery Ib and Ic, BIO 412 midterm exam for emphasis/mastery of Id. Select Field test students by those with (maximum) one transfer course in the core curriculum. Prepare rubrics for fall assessments SLO II and III in year 2.

- Year 2: Measure SLO II a, IIb, partial III, make recommendations to improve SLO 1 data

IIa and III plan: Grades from lab reports from inquiry based exercises in BIO 210 and BIO 312 (rubric for grading that includes SLO II and III), BIO 319 exam for emphasis/mastery (SLOII and III also covered)

IIb plan: BIO 201 and 202 lab reports with introductory statistical analysis (Introductory level assessment), BIO 412 lab course final exam Spring semester (Mastery/emphasis level assessment)

- Year 3: measure remaining outcomes SLO III (?) and IV, implement outcome 1 improvements, make recommendations to improve SLO II data

SLO IIIb- Mastery assessment via WI requirement across multiple courses outside the core? (Micro, ornithology…TBD)
SLO IV assessment with BIO 201 ME? BIO 319 PR?

Year 4-6: repeat cycle of years 1-3