



**Biological and Environmental Technician (B.E.T.)  
Associate of Science (A.A.S.)  
Certificate of Applied Science (CAS)  
Program Level Assessment Plan  
January 5, 2017**

**Biological and Environmental Technician A.A.S. and CAS Mission Statement**

The goal of Eastern West Virginia Community and Technical College in developing the biological and environmental technology AAS and CAS programs is to meet the needs of the employers in its service area. It will provide students with the skills and knowledge for entry level environmental technology-related careers. Graduates of this program will be qualified for employment as biological technicians, environmental technicians and GIS technicians. The program supports the mission by addressing the expressed need for trained professionals for the sampling and monitoring of the environment and provides training to upgrade employee skills.

The program provides:

- Graduates to meet current and projected regional employment needs for entry-level environmental technology related fields.
- Provide workers with credentials for new employment opportunities.

**Biological and Environmental Technician C.A.S. Program Outcomes**

- Communicate technical information accurately and effectively in oral, written, visual, and electronic forms.
- Use global positioning systems (G.P.S.) and geographic information systems (G.I.S) to collect, map and analyze biological and environmental data.
- Use biologic knowledge and identification skills to aid in the use of practical and ethical biological surveys.
- Complete assigned tasks in adherence to occupational health and safety standards and applicable legislative requirements.

**Biological and Environmental Technician A.A.S. Program Outcomes**

Title: Biological and Environmental Technology, AAS Program Level Assessment Plan  
Proposal Prepared by: A. M. Oliverio  
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Approved by Curriculum Committee: 2-10-17  
Approved by LOT: 2-13-17

- Follow standard procedures for conducting biological and environmental sampling projects while focused on quality control and assurance.
- Use biologic knowledge and identification skills to aid in the use of practical and ethical biological surveys.
- Collect representative samples and perform routine tests using current and relevant tools
- Complete assigned tasks in adherence to occupational health and safety standards and applicable legislative requirements
- Carry out work responsibilities adhering to standards of professional conduct and principles of professional ethics.
- Communicate technical information accurately and effectively in oral, written, visual, and electronic forms
- Assist with analysis of water/soil/air samples with the application of scientific and engineering principles
- Use scientific concepts and models when contributing to the prevention, control, and elimination of environmental hazards of remediation of contaminated sites
- Promote and maintain sustainable practices applying the elements of an ecosystem-based environment
- Develop and present strategies for ongoing personal and professional development to enhance performance as a biological and environmental technician
- Use global positioning systems (G.P.S.) and geographic information systems (G.I.S) to collect, map and analyze biological and environmental data.

### **Assessment of Biological and Environmental Technician A.A.S. Goals and Outcomes**

Targeted Program Courses:

ELM 100 Occupational Safety & Health

CIS 160 Introduction to Geographic Information Systems and Data Collection

BET 200 Field Biology I

BET 240 Soil and Water Conservation

The following assessment instruments and standards will be used to discern student academic achievement and course effectiveness in meeting program goals and course outcomes.

- **Completion Rate/course level:** At least 75% of students enrolling in biological and environmental technician courses will successfully complete the course(s). This will be determined at the end of each semester based on final grades. Beginning in fall 2017, completion rates for ELM 100 Occupational Safety & Health, CIS 160 Introduction to Geographic Information Systems and Data

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Collection, BET 200 Field Biology and BET 240 Soil and Water Conservation will be targeted. At least 75% of the students will demonstrate mastery of the course outcomes by earning at least a 70% average in each course through a variety of classroom assessments. Courses to be assessed in subsequent semesters will be determined based on program implementation schedule.

- **Drop Rate:** For spring 2018, the drop rate for CIS 160 Introduction to Geographic Information Systems and Data Collection will not exceed 30%.
- **Course-level effectiveness:** Course outcomes for targeted BET courses will be assessed on a cyclical basis over a three-year period. At least four outcomes from two courses will be assessed annually. Exam questions linked to course learning outcomes are included in the final examinations. Students' performance in answering these questions will be analyzed across sections and semesters. For fall 2017 ELM 100 Occupational Safety & Health will be the targeted course. Courses to be assessed in subsequent semesters will be determined based on the part-time evening program implementation schedule.
- **Graduation Rate:** At least 75% of students enrolling in the B.E.T CAS will successfully complete the Certificate Program within 3 years. This will be measured by the number of graduates from the program. At least 75% of students enrolling in the B.E.T. A.A.S will successfully complete the degree within 4 years.
- **Syllabus Analysis:** Syllabus analysis will be conducted on an annual basis to assure consistency of outcomes with the Mater Course Record Forms and among section of specific courses.
- **Transcript Analysis:** Transcript analysis will be conducted as triggered by deficiencies in course level assessment activities.
- **Advisory Committee Review:** Annual advisory committee review will provide qualitative evaluation of program effectiveness in meeting regional employment needs.
- **Enrollment Patterns:** Enrollment trends will be monitored. Shifts in target courses and number of majors will trigger detailed assessment review as defined in above items. Courses to be assessed will be determined based on the Program Implementation schedule.
- **Course evaluation surveys** are used as indirect assessment measures of student success and satisfaction. Survey questions provide self-reports of learning

acquired through course completion, understanding of intended course learning outcomes, satisfaction with instruction, and course effectiveness.

### **Data Collection**

Multiple methods will be used to collect appropriate data to assess student learning and success. Primary data will be analyzed to determine course level effectiveness. A secondary analysis of student records will be conducted to track student success, engagement and goal attainment. Student records selected for the secondary analysis include enrollment patterns in paraprofessional in education, course grades, drop rates, and certificate, or job attainment.

Target outcomes will be identified for evaluation over a three year cycle. Standard exam questions will be administered across multiple sections of target courses.

A secondary analysis of course evaluation will be conducted to address students' perceptions of success and satisfaction. Self-reports will provide a qualitative perspective of the students' "lived experience" in targeted program courses.

### **Data Analysis and Recommendations**

The Division Chair for General Studies and the full-time science faculty will prepare an annual assessment report and recommendations. These reports will be provided to the Dean for Teaching and Learning, Assessment Committee and the Learner Outcomes Team (LOT). Reports will address the student outcomes, methods of assessment, results of assessment activities and recommendations.

Assessment reports will be shared with faculty for the B.E.T. Courses. The faculty and the advisory committee will be convened to determine need for programmatic change or course revision.

### **Effectiveness of Assessment Plan**

As this program grows, additional methods of assessment will be added to determine student success and effectiveness of the curriculum. The Five Fundamental Question for Conversations on Student Learning (Priddy and Solomon) will serve as prompts for dialog in utilization of assessment data for improvement of student learning. As trends in student academic achievement are monitored, need for additional assessment activities or change in focus will become evident by applicability of results in curriculum revision.

The five Fundamental Questions for Conversation on Student Learning (Priddy and Solomon)

1. How are state students' learning outcomes appropriate to your mission, programs and degrees?
2. What evidence do you have that students achieve your stated learning outcomes?
3. In what ways do you analyze and use evidence of student learning?
4. How do you ensure shared responsibility for assessment of student learning? How do you evaluate and improve the effectiveness of assessment of student learning efforts.

**See Attachments for Program Matrix**