Biology Education

Major Field Assessment

**Mission Statement:** The College of Arts and Sciences offers a variety of programs and courses leading to many successful careers. Computer technology is integrated throughout all majors. The College offers the vast majority of the general education courses that serve as background for all degrees. Faculty in the arts, English, and social sciences are principally located in Beadle Hall. Math and science faculty are located in the C. Ruth Habeger Science Center. The clinical faculty in Respiratory Care are located at McKennan and Sioux Valley Hospitals in Sioux Falls and Rapid City Regional Hospital in Rapid City. The disciplines within the College of Arts and Sciences are Academic Skills, Art, Art Design, Biology, Chemistry, Computer Graphics, Digital Arts, English, Geography, History, Mass Communication, Mathematics, Music, Philosophy, Physics, Physical Science, Respiratory Care, Scientific Forensic Technology, Sociology, Spanish, Speech, Theatre, and Web Design.

**Biology Education Goal Statement:** Graduates of the program will have the biological, pedagogical, and technological knowledge and skills to teach at the middle and secondary school levels.

**Biology Education graduates will:**

**Goal 1. Have the content knowledge to teach biology at the middle and high school levels.**

a. Graduates will understand the important concepts and methods of the major disciplines within biology.

1) **Course Grades:** 80% of graduates will successfully complete upper division coursework in biology with a minimum grade of C in each course.

2) **Minimum GPA in Major Field:** 100% will have a min. GPA of 2.6 in biology courses.

3) **Student Teacher Assessment Form:** 100% will score at or above the Proficient Level in the Knowledge category.

4) **Praxis II Content Exam (Exam 0061):** 90% will score at or above the SD state standard for certification as a biology teacher in the state of SD on the first attempt (at least 124 out of 200).

5) **Exit Interview:** 90% of graduates will indicate that they are satisfied that they have the content knowledge to teach biology at the high school level.
Goal 2. Students will be able to use their knowledge of concepts in biology to solve problems.

a. Students will understand the process of science including the basic steps of the scientific method and use this ability to conduct research in biology.

1) Basic Course: 80% of freshman declared majors will demonstrate basic performance using the scientific method to design an experiment.

2) Upper Level Course: 90% of junior/senior majors will demonstrate proficiency in using the scientific method for a class assignment in SCTC 303 Introduction to Biological Instrumentation.

3) Capstone Course: 100% of graduates will demonstrate mastery of the methods of scientific inquiry through the completion and presentation of the project fulfilling the requirements for BIOL 498: Undergraduate Research/Scholarship.

b. Graduates will think logically and be experienced problem solvers.

1) Portfolio: 80% of graduates will demonstrate proficiency through portfolio artifacts that emphasize problem solving skills in biology.

2) Exit Interview: 90% will indicate that they are satisfied with their problem solving skills.

3) Employer Survey: 90% of employers will be satisfied with graduate’s ability to solve problems. (Average of questions 8 and 9)

Goal 3. Have the pedagogical knowledge and skills to teach biology at the middle and high school levels.

a. Graduates will have the pedagogical knowledge to be high school or middle school biology teachers.

1) Course Grades: 100% of graduates will successfully complete COE coursework with a minimum grade of C in each course.

2) Minimum GPA in Education Course Work: 100% of graduates will have a min. GPA of 2.6 in educational courses.

3) Student Teacher Assessment Form: 100% of graduates will score at or above the Proficient Level in the Instruction and Assessment category.
4) Praxis Pedagogy Exam (Praxis II PLT Exam): 90% of graduates will score at or above the Proficient Level in the Instruction and Assessment category.

5) Exit Interview: 90% of graduates will indicate that they are satisfied that they have the pedagogical knowledge and skills to teach at the high school level.

b. Graduates will be prepared to manage their own classroom.

1) Student Teaching Assessment Form: 100% will score at or above the Proficient Level in the Managing the Environment category.

2) Course Grades: At least 50% of the graduates will take Seed 471 (an optional course) and earn a course grade of B or better.

Goal 4. **Have a high degree of proficiency in the use of computer technology.**

a. Students will be proficient users of computer technology to find information, acquire and analyze data, and communicate results and conclusions.

1) Technology-imbedded course: 80% of graduates will successfully complete SCTC 303 Introduction to Biological Instrumentation with a minimum grade of C for the course.

2) Undergraduate Research: 100% will demonstrate proficient use of computer technology in their project.

3) DSU Technology Exam: 90% of graduates will score above one standard deviation below the mean for the DSU campus.

4) Exit Interview: 95% of graduates will indicate that the biology education program provided good to excellent preparation in the use of computer technology.

b. Graduates will be able to successfully use technology in the classroom, including the ability to teach in a laptop environment.

1) Exit Interview: 90% of graduates will indicate that they are satisfied that they have the technology skills and computer knowledge to teach in a laptop school.

2) Graduate Survey: 90% of graduates will be satisfied with their technology preparation in the program. (Average of questions 1 and 4)

3) Employer Survey: 90% of employers will be satisfied with the technology preparation of the graduate. (Average of questions 1 through 3)
Goal 5. Graduates will be able to communicate effectively for a wide range of purposes and intended audiences.

a. Graduates can effectively communicate information in writing.
   1) Undergraduate Research: 100% of graduates will demonstrate proficient scientific writing in the final paper required for completion of BIOL 498 Undergraduate Research.
   2) Graduate Survey: 90% of graduates will indicate that they are satisfied with their written communication skills. (Question 5)
   3) Employer Survey: 90% of employers will indicate that the graduate has adequate to very good writing skills as they relate to the graduate’s position. (Question 4)

b. Graduates are effective speakers communicating information to a variety of audiences.
   1) Undergraduate Research: 100% will demonstrate proficiency in effective oral communication with the final presentation required for completion of BIOL 498: Undergraduate Research/Scholarship.
   2) Exit Interview: 90% of graduates will be satisfied with their ability to be effective speakers communicating information to a variety of audiences.
   3) Graduate Survey: 90% of graduates will be satisfied with their oral communication skills. (Question 6)
   4) Employer Survey: 90% of employers will be satisfied with the oral communication skills of the graduate. (Question 5)

c. Graduates are effective online communicators
   1) Portfolio: 100% of graduates will complete the college of education’s electronic portfolio at an acceptable level.
   2) Exit Interview: 90% of graduates will be satisfied with their ability to communicate online.

d. Graduates have solid social skills.
   1) Graduate Survey: 90% of graduates will be satisfied with their interpersonal skills. (Question 8)
   2) Employer Survey: 90% of employers will be satisfied with the interpersonal skills of graduates from the program. (Question 7)